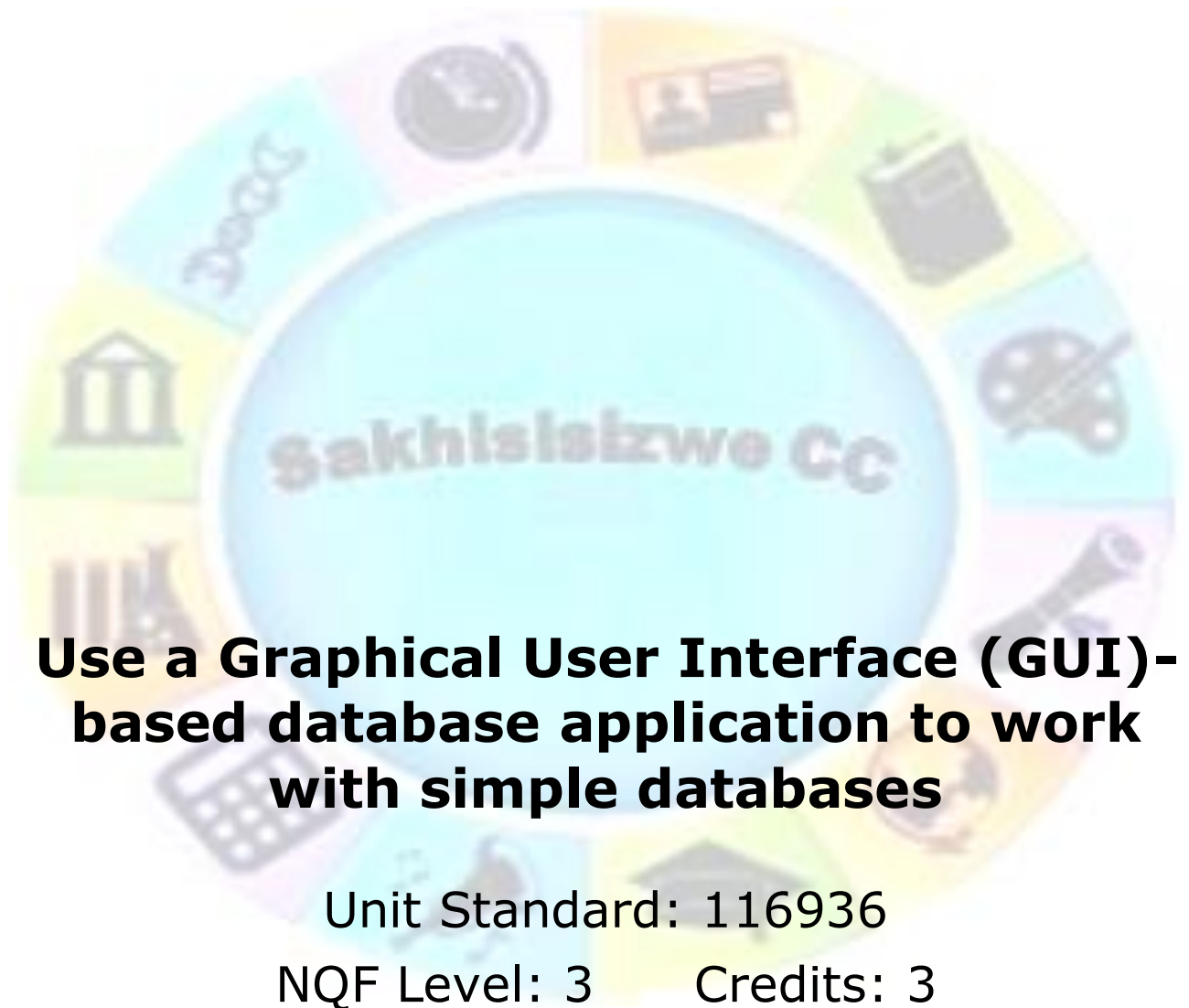


LEARNER GUIDE

INTRODUCTION TO MS ACCESS



**Use a Graphical User Interface (GUI)-
based database application to work
with simple databases**

Unit Standard: 116936

NQF Level: 3 Credits: 3

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

TABLE OF CONTENTS

TABLE OF CONTENTS	2
DOCUMENT CHECKLIST.....	5
YOUR ROLE AS FACILITATOR.....	6
Training Venue And Training Aid Compliance	7
The Facilitator Guide	9
Assessment	12
Upon Completion Of The Programme	15
PERSONAL INFORMATION	16
INTRODUCTION	17
Programme methodology	17
What Learning Material you should have	18
Different types of activities you can expect.....	20
Learner Administration	21
Assessments.....	21
Learner Support.....	22
Learner Expectations.....	24
UNIT STANDARD 116936.....	26
SECTION ONE: PRINCIPLES OF DATABASES.....	29
What Is A Database	29
Computerised Databases	29
Database Security	31
Database Terms.....	31
Activity 1.....	35
SECTION TWO: OPEN AND SAVE A DATABASE.....	36
Open Access	36
The Access Window.....	37
Title Bar	37
Ribbon	40
Scroll Bars.....	42
Windows Taskbar	42

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 2

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Status Bar	42
Open A Database.....	42
Create a database	44
Save And Close A Database	46
To close a database.....	46
Activity 2.....	46
SECTION THREE: DATABASE TABLES	47
Create A New Database	47
Design And Plan A Database	47
Create A Table	51
Create a table.....	52
Naming a Table.....	52
Work with tables.....	53
Format a table	54
Change the view	60
Design view	62
Activity 3.....	64
SECTION FOUR: ADD AND EDIT RECORDS.....	67
Work with records.....	67
Add A Record.....	67
Select records.....	69
Delete records	69
Activity 4.....	72
SECTION FIVE: MODIFY THE DESIGN OF A DATABASE TABLE	76
Data Types	76
Setting the Data Type of a Field	76
Data Type Properties	78
Properties	83
Examine field properties	84
The Field Size Property	86
The Caption Property.....	87
The Format Property	88
The name of a property	91

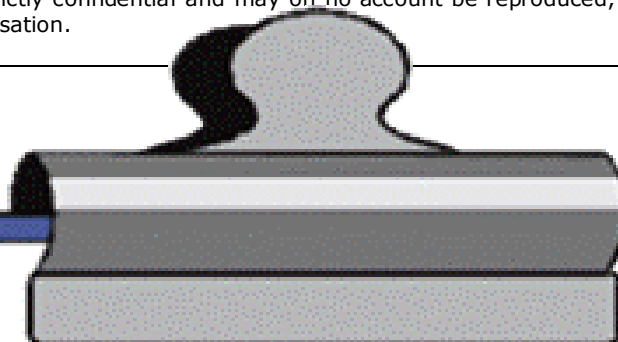
Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 3

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Modify the table	92
Change the Font	92
Change the font size.....	92
Change the font style	92
Change the font colour	93
Change the grid lines of a table	95
Change the background colour	97
Change the text alignment.....	100
Activity 5.....	100
SECTION SIX: SORT AND SEARCH.....	104
Finding and Replacing Data.....	104
Edit Data.....	104
Find Data	104
Replace Data	107
Sorting and Filtering	107
Sorting.....	107
Remove the Sorting	111
Filtering Fields	111
Remove a Filter.....	113
Filtering String-Based Fields.....	114
Activity 6.....	116
SECTION SEVEN: PRINTING FROM A DATABASE	117
Activity 7.....	117
Glossary.....	118

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 4

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



DOCUMENT CHECKLIST

Document	✓ / x
Strategy and alignment Matrix	
Learner Guides	
Learner Formative Assessment Workbooks	
Summative assessment guide	
Facilitator Guide	
Attendance Register	
Name Tags	
Hand-outs	
Course Evaluation Forms for learners	
Course/Venue Evaluation Forms for facilitator	
Additional Material	
Other:	
Acknowledgement of receipt and preparations	
Facilitators Name and Surname	
Facilitators Signature	
Date	

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

YOUR ROLE AS FACILITATOR



You, as facilitator, need to ensure that learners have a thorough understanding of the topic presented. Learners must be able to further learning independently and apply their knowledge and skill in the workplace once they have completed the program.

In order to achieve this, you need to have:

1. **Knowledge of the subject/topic**

- ✓ Understand the requirements of the unit standard
- ✓ Be a Subject Matter Expert (SME) or know more than just the basics about the topic
- ✓ Be able to give examples of how to apply the content in the workplace

2. **Knowledge of the workplace**

- ✓ Be able to indicate how learners can/should apply their knowledge and skill in the workplace

3. **Knowledge of the course content**

- ✓ Be familiar with the material, layout and content of the course.
- ✓ Understand the linkage between the different guides and how they should be used.

4. **Knowledge and understanding of the methodology**

- ✓ Familiarise yourself with the content of the assessment guides and documents for this unit standard.
- ✓ Follow the assessment procedure correctly.
- ✓ Familiarise yourself with the preferred methodology that should be used.
- ✓ Prepare yourself accordingly.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 6

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Training Venue And Training Aid Compliance



Ensure that the following is in place:

Facilitator is in possession of:

- ✓ Facilitator Guide,
- ✓ Learner Guide,
- ✓ Assessment Guide
- ✓ Attendance Register for each training day
- ✓ Handouts, if applicable

Learners are in possession of:

- ✓ Learner Guides
- ✓ Assessment Guides

Training Venue contains:

- ✓ Dictionaries, if available
- ✓ A chair for each learner
- ✓ A desk with sufficient seating space for each learner
- ✓ Paper, pens and pencils for all learners
- ✓ A flip chart stand with flip chart sheets
- ✓ A PC for the slide shows
- ✓ Prestik
- ✓ Whiteboard and permanent markers (3 different colours each)
- ✓ Sufficient ventilation or air-conditioning
- ✓ Schedule of training and relaxation times
- ✓ Name tags for each learner
- ✓ List of classroom conduct, including:
 - Smoke breaks

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 7

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- Body breaks
- Cell phone etiquette
- General classroom etiquette



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 8

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

The Facilitator Guide



It guides you through the duration of the Learning Programme;

As a training aid it contains activities that will assist you in transferring the knowledge and skills as stipulated in the SAQA required specific outcomes and assessment criteria

How to use your facilitator guide

The Facilitator Guide contains the essential information to cover the outcomes as stipulated for this Unit Standard. As such, the content of the Learner Guide has to be covered completely. .

This learning programme is divided into sections. Each section is preceded by a description of the required outcomes and assessment criteria as contained in the unit standards specified by the South African Qualifications Authority.

These descriptions will define what the learners have to know and be able to do in order to be awarded the credits attached to this learning programme. These credits are regarded as building blocks towards achieving a National Qualification upon successful assessment.

Programme introduction

The following introductory actions are to be taken upon commencement of the programme:

- ✓ Facilitator him/herself to the learners
- ✓ Let the delegates introduce themselves individually.
- ✓ Give a brief comment after each introduction and welcome the delegate before moving to then next delegate. Give full attention to each delegate as they introduce themselves.
- ✓ Let the participants know what time the breaks are, and for how long. Don't forget lunch time. Tell them where the toilets are and what time you intend to finish.
- ✓ Ensure all administrative tasks such as completion of attendance registers, learner detail forms and the like are completed before the programme commences.

Transition

- ✓ Begin with an appropriate activity, such as an icebreaker, a story or a statement.
- ✓ Ask learners to state their expectations of the course and write them down on a flipchart/whiteboard and put up where visible for duration of course.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 9

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

State course outcomes

- ✓ Go through the objectives and the content before you proceed with your programme.
- ✓ This learning programme forms a part of the National Certificate Business Administration Services Level 4 and introduces a holistic approach to written communication as an introduction to the Secretarial qualification.

Group and individual activities

A certain level of collective general knowledge can be assumed in any group. Encourage lively discussion in class during group activities. Discussions can take the form of brainstorming if necessary.

Ensure that shy and quiet learners are also drawn into the discussion, as learners will have to learn to start thinking for themselves and taking control of the learning process in order to achieve all the outcomes.

All the conclusions made during group activities have to be noted down by learners in order to achieve all the outcomes. Their notes will form part of formative and summative assessments

Teamwork is important in all the unit standards. Divide the learners into groups and make it clear to them that they have to stay in these groups for the duration of the qualification. They have to learn to cope with conflict and with each other even if they do not get along together, since they will not have any say as to who they will be working with when they find themselves in a working environment.

Timelines



SAQA US ID	UNIT STANDARD TITLE		
116936	Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Institutional Learning Duration	Structured Workplace Learning Duration	NQF LEVEL	CREDITS
9 Hours	21 Hours	Level 3	3

Course content

The course content covers all the basics required for learners to achieve the outcomes, however, at times there is information that learners will have to obtain by themselves.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 10

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

To this end, a glossary is also not included in the course material. It is expected of learners to compile their own glossaries, which will form part of outcomes for communication unit standards. Please encourage them to start compiling glossaries as soon as possible. The glossaries can be simple: they need only quote the word and the meaning, as long as they understand what it means.

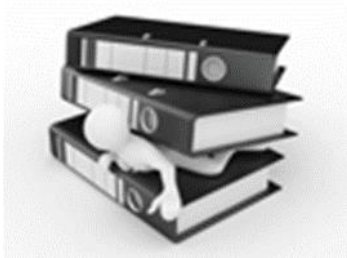
Learners are required to start thinking for themselves and take control of the learning process as soon as possible. To this end, research projects will form part of some assessments.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 11

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Class Activities



During and after the initial training the learner will be required to complete a number of class activities. These activities will be both individual and group activities. The activities are numbered and are to be included in the learner's portfolio of evidence. These activities will measure the progress of the learner through the programme. For authenticity reasons these activities must be handwritten, unless indicated otherwise.

Assessment



The process of assessment of competency should be explained in detail to learners upon commencement of course. The following statements should be made:

Attending the training is not sufficient evidence of competence to award a certificate and the credits attached to this programme. Learners are required to undergo assessment in order to prove competence in order to be awarded the credits attached to this programme, eventually leading to a national qualification.

Explain the concept 'Competence'

Competence is the ability to perform whole work roles, to the standards expected in employment, in a real working environment.

There are three levels of competence:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 12

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- ✓ **Foundational competence:** an understanding of what you do and why
- ✓ **Practical competence:** the ability to perform a set of tasks in an authentic context
- ✓ **Reflexive competence:** the ability to adapt to changed circumstances appropriately and responsibly, and to explain the reason behind the action

Generally speaking, in the past, education and training institutions became accustomed to awarding certificates based on the amount of time spent in a classroom or training room. In addition, learners were assessed by means of an examination that tested memory as opposed to actual competence. This meant that many learners were awarded certificates and even whole qualifications without ever having to demonstrate that they were able to practically apply their knowledge and skills.

Now, based on the principles of the National Qualifications Framework, in order for the learners to receive a certificate of competence and be awarded credits, they are required to provide evidence of their competence by compiling a portfolio of evidence, which will be assessed by a Stanford Business College assessor.

Explain the concept ‘Portfolio of Evidence’

A portfolio of evidence is a structured collection of evidence that proves the learner’s efforts, progress and achievement in a specific learning area, and demonstrates competence.

Explain the assessment process

Assessment of competence is a process of making judgments about an individual's competence through matching evidence collected to the appropriate national standards. That is why the evidence in the learner’s portfolio should be closely linked to the outcomes and assessment criteria of the unit standards against which the learners are being assessed.

Ideally, formative assessments should minimise the need for re-assessment as the assessor and the candidate will agree to a summative assessment only when they both feel the candidate is ready.

However, candidates who are deemed not yet competent on a summative assessment will be allowed to be re-assessed no more than two times.

When learners have to undergo re-assessment, the following conditions will apply:

- ✓ Specific feedback will be given so that candidates can concentrate on only those areas in which they were assessed as not yet competent
- ✓ Re-assessment will take place in the same situation or context and under the same conditions as the original assessment
- ✓ Only the specific outcomes that were not achieved will be re-assessed

Candidates who are repeatedly unsuccessful will be given guidance on other possible and more suitable learning avenues.

In order for the assessor to assess competence, the portfolio should provide evidence of both knowledge and skills, and of how knowledge and skills were applied in a variety of contexts.

This Candidate’s Assessment Portfolio directs the learner in the activities that need to be completed so that competence can be assessed and the credits attached to the programme be awarded.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 13

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

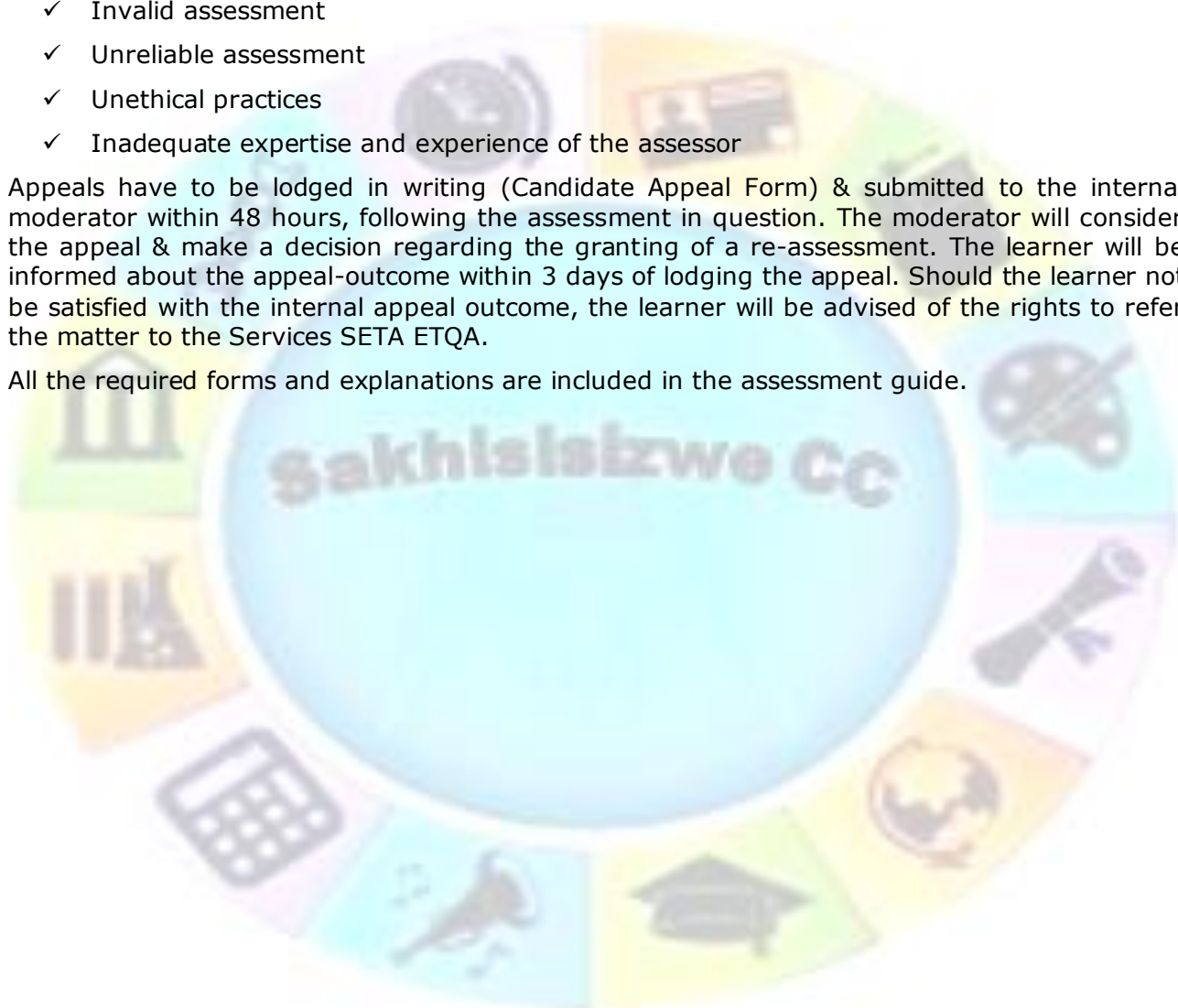
- ✓ The assessment requirements for this programme are stated at the beginning of each section.

The right of the candidate to appeal against assessment decisions or practices they regard as unfair. An Appeals and Disputes procedure is in place and communicated to all assessment candidates prior to assessment in order for them to appeal on the basis of:

- ✓ Unfair assessment
- ✓ Invalid assessment
- ✓ Unreliable assessment
- ✓ Unethical practices
- ✓ Inadequate expertise and experience of the assessor

Appeals have to be lodged in writing (Candidate Appeal Form) & submitted to the internal moderator within 48 hours, following the assessment in question. The moderator will consider the appeal & make a decision regarding the granting of a re-assessment. The learner will be informed about the appeal-outcome within 3 days of lodging the appeal. Should the learner not be satisfied with the internal appeal outcome, the learner will be advised of the rights to refer the matter to the Services SETA ETQA.

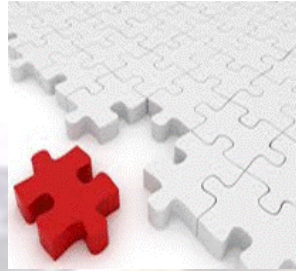
All the required forms and explanations are included in the assessment guide.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 14

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Upon Completion Of The Programme



The facilitator should:

- ✓ Ensure that all learners have completed all Learner Administration documentation, including the Learner Evaluation (of the Facilitator) forms
- ✓ All attendance registers have been completed correctly
- ✓ All Learners are in possession of a:
 - Learner Guide
 - Assessment Guide
 - Clear Instructions as to the subsequent activities leading to assessment, moderation and certification



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 15

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

PERSONAL INFORMATION

<i>NAME</i>	
<i>CONTACT ADDRESS</i>	
<i>Code</i>	
<i>Telephone (H)</i>	
<i>Telephone (W)</i>	
<i>Cellular</i>	
<i>Learner Number</i>	
<i>Identity Number</i>	

<i>EMPLOYER</i>	
<i>EMPLOYER CONTACT ADDRESS</i>	
<i>Code</i>	
<i>Supervisor Name</i>	
<i>Supervisor Contact Address</i>	
<i>Code</i>	
<i>Telephone (H)</i>	
<i>Telephone (W)</i>	
<i>Cellular</i>	

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 16

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

INTRODUCTION

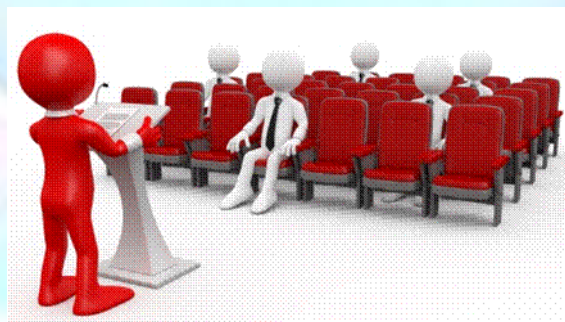
Welcome to the learning programme

Follow along in the guide as the training practitioner takes you through the material. Make notes and sketches that will help you to understand and remember what you have learnt. Take notes and share information with your colleagues. Important and relevant information and skills are transferred by sharing!



This learning programme is divided into sections. Each section is preceded by a description of the required outcomes and assessment criteria as contained in the unit standards specified by the South African Qualifications Authority. These descriptions will define what you have to know and be able to do in order to be awarded the credits attached to this learning programme. These credits are regarded as building blocks towards achieving a National Qualification upon successful assessment and can never be taken away from you!

Programme methodology



The programme methodology includes facilitator presentations, readings, individual activities, group discussions and skill application exercises.

Know what you want to get out of the programme from the beginning and start applying your new skills immediately. Participate as much as possible so that the learning will be interactive and stimulating.

The following principles were applied in designing the course:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 17

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- ✓ Because the course is designed to maximise interactive learning, you are encouraged and required to participate fully during the group exercises
- ✓ As a learner you will be presented with numerous problems and will be required to fully apply your mind to finding solutions to problems before being presented with the course presenter's solutions to the problems
- ✓ Through participation and interaction the learners can learn as much from each other as they do from the course presenter
- ✓ Although learners attending the course may have varied degrees of experience in the subject matter, the course is designed to ensure that all delegates complete the course with the same level of understanding
- ✓ Because reflection forms an important component of adult learning, some learning resources will be followed by a self-assessment which is designed so that the learner will reflect on the material just completed.

This approach to course construction will ensure that learners first apply their minds to finding solutions to problems before the answers are provided, which will then maximise the learning process which is further strengthened by reflecting on the material covered by means of the self-assessments.


Different role players in delivery process

- ✓ Learner
- ✓ Facilitator
- ✓ Assessor
- ✓ Moderator

What Learning Material you should have

This learning material has also been designed to provide the learner with a comprehensive reference guide.


It is important that you take responsibility for your own learning process; this includes taking care of your learner material. You should at all times have the following material with you:

<p><i>Learner Guide</i></p> 	<p><i>This learner guide is your valuable possession:</i></p> <p>This is your textbook and reference material, which provides you with all the information you will require to meet the exit level outcomes.</p> <p>During contact sessions, your facilitator will use this guide and will facilitate the learning process. During contact sessions a variety of activities will assist you to gain knowledge and skills.</p> <p>Follow along in the guide as the training practitioner takes you through the material. Make notes and sketches that will help you to understand and remember what you have</p>
--	--

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 18

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

	<p>learnt. Take and share information with your colleagues. Important and relevant information and skills are transferred by sharing!</p> <p>This learning programme is divided into sections. Each section is preceded by a description of the required outcomes and assessment criteria as contained in the unit standards specified by the South African Qualifications Authority. These descriptions will define what you have to know and be able to do in order to be awarded the credits attached to this learning programme. These credits are regarded as building blocks towards achieving a National Qualification upon successful assessment and can never be taken away from you!</p>
<p>Formative Assessment Workbook</p> 	<p>The Formative Assessment Workbook supports the Learner Guide and assists you in applying what you have learnt.</p> <p>The formative assessment workbook contains classroom activities that you have to complete in the classroom, during contact sessions either in groups or individually.</p> <p>You are required to complete all activities in the Formative Assessment Workbook.</p> <p>The facilitator will assist, lead and coach you through the process.</p> <p>These activities ensure that you understand the content of the material and that you get an opportunity to test your understanding.</p>

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 19




This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Different types of activities you can expect

To accommodate your learning preferences, a variety of different types of activities are included in the formative and summative assessments. They will assist you to achieve the outcomes (correct results) and should guide you through the learning process, making learning a positive and pleasant experience.



The table below provides you with more information related to the types of activities.

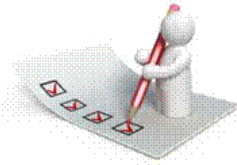
<i>Types of Activities</i>	<i>Description</i>	<i>Purpose</i>
<i>Knowledge Activities</i> 	You are required to complete these activities on your own.	These activities normally test your understanding and ability to apply the information.
<i>Skills Application Activities</i> 	You need to complete these activities in the workplace	These activities require you to apply the knowledge and skills gained in the workplace
<i>Natural Occurring Evidence</i> 	You need to collect information and samples of documents from the workplace.	These activities ensure you get the opportunity to learn from experts in the industry. Collecting examples demonstrates how to implement knowledge and skills in a practical way

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 20

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Learner Administration



Attendance Register

You are required to sign the Attendance Register every day you attend training sessions facilitated by a facilitator.

Programme Evaluation Form

On completion you will be supplied with a "Learning programme Evaluation Form". You are required to evaluate your experience in attending the programme.

Please complete the form at the end of the programme, as this will assist us in improving our service and programme material. Your assistance is highly appreciated.

Assessments

The only way to establish whether a learner is competent and has accomplished the specific outcomes is through the assessment process. Assessment involves collecting and interpreting evidence about the learners' ability to perform a task.

To qualify and receive credits towards your qualification, a registered Assessor will conduct an evaluation and assessment of your portfolio of evidence and competency.

This programme has been aligned to registered unit standards. You will be assessed against the outcomes as stipulated in the unit standard by completing assessments and by compiling a portfolio of evidence that provides proof of your ability to apply the learning to your work situation.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 21

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

How will Assessments commence?

Formative Assessments

The assessment process is easy to follow. You will be guided by the Facilitator. Your responsibility is to complete all the activities in the Formative Assessment Workbook and submit it to your facilitator.

Summative Assessments

You will be required to complete a series of summative assessments. The Summative Assessment Guide will assist you in identifying the evidence required for final assessment purposes. You will be required to complete these activities on your own time, using real life projects in your workplace or business environment in preparing evidence for your Portfolio of Evidence. Your Facilitator will provide more details in this regard.

To qualify and receive credits towards your qualification, a registered Assessor will conduct an evaluation and assessment of your portfolio of evidence and competency.

Learner Support

The responsibility of learning rests with you, so be proactive and ask questions and seek assistance and help from your facilitator, if required.



Please remember that this Skills Programme is based on outcomes based education principles which implies the following:

- ✓ You are responsible for your own learning – make sure you manage your study, research and workplace time effectively.
- ✓ Learning activities are learner driven – make sure you use the Learner Guide and Formative Assessment Workbook in the manner intended, and are familiar with the workplace requirements.
- ✓ The Facilitator is there to reasonably assist you during contact, practical and workplace time for this programme – make sure that you have his/her contact details.
- ✓ You are responsible for the safekeeping of your completed Formative Assessment Workbook and Workplace Guide
- ✓ If you need assistance please contact your facilitator who will gladly assist you.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 22

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- ✓ If you have any special needs please inform the facilitator



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 23

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Learner Expectations

Please prepare the following information. You will then be asked to introduce yourself to the instructor as well as your fellow learners



Your name:
The organisation you represent:
Your position in organisation:
What do you hope to achieve by attending this course / what are your course expectations?

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 24

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 25

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

UNIT STANDARD 116936

Unit Standard

Use a Graphical User Interface (GUI)-based database application to work with simple databases

NQF Level

3

Credits

3

Purpose

This unit standard is intended for people who need to create and edit simple databases using a Graphical User Interface (GUI)-based database application either as a user of computers or as basic knowledge for a career in the ICT industry

People credited with this unit standard are able to:

- ✓ Understand the principles of databases
- ✓ Open and save a simple existing database
- ✓ Produce and edit a simple database from given specifications
- ✓ Data is entered into a simple database table from given specifications
- ✓ Modify the design of a database table
- ✓ Sort and search for records in a database table
- ✓ Print from a simple database

Learning assumed to be in place

The credit value of this unit standard is calculated assuming a person has the prior knowledge and skills to:

- ✓ Read, write, communicate and comprehend at least at GET level
- ✓ Operate a personal computer system
- ✓ Use generic functions in a Graphical User Interface (GUI)-environment.
- ✓ Use a GUI-based spreadsheet application to solve a given problem

Specific Outcomes and Assessment Criteria

Specific Outcome 1: Understand the principles of databases

Assessment Criteria

- ✓ Database is defined in terms of its purpose and use

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 26

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- ✓ Examples of uses of databases are provided: At least three examples
- ✓ Concepts of databases are described in terms of their purpose and relation to the database as a whole.

Specific Outcome 2 Open and save a simple existing database

Assessment Criteria

- ✓ The database application program is opened
- ✓ The parts of the database application window are described in terms of their features and use: All of: Menu Bar, Toolbar, Status Bar, scroll bar, Object Bar
- ✓ An existing database is opened
- ✓ Data is entered into an existing database table: At least 5 records are entered
- ✓ Saving a database is explained in terms of its purpose and the destination of the saved file
- ✓ The database is closed
- ✓ The database application program is closed

Specific Outcome 3: Produce and edit a simple database table from given specifications: At least 5 fields

Assessment Criteria

- ✓ A database table is created with the required format from a given specification: Data types to include at least: text, numeric, date, currency
- ✓ The database table is saved with a descriptive name
- ✓ The name of the new database table and database must allow the database table and database to be easily identified in terms of its purpose and content
- ✓ A column is moved within the database table
- ✓ Column widths of columns in the database table are changed: At least 2 columns
- ✓ The database table is saved and closed
- ✓ A database table is deleted

Specific Outcome 4: Data is entered into a simple database table from given specifications: At least 5 fields

Assessment Criteria

- ✓ A new record is added to the database table: At least 2 records are added
- ✓ Data in the database table is modified: At least 3 records are modified
- ✓ Data in the database table is deleted
- ✓ A record is deleted from the database table

Specific Outcome 5: Modify the design of a database table

Assessment Criteria

- ✓ An existing database table is opened in design view

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 27

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- ✓ The consequences of changing a field size are discussed
- ✓ Field formats are modified: Field size, Number field, Date field
- ✓ A field is moved in the database table
- ✓ A new field is added to the database table.
- ✓ A field is deleted from the database table
- ✓ The consequences of the changes made are explained and corrected if necessary: Type conversions

Specific Outcome 6: Sort and search for records in a database table

Assessment Criteria

- ✓ records in database table is sorted according to one field: Ascending, descending
- ✓ A record is located in a database table, by searching for specific data within the table

Specific Outcome 7: Print from a simple database

Assessment Criteria

- ✓ A database table layout is printed
- ✓ The data in a database table is printed: All, selection

Critical Cross-field Outcomes (CCFO)

- ✓ Identify and solve problems in which responses display that decisions using critical and creative thinking have been made
- ✓ Organise and manage oneself and one`s activities responsibly and effectively
- ✓ Collect, analyse, organise, and critically evaluate information
- ✓ Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion when engaging with the subject.
- ✓ Use science and technology effectively and critically, showing responsibility towards the environment and health of others.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 28

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

SECTION ONE: PRINCIPLES OF DATABASES

Specific Outcome

Understand the principles of databases

Assessment Criteria

On completion of this section you will be able to ensure that:

- ✓ Database is defined in terms of its purpose and use
- ✓ Examples of uses of databases are provided: At least three examples
- ✓ Concepts of databases are described in terms of their purpose and relation to the database as a whole: Field, Record, Table, Index, Field Property, Data type

What Is A Database

A database is a collection of objects that allow you to store data, organise it and retrieve it in any way you want.

Another way to explain a database:

A database is a collection of information that has been organised so that the information is easy to access and display in different ways. Databases are used everywhere: at work, in the home, in schools, and leisure facilities.

Real world database examples are a telephone directory, an encyclopaedia, or even a library.

MS Access is a Database Management System. It handles data management tasks the same way as MS Word handles document management and MS Excel handles statistics ...

What this means is that, with Microsoft Access

- ✓ you create structures called **tables** that allow you to organise the data so that it's easy to find later,
- ✓ you create **forms** that let you input the data into the tables and then
- ✓ you create **reports** that print selected information from the tables.

For example, if you run a store, you would create a **Customers** table, a **Products** table and an **Invoices** table. Then, when you open an account for a new customer you would have a **Customer form** to input a customer's data into the Customers table and an **Order form** to input the purchase information. Later, you could print any number of **Sales reports**, grouping and arranging the information from the Invoices, Customers and Products tables to analyse daily or weekly or monthly sales in all kinds of combinations.

Computerised Databases

The advantage of any database is that information is easy to find because it is well organised. If the database is computerised, then information retrieval is faster and more accurate still.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 29

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

More importantly, it is possible to manipulate the information in the database in different ways. A paper database can only be viewed in one way - the way it was printed. In a computer database, information can be re-sorted and filtered to display different views of the data. For example, with a computer telephone directory, you could easily create a list of the telephone numbers of people in your street.

The main disadvantage of a computerised database is that designing and creating an efficient database takes time. Also, a database has to be maintained carefully, to ensure that it is used properly and that the data stored is accurate.

The following are examples of computerised databases:

- ✓ **Microsoft Access**
- ✓ OpenOffice.org Base ("Base" for short) Released under the terms of the GNU Lesser General Public Licence, Base is free software
- ✓ The Oracle Database (commonly referred to as Oracle RDBMS or simply as Oracle) is a relational database management system (RDBMS) produced and marketed by Oracle Corporation
- ✓ Quattro Pro is a spreadsheet program developed by Borland and now sold by Corel, most often as part of Corel's WordPerfect Office.
- ✓ Lotus Approach is a relational database management system included in IBM's Lotus SmartSuite for Microsoft Windows.
- ✓ Paradox is a relational database management system currently published by Corel Corporation
- ✓ CSQL is an open source main memory high-performance relational database management system developed @ sourceforge.net. It performs 30X faster than other open source DBMS
- ✓ OpenBase SQL is a relational database server software, originally developed for the OpenStep platform. First released in 1991, OpenBase is available today for several platforms, although the bulk of its users are on Mac OS X

Over the years general-purpose database systems have dominated the database industry. These offer a wide range of functions, applicable to many, if not most circumstances in modern data processing. We will discuss two types that are commonly used:

Operational database

These databases store detailed data needed to support the operations of an entire organization. They are also called subject-area databases (SADB), transaction databases, and production databases. For example:

- ✓ customer database
- ✓ personal database
- ✓ inventory database
- ✓ accounting database

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 30

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Analytical database

Analytic databases are usually static, read-only databases which are used to store archived, historical data analysis. For example, a company might store sales records over the last ten years in an analytic database and use that database to analyse marketing strategies in relationship to demographics.

On the web, you will often see analytic databases in the form of inventory catalogues such as the one from Amazon.com. An inventory catalogue analytical database usually holds descriptive information about all available products in the inventory.

Databases and spread sheets

A database and spreadsheet can both be used to store and present data. For example, in a spreadsheet you can enter data into a list, with structures much like that of a database application.

However, a dedicated database application is much better at storing a very large amount of data. Also, databases have sophisticated tools for ensuring the **integrity** of data as it is entered and to keep it **securely**, for **retrieving** data quickly, based on specified criteria, and for **presenting** data in different ways.

It is common practice to use a spreadsheet to **import** data from a database to analyse it or perform calculations.

Database Security

Database security consists of the system, processes, and procedures that protect a database from unintended activity. This is usually done through access control, auditing, and encryption:

- ✓ Access control ensures and restricts who can connect and what they can do to the database.
- ✓ Auditing logs what action or change has been performed, when and by whom.
- ✓ Encryption: many commercial databases include built-in encryption mechanisms to encode data natively into tables and to decipher information "on the fly" when a query comes in.

Database Terms

The following terms are used to speak about databases.

Database

A database is a collection of objects used for storing and managing information.

In Access, a database is stored on disk in an .MDB



file. The MDB file saves the

database objects and the data they contain.

SALES

Object

An **object** (in Access) means a database component, such as a **table, query, form, or report**.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 31

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Table

Tables

A table is the place in the database where data is stored.

A table consists of one or more **fields**, which define what information is kept for each record. Fields are represented by **columns** and each field must have a unique **name**.

A **record** represents one entry in the database - the collection of fields make up the information you want to store about the "thing" the record represents. Each record is a **row** in the table.

In the example, the table is storing information about the products a company sells. You can see fields for an **ID** number, **Category**, the name of the **Product**, the **Amount** for each unit of the **Product**, the **Price** per unit, and the **Stock Level**. Each product sold by the company has a record in the table.

ID	Category	Product	Amount	Price	Stock Level
C21815	Cheeses	1/2 Mature Cheddar (Pilgrims)	Per kilo	£7.05	2
C21816	Cheeses	1/2 Wheel Large English Stilton	Per kilo	£8.95	
C21817	Fruit & Veg	1/2gl Florida Cocktail	1/2 gallon	£8.05	2
C21818	Fruit & Veg	1/2gl Fresh Fruit Salad	1/2 gallon	£8.20	
C21819	Fruit & Veg	1/2gl Fresh Grapefruit Segments	1/2 gallon	£9.05	6
C21820	Fruit & Veg	1/2gl Fresh Orange Segments	1/2 gallon	£9.70	2
C21821	Fruit & Veg	1/2gl Tropical Fruit Salad	1/2 gallon	£10.35	1
C21823	Cheeses	1/4 Wheel English Stilton	Per kilo	£9.55	2
C21824	Fruit & Veg	1gl Diced Apple (Skin On)	1 gallon	£10.40	2
C21825	Fruit & Veg	1gl Diced Fresh Melon	1 gallon	£14.40	1
C21826	Fruit & Veg	1gl Florida Cocktail Salad	1 gallon	£16.50	
C21827	Fruit & Veg	1gl Fresh Apple 'Batons'	1 gallon	£12.65	
C21828	Fruit & Veg	1gl Fresh Grapefruit Segments	1 gallon	£20.20	12
C21829	Fruit & Veg	1gl Fresh Orange Segments	1 gallon	£17.65	1
C21830	Fruit & Veg	1gl Grapefruit & Orange Segments	1 gallon	£19.20	3
C21831	Fruit & Veg	1gl Tropical Fruit Salad	1 gallon	£19.15	1
C21832	Fruit & Veg	1gl Yellow Melon Parisienne	1 gallon	£16.00	2

At its simplest, data in a table is shown as a datasheet.

A table looks similar to a spreadsheet in that it is divided into columns and rows, but its use and structure is different to a spreadsheet. Each column in the datasheet represents a field. Each row in the datasheet is a record.

Form

Forms

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 32

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

A datasheet shows all of the records in a table at once.

A form is a more user-friendly way of presenting data.

A form usually displays data in the table one record at a time, with fields arranged neatly on-screen.

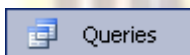
In the example below, you can see all the fields making up the table, whereas with the datasheet you would have to scroll the window to see **Reorder Level** and **Discontinued**.

The screenshot shows a window titled 'Products' with the following fields and values:

ID	21815
Category	Cheeses
Product	1/2 Mature Cheddar (Pilgrims)
Amount	Per kilo
Price	£7.05
Stock Level	24
Reorder Level	5
Discontinued	

At the bottom, there is a 'Record:' label with navigation icons and the number '1'.

Query

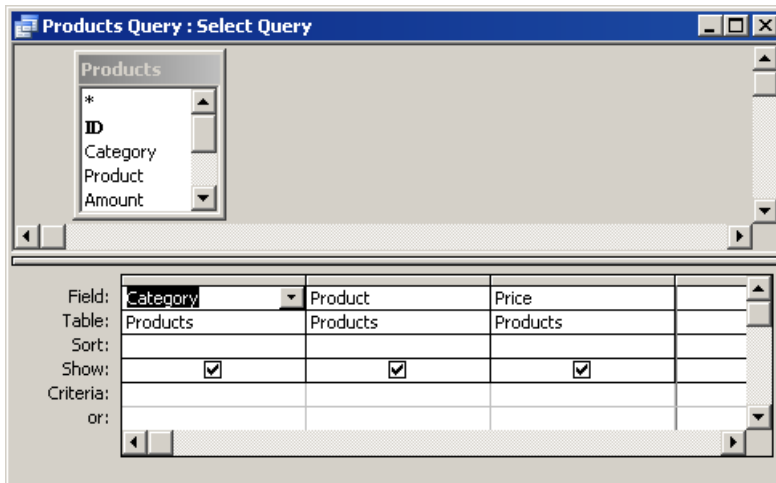


Queries are a tool for selecting and sorting data to make it easier to work with.

For many database operations, you may not want to see all records at the same time, or to analyse data, you may wish to see how many records fit conditions you specify (**criteria**). For example, which products have a price greater than £10.00?

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 33

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



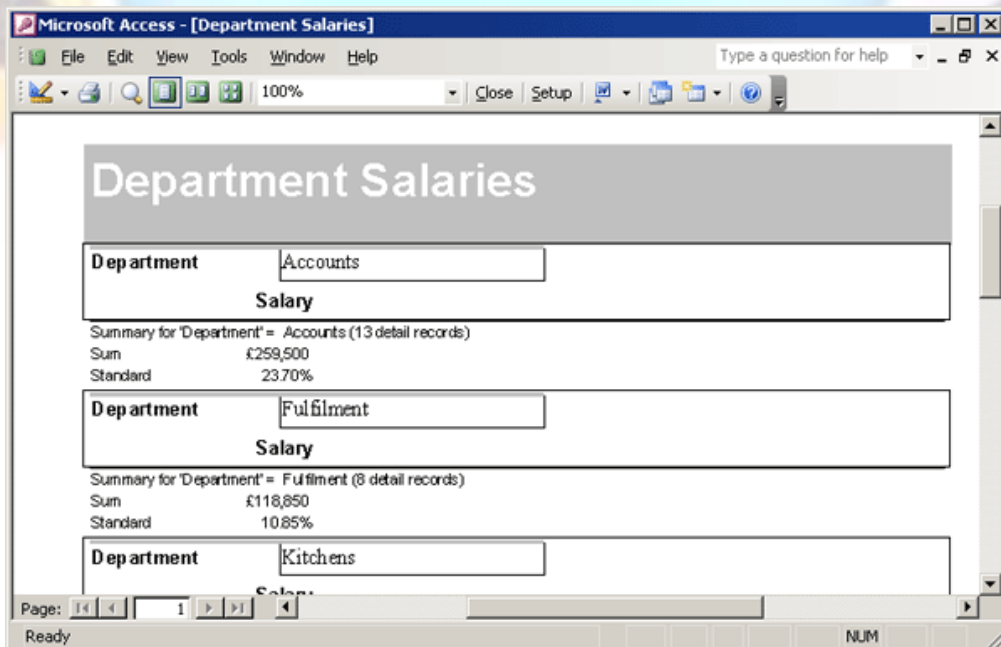
Queries can be used to update and modify data as well as to look at it. You can also use **expressions** in queries to perform calculations on data.

Report

Reports

Tables, queries, and forms can be printed as seen on the screen, but reports allow data to be presented in a more structured format.

Reports based on queries print only the selected fields and records that the query produces. Reports can also include calculations and summaries of the data printed.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 34

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Activity 1

Basic Database Concepts

Answer the following questions:

Explain what a database is and give an example of a database that you use in everyday life

What type of database object would you use to add a record?

How could you display information from just three fields in a database, with records sorted in descending order?

What two advantages do computer databases hold over a paper database?

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 35

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

SECTION TWO: OPEN AND SAVE A DATABASE

Specific Outcome

Open and save a simple existing database

Assessment Criteria

On completion of this section you will be able to ensure that:

- ✓ The database application program is opened
- ✓ The parts of the database application window are described in terms of their features and use. All of: Menu Bar, Toolbar, Status Bar, scroll bar, Object Bar
- ✓ An existing database is opened
- ✓ Data is entered into an existing database table: At least 5 records are entered
- ✓ Saving a database is explained in terms of its purpose and the destination of the saved file
- ✓ The database is closed.
- ✓ The database application program is closed

Open Access

Once Access has been installed on your computer you can start the application by double-clicking the **Access** icon.

OR

- ✓ On the **Taskbar**, click the **Start** button then select the **All Programs** menu item. The **All Programs** submenu is displayed.
- ✓ Click the **Microsoft Office** program item
- ✓ Click the **Microsoft Access** program item

The Microsoft Access window will open on your desktop.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 36

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

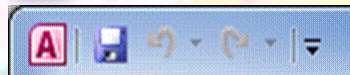
The Access Window

In Access, different objects are opened within their own windows.

Title Bar

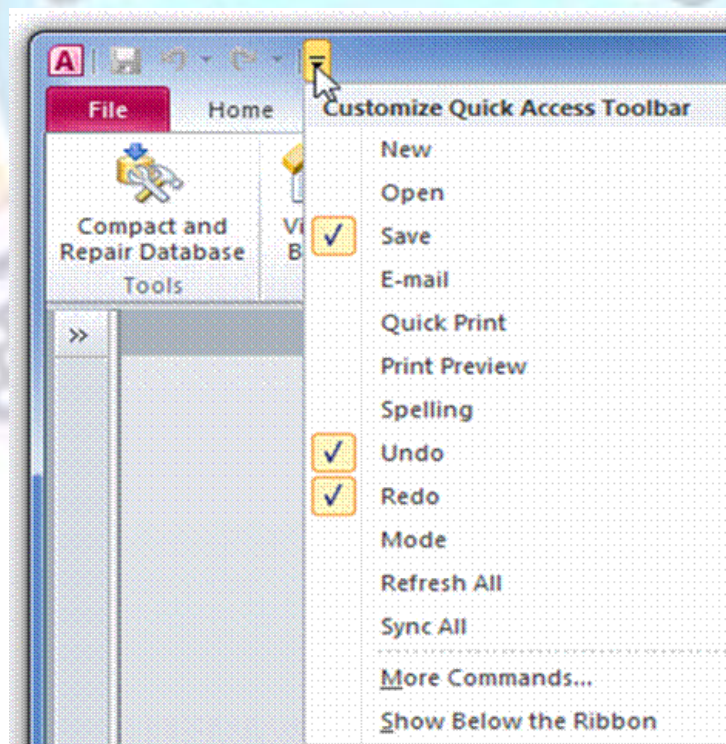
Quick Access Toolbar

The **Access** window contains a **Quick Access toolbar** in the **Title** bar. You will find the Quick Access Toolbar On the left side of the title bar.



By default the Quick Access toolbar contains three buttons: Save, Undo, and Redo. On the right side of the Quick Access toolbar you will find a down-pointing arrow on the **Customise Button**

If no database is opened, this button will be greyed out, meaning it is disabled. When you open a database, you will be able to click on the button for the **Customise Quick Access Toolbar** to appear.



The **Customise Quick Access toolbar** enables you to add or remove buttons:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 37

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- ✓ To add a button to the Quick Access toolbar, click the **Customise** button and click the desired button from the menu.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 38

Compiled by: Sakhisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

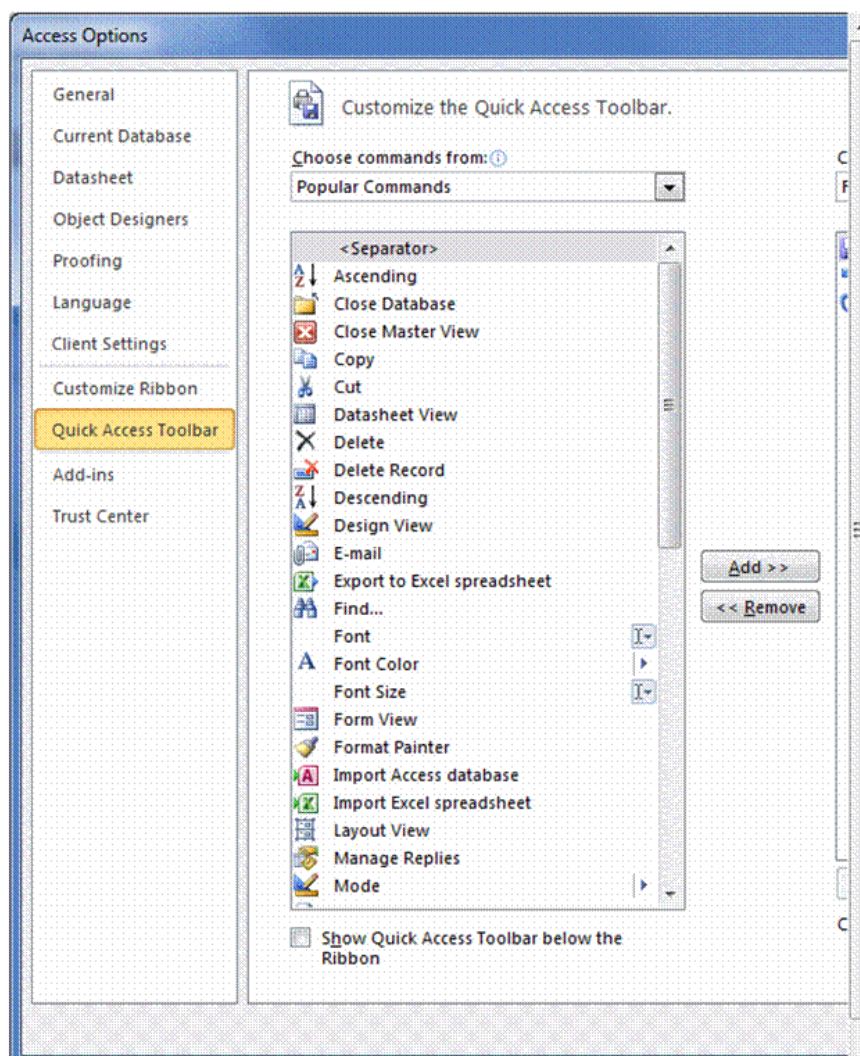
If the available buttons are not enough or if you don't see a button you want:

- ✓ You can click the **More Commands** button

OR

- ✓ You can right-click the **Quick Access toolbar** and click **Customise Quick Access Toolbar**

The **Access Options** dialogue box will display.



- ✓ To add a command, click it in the middle list and click **Add >>**. Once you have selected the desired options, click **OK**.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 39


Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Name of application

The main or middle area of the **Title Bar** shows the name of the application: Microsoft Access.

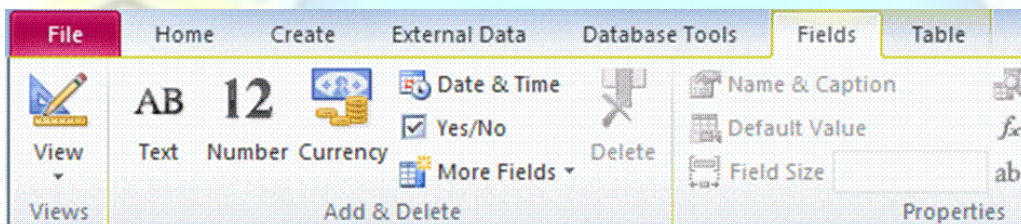
System buttons

On the right side of the title bar, there are three system buttons that allow you to minimise, maximise, restore, or close Microsoft Access.

- ✓ Under the system buttons, there are two other buttons: Minimise the Ribbon  and Help.

Ribbon

Under the title bar, Microsoft Access displays an object named the **Ribbon**. The contents and sections of the **Ribbon** depend on what is currently going on in Microsoft Access:




The Ribbon is a long bar made of various tabs, also called property pages. To identify a tab of the Ribbon, read the caption on its tab.

To access a tab, click its label or button, such as **File**, **Home**, or **Create**

OR

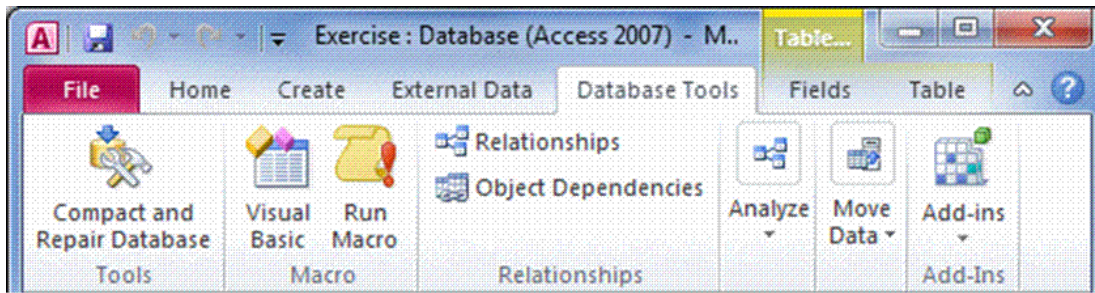
- ✓ Press its corresponding letter on the keyboard. For example, when the access keys display, if you press **H**, the **Home** tab would display

Most tabs of the Ribbon are divided in various sections, and the title for each section is shown on the bottom of the section, for example Views. Properties, Add and Delete

Some sections of the Ribbon display a button . If you see such a button, you can click it. This would open a dialogue box or a window.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 40

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



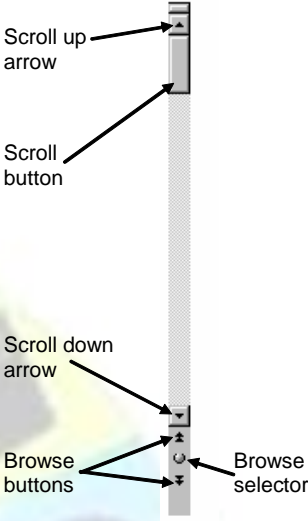
Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 41

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Scroll Bars

Scroll bars are used to view parts of the workbook that are not visible.



Windows Taskbar

This is a part of Windows and displays the buttons of the programs, which have been opened, as well as the time and the Start button.

Status Bar

The Status Bar is situated at the bottom of the screen and shows you what is happening in your database.

You will find these features in all Microsoft applications.

Open A Database

The first tab on the **Ribbon** is the **File** tab. When you click on this tab, a menu with items such as **Save** and **Open** will appear.

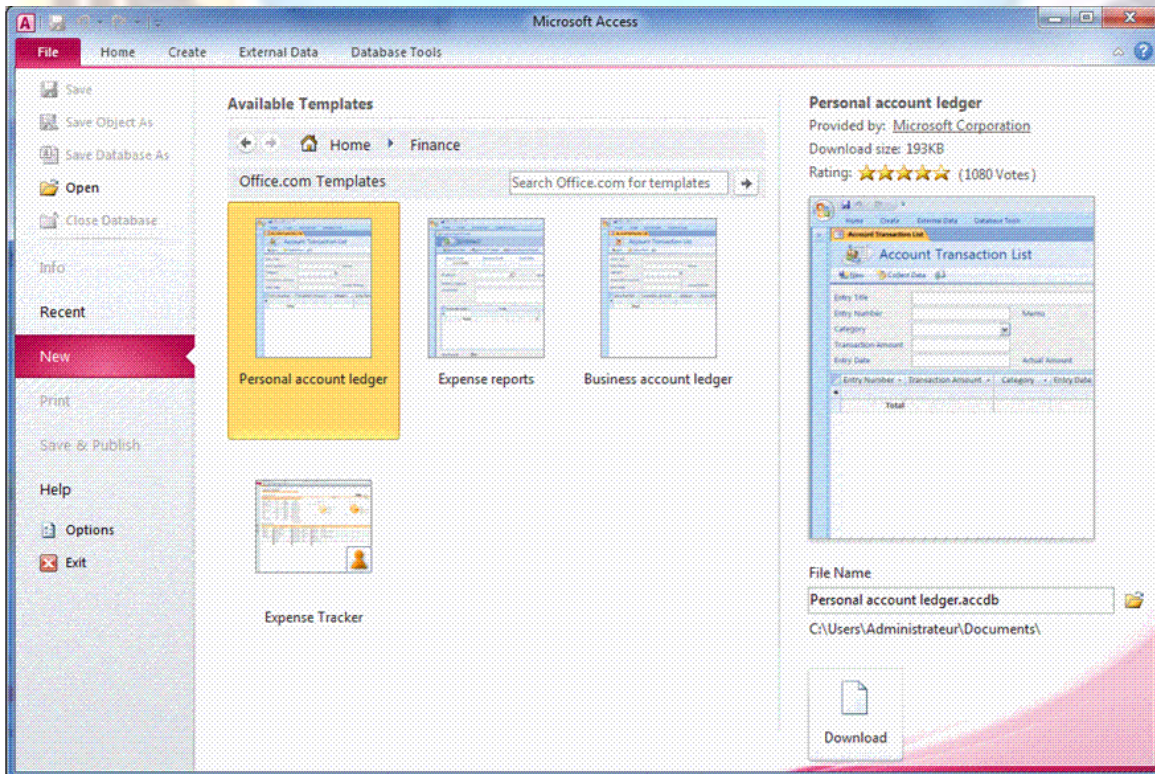
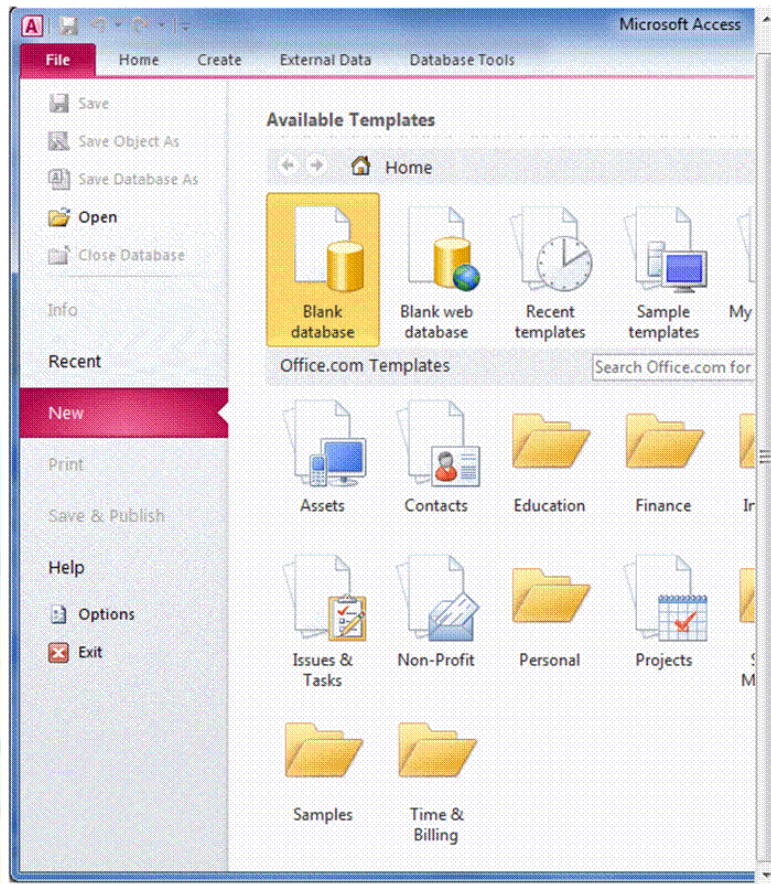
The middle section is made of two parts. The top part displays the **Available Templates** label. Under it, there are categories of sample databases. If you click a category, a list of its related sample databases would display

To return to the previous window, you can click the Back button

Under Available Templates, there is the Office.com Templates section with 5 icons by default that each represents a category. To select a category, click its corresponding icon. A new page would display one or more sample databases:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 42

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



simple

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 43

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

If you see a sample database you like, click it; give it a name, and click Download. The right side is a column with two parts. The top part is used to show a preview depending on what is selected in the middle section. The bottom side allows you to specify a name for a database and to create or download a database.

Create a database

To create a database, under **File**, click **New**. You can then use one of the links in the main (middle) section of the interface:

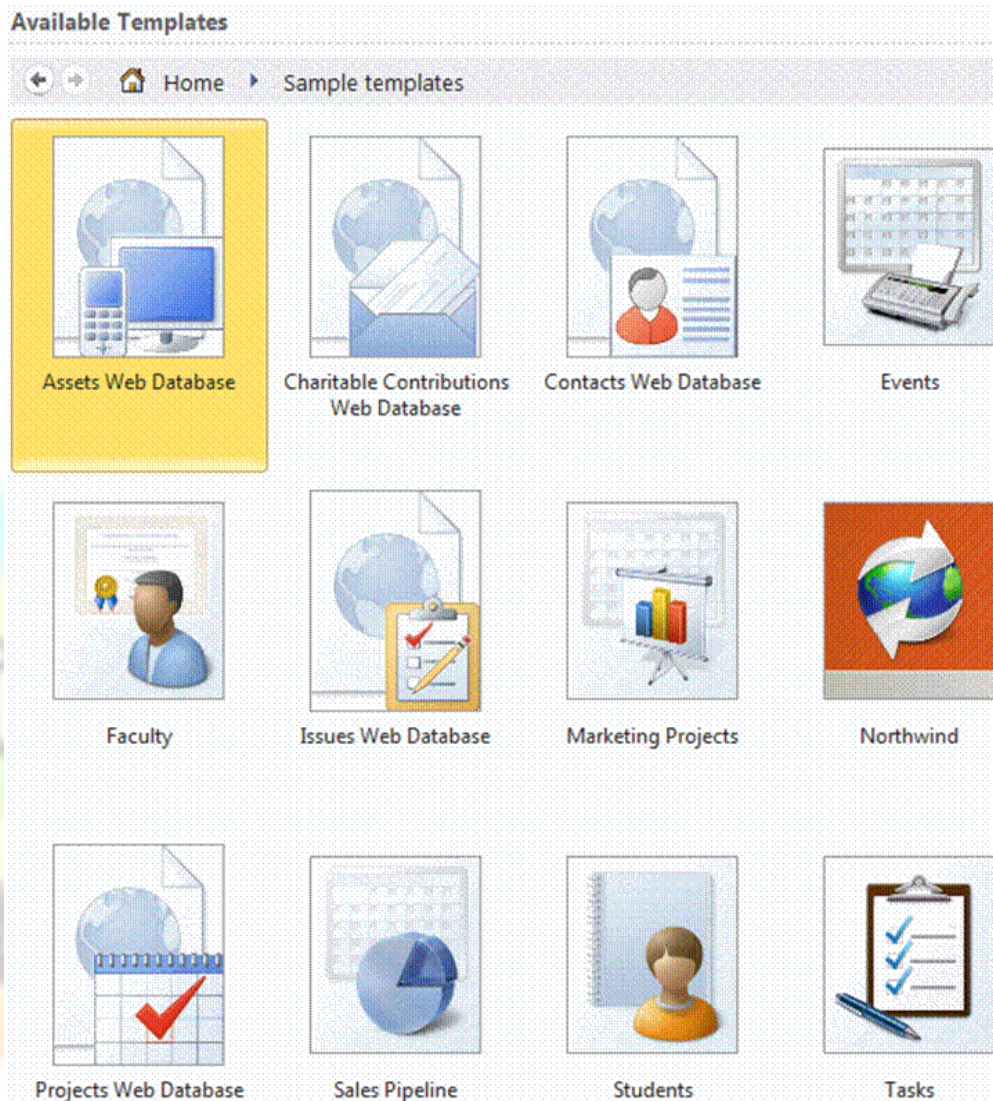
- ✓ To create a blank database, in the middle section, under **Available Templates**, click **Blank Database**
- ✓ To create a database using one of the samples, under **Available Templates**, click a category from one of the buttons, such as **Sample Templates**. Then click the desired buttons:



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 44

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



Change the name of the database

By default, MS Access will always suggest a name for the database

You can accept or change it by using the **File Name** text box. Specify the name of the database and select the location and then click **Create**.

File names cannot include any of the following characters: / \ > < * ? " | : ;

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 45


This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Save And Close A Database

To close a database

- ✓ To close Microsoft Access, you can click **File** and then click **Exit Access**

OR

- ✓ To close Microsoft Access from its title bar, you can click its **Close** button 

Activity 2

- Start Access and create a Blank Access Database and name it World Statistics1
 - ✓ Identify the different screen elements: Title bar, Ribbon, Status Bar
 - ✓ Practise resizing, maximising, and restoring the application and database windows
 - ✓ Close the database
 - ✓ Exit Access by double-clicking the Program Control Icon on the Title bar
- Click File.
 - ✓ To create a new database, in the middle section, click **Sample Templates**
 - ✓ Under Available Templates, click **Marketing Projects**
 - ✓ set the File Name to **Rockville Technologies**
 - ✓ Click **Create**

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 46

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

SECTION THREE: DATABASE TABLES

Specific Outcome

Produce and edit a simple database table from given specifications: At least 5 fields

Assessment Criteria

On completion of this section you will be able to ensure that:

- ✓ A database table is created with the required format from a given specification. Data types to include at least: text, numeric, date, currency
- ✓ The database table is saved with a descriptive name. The name of the new database table and database must allow the database table and database to be easily identified in terms of its purpose and content
- ✓ A column is moved within the database table
- ✓ Column widths of columns in the database table are changed: At least 2 columns
- ✓ The database table is saved and closed
- ✓ A database table is deleted

Create A New Database

Unlike other Office applications, you must **save** the database as a file before you can start working. Once a database file has been created, you then add various objects to it such as tables, forms, reports, and queries.

Design And Plan A Database

Before creating a database, it is very important to plan it carefully. You need to know what information the database will store and analyse how the information stored will be used.

There are four steps in producing and using a database:

- ✓ Define the tables in which to store the data.
- ✓ Add data to the database - usually using a form.
- ✓ Extract information from the database - using a filter or query.
- ✓ Report - present the information in the database effectively.

At each stage of database design, when designing tables, forms, queries and reports, you should ask yourself the following questions:

- ✓ How can I ensure that data is entered quickly and without errors?
- ✓ How can I ensure that information is quick and easy to find?

Designing Database Tables

In a simple database, all data is stored in one **table**. A table consists of fields and records, stored in columns and rows. Each table can be defined with up to 255 fields.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 47

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Many Access databases use more than one table to store data. For example, in a database of customer orders, details about the customers, products, and orders could all be stored in different tables. Storing data in several tables makes the database more flexible and easier to maintain.

This type of database is called a **relational** database, because relationships are created between certain fields in the different tables in order to tie the database together.

Here are a few basic hints and tips about designing database tables.

- ✓ Work out the design carefully and test it before starting to use the database. Think about what information you need to store in order to identify what fields to use for records. Study any existing examples, or similar databases, and get feedback from the people who will use the database.
- ✓ Choose a name for each field. Use names that make it obvious what data the field is storing without being too lengthy.

Some useful conventions to follow when naming fields are to capitalise words and use an underscore or hyphen instead of spaces between words. For example, a field containing a customer's address might be **Customer_Address** or **CustomerAddress**.

- ✓ Choose the data type for each field - see below.
- ✓ Test the design with some "worst case" examples.
- ✓ Decide if fields are missing or if any are not required.

Adding Data to the Database

Once the database structure is in place, you need to enter your data. This is often referred to as **populating** the database. There are basically two ways of doing this:

- ✓ Manually enter data by typing it into a form or datasheet.
- ✓ Import existing data from another file.

Data entry is made more reliable and efficient by designing data entry forms.

Extracting Information from the Database

Once a database has been populated with some data, you will want to put it to work supplying you with information.

Data is extracted using **filters** and **queries**. A filter works in a similar way to the Find tool. It is basically a question asked of the data, such as "How many records with the word "Germany" in the Country field are there?" However, instead of **selecting** the records that match the **criteria**, a filter **hides** any records that do not match. You can apply a filter to any view of data, including datasheets and forms.

A **query** is a sophisticated tool for selecting and displaying records in different ways. In a query, you can specify which fields to display, the sort order of records, and multiple conditions for selecting a record. You can also use queries to perform calculations and summaries.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 48

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Reporting Data

When you have extracted information from the database, you will often want to send it to someone. You can quite easily print what you can see on-screen, but for a professional-looking record you will need to create a **report**.

A report is used for data output in much the same way a form is used for data input. You can select what information to show (often using a **query** to select certain records), perform calculations on the data, and present the data attractively by making good use of fonts and graphics.

Data Types

Before you start defining the fields for your table, you must understand **data types**. Data types determine the type of data allowed in a field. There are ten data types, as described below:

Use	To
Text	Enter text or a combination of text and numbers. You can enter up to 255 characters. You cannot perform calculations on numbers stored in a text field. For example, if you want to store a telephone number then use a Text field. If you want to store the number of items in stock, use a Number field.
Memo	Enter lengthy text such as notes. Memo fields can hold up to 64,000 characters.
Number	Enter numbers to be included in calculations, such as quantities or values.
Date/Time	Enter dates and times.
Currency	Enter currency values and any other values requiring up to four decimal places.
Auto Number	Automatically generate the next number when a new record is added. This field is useful for creating a unique record ID. AutoNumber fields are sometimes referred to as Counter-type fields.
Yes/No	Enter fields that can only use one of two values. For example, whether a product is discontinued is either true or false, so a Yes/No field would be a good choice.
OLE Object	Enter objects from other applications, such as a spreadsheet created in Excel or a picture file.
Hyperlink	Store links to other files, documents, or web pages in a field.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 49

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Lookup Wizard	Choose a value from another table or to select a value from a list. This is not a data type in itself, but the data type of the current field will change to match that of the field that is "looked up".
----------------------	---



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 50

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Create A Table

Imagine you create a list of people. The list can be started with names as follows: Bill, James, Hermine, and Khan. This type of list is considered **one-dimensional** because all of its items fit in one **category**.

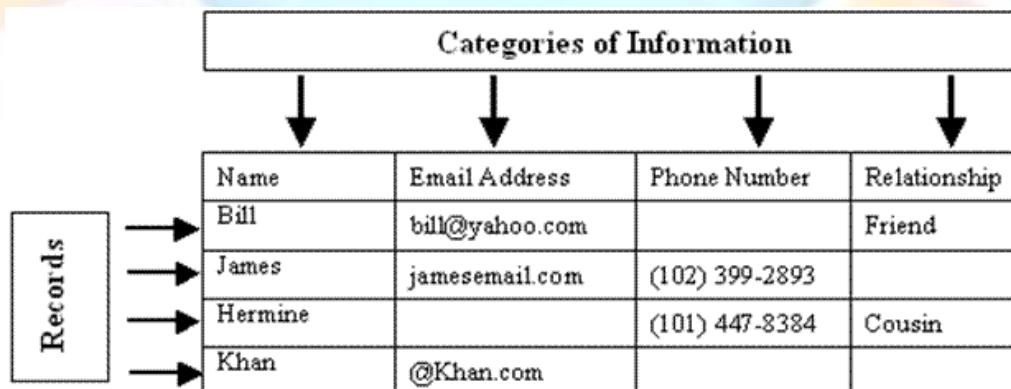
In order to create a more detailed list, you may want to include these people's email addresses and probably other related information. If you include these additional pieces of information in the same category, the list may become confusing. To arrange the list, you would divide it in categories. Here is an example:

Name	Email Address	Phone Number	Relationship
Bill	bill@yahoo.com		Friend
James	jamesemail.com	(102)399-2893	
Hermine		(101) 447-8384	Cousin
Khan	@Khan.com		

This type of display allows you to refer to a piece of information by its **category**. This is the basis of a table.

A table is a two-dimensional list of items so that the items are arranged by categories.

A complete or incomplete series of items that represent each category is called a **record**. Therefore, a table can be represented as follows:



In database development, a category or a field is represented as a column.

Sometimes it is also called a field. A record is represented as a row.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 51

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

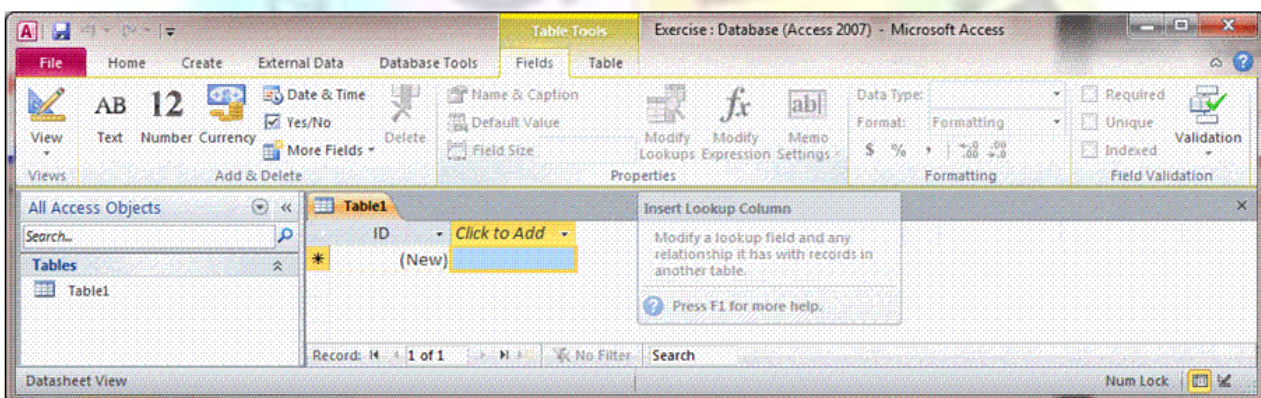
Create a table

If you create a database using one of the local templates, it would provide you with a few tables that you can start using.

OR

- ✓ Click **Create** on the Ribbon
- ✓ In the **Tables** section, click Table.

The Fields section will display



Naming a Table

When you name a table, remember that it table must have a name that can be used to refer to that object throughout the database and in other files that can be linked to the table.

A table can have almost any name: Employees, 2&&4DG, Pestes, verTT#@tg, etc. Because you and your users should be able to easily identify a table, there are suggestions you should follow when naming it:

- ✓ The name of a table should reflect the kind of data it is holding
- ✓ You can name a table with a few words, with spaces
- ✓ You can use a prefix that identifies the table as such, a table. The name of a table would be preceded with tbl. If the name includes one word, such as Musicians, you can give the table a name like tblMusicians, another name would be tblStudents
- ✓ If the name of the table reflects a combination of words, such as Bank Accounts or Students Academic Numbers, you should start each new word with an uppercase. Here are examples: tblBankAccounts, tblStudentAcademicNumbers, tblMemberRegistrations.

There are two main ways you can specify the name of a table, either when you save it for the first time or if you decide to rename it.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 52

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

To save a table you have just created:

- ✓ You can click **File** and click **Save**
- ✓ You can right-click the **Table_X** (such as Table1) tab and click **Save**
- ✓ You can press **Ctrl + S**
- ✓ You can start closing the table. You would be prompted to save the change (if its structure has been changed from the structure it had before it was opened)

Work with tables

Opening a Table

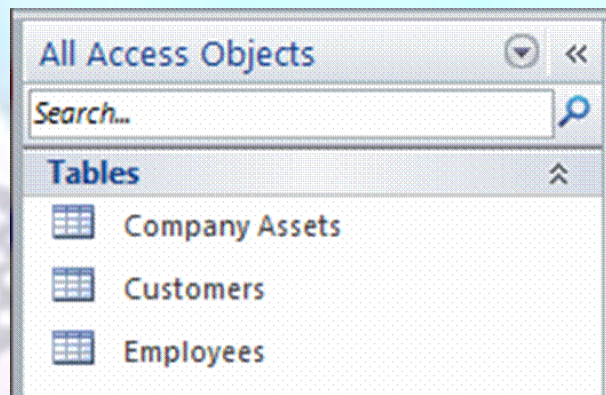
The most regular operations you will perform on a table require that you open it first. To open a table, first locate it in the Navigation Pane then:

- ✓ You can double-click the table
- ✓ You can right-click the table and click Open

Any of these actions causes the table to display in Datasheet View in the central area of the screen. In the same way, you can open as many tables as necessary.


Navigation Pane

Because the table is the primary object of a database, when you create a table and save it by giving it a name, Microsoft Access creates a section labelled Tables in the Navigation Pane and displays the name of the new table in that section. In the same way, you can have as many tables as possible in the Tables section. Here is an example:



Close a Table

After using a table, you can close it.

- ✓ Before closing a table, first select its tab. Then, to close a table:
- ✓ You can click the close button  on the right side of the tabs

Tip: shortcut key press Ctrl + Shift + F4

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 53

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Select a Table

In order to use a table, some operations require that you (or rather the user) first select(s) it:

- ✓ To select a table in the **Navigation Pane**, simply click it

OR

- ✓ If you have many tables open and they are displayed in the main area of the screen, to select one, click its **tab** or its **title bar**

OR

- ✓ If you have many tables displaying in the main area of the screen, you can press Ctrl + F6 continuously to switch from one table to the next until the desired one displays

Rename a Table

We saw that, when or after creating a table, you must save it to make it part of your database. When saving it for the first time, you must give it a name. If the name of a table is not appropriate, you can change it.

- ✓ To rename a table, in the **Navigation Pane**, right-click the name of the table and select **Rename**.

Delete a Table

If you have a table you don't need anymore, you can remove it from your database. Because you cannot delete a table if it is opened, you must first close it.

To remove a table from your database:

- ✓ In the **Navigation Pane**, right-click the table and click **Delete**

OR

- ✓ In the **Navigation Pane**, click the table to select it. Then, on the **Ribbon**, click **Home**. In the **Record** section, click **Delete**

OR

- ✓ In the **Navigation Pane**, click the table to select it and press **Delete**

In each case, you will receive a warning to confirm what you want to do. It is important to know that if you delete a table, because it is not a file, it does not go into the Recycle Bin: it is lost, including its records. Therefore, before deleting a table, make sure you really want to get rid of it. When in doubt, do not delete it.

Format a table

Create a column

Although we did not mention it so far, a table does not exist without a column. Put it another way, a table must have at least one column in order to have meaning. This also means that, in order to create a table, it must actually have at least one column.

If you start a table in **Datasheet View**, Microsoft Access creates and gives it one default column. Once a table displays in Datasheet View, you can start entering data into its cells. If you do this, whenever you enter data under a column, that column receives an incremental

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 54

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

name: the first column on the right side of ID would be named Field1, the second would be Field2, and so on. These would be insignificant and can even be confusing. Fortunately, you can give meaningful names to the columns of your table.

Naming a column

A column can have almost any name: "Book Title", "DG\$5@H", "This Is The Book Title", "R8%%DW\$4", etc. Some columns will have only tinny data, like a person's age, the number of books in an office, a person's middle initial, etc. It may not be a good idea to give them a name that would take too much space.

To name a field, first think about the data in the category. If you are planning to enter employees' salaries in a field, you can just call it Salary. If you want to specify employees' names by first name, middle name, and last name, you can use such column names and make them distinct. In this case, you could name the first column as first name, the last name would be called last name. Although you can use one word names, some people might be confused.

The suggestion is to distinguish wherever a new English (or the language you are using to design your database) name starts in the field name, by using a starting uppercase. Instead of firstname or first name, you can use FirstName or First Name. Instead of fullname or full name, you can use FullName or Full Name.

Before changing the name of a column:

- ✓ You can double-click its header
- ✓ You can right-click a column and click ***Rename Column***
- ✓ When any cell under a column has focus, on the Ribbon, you can first click Datasheet. Then, in the Fields & Columns section, click Rename Column.

Any of these actions would put the name of the column into edit mode. You can then type the new desired name or change the existing name.


The Caption of a Field

We have now discussed how to create and name columns. On a column of a table, a caption is the string that the user sees on the column header.

The caption that a column displays is not necessarily the name of the column.

By default, when you create a column of a table in the ***Datasheet View***, the string you specify for the column will represent both its name and its caption. In some cases, you will need or want to display a multi-word string as the caption of a column. This is because the caption should be as explicit and simple as possible. For example, it is better for the user to read Date of Birth than DateOfBirth, or Full Name instead of FullName.

To specify the caption of a column:

- ✓ In the Datasheet View of a table, click any cell under the column header. In the Properties section of the Fields tab of the Ribbon, click the Name & Caption button  **Name & Caption**. This would display the Enter Fields Properties dialog box where you can make changes



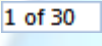



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 55

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- ✓ To s in the top section of the Design View, click the field under the Field Name column. In the lower section of the window, click **Caption** and type the desired word or group of words
- ✓ To change the caption of a column but keep its name, switch the table to Design View, under Field Name, click the field. In the lower section of the window, click **Caption**, press F2 and edit the string

Navigate the table using navigation buttons

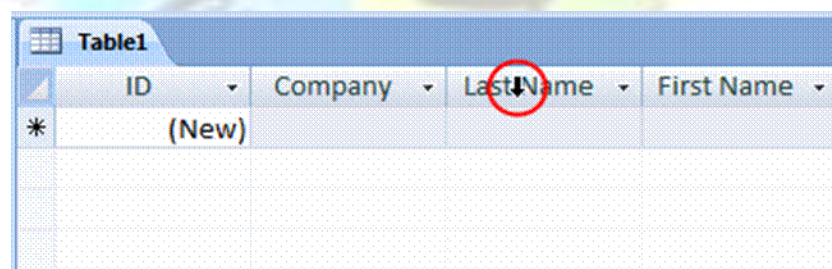
The lower left side of the table is made of four buttons used to navigate the table, one button used to create a new record, and a text box. Each button plays a specific role:

Button	Name	Role
	First Record	Allows moving to the first record of the table
	Previous Record	Allows you to move one record back (if there is one) from the current record
	Current Record	Displays the number representing the current record out of the total number of records
	Next Record	Allows moving you one record ahead
	Last Record	Allows moving you to the last record of the table
	New (Blank) Record	Used to enter a new record on the table

Select a column

Where a cell in a column is selected, for example if the caret is blinking in a cell of a column, the entire column is considered to be selected. To select a different column, do the following:

- ✓ To select one column, position the mouse on its name until the cursor points down and then click



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 56

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

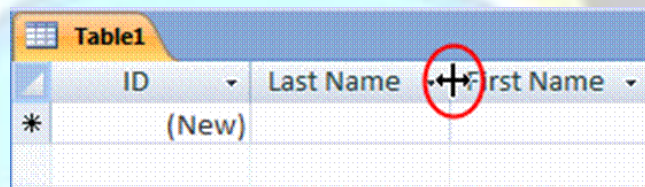
- ✓ To select **columns in a range**, click and hold your mouse on one of them, then drag to the left or to the right to cover the other desired column or columns. When all desired columns are highlighted, release the mouse
- ✓ To select a **range of columns**, click one column that will be at one end, press and hold Shift, then click the column that will be at the other end, and release Shift

Change the width of a column

If you create a table using one of the **Table Templates** or if you get a table from a **Database Template**, the columns of the tables are wide enough to show their names.

If you create a table from scratch in the **Datasheet View**, Microsoft Access assigns it a default width. Sometimes this width is too narrow or even too wide for the information you want to display. There are various techniques you can follow to widen or narrow a column:

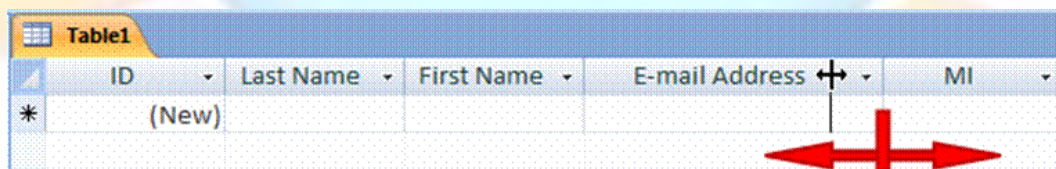
- ✓ Position the mouse on the right border of a column header. The mouse pointer changes into a horizontal double arrow crossed by a vertical line:



If you double-click, the column will be resized to the widest value of the column, provided the widest value is wider than the column header. If the widest value is narrower than the column header, the column width would be widened enough to display the name of the column.

OR

- ✓ You can click the column's **right border** and drag in the desired direction, left or right until you get the desired width

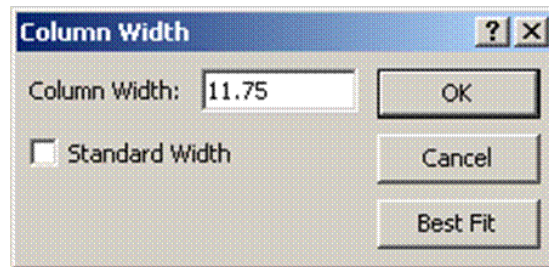


OR

Right-click a column's name and click **Column Width...** This displays the **Column Width** dialogue box where you can type the desired value and click **OK**

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 57

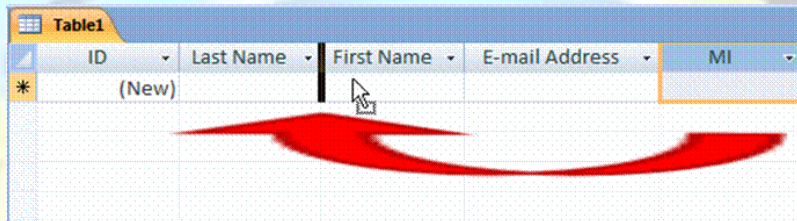
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



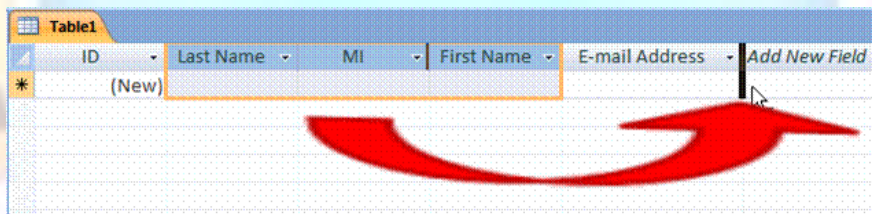
Move a column

If you find out that a particular column is misplaced in a table, you can change its position.

- ✓ To move a column in **Datasheet View**, first select it. Click and drag left or right in the desired direction. While you are dragging, a thick vertical line will guide you. Once the vertical line is positioned in the desired location, release the mouse:



- ✓ To move a group of columns, first select them. Click and hold the mouse on one of the selected columns. Start dragging left or right in the desired direction until the thick vertical guiding line is positioned in the desired location, then release the mouse:



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 58

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Insert a Column

In a table's Design View, you can insert a new field at any position. You can also add a new field to the end of the table:

- ✓ To insert a new field, you can **right-click** the field that will succeed it (you can right-click anywhere on the horizontal boxes of the column, that is, under the Field Name, under the Data Type, or under the Description columns), click **Insert Rows**, and type a name for the new column
- ✓ To insert a new column, you can click anywhere on the column that will succeed it. Then, on the **Ribbon**, click **Design**. In the **Tools** section of the Design tab, you can click the Insert Rows button
- ✓ To insert a new column, you can also click anywhere on the **column** that will succeed it, press **Insert**, and type the name of the new field
- ✓ To add a new column at the end of the table, click the first empty field under **Field Name** and type the desired name

Rename a column

To rename a column, you must put it into edit mode. To do this:

- ✓ Double-click the **name** of the column in the header
- ✓ Right-click the column's name and click **Rename Field**
- ✓ Once the name is in edit mode, type the desired name and press **Enter**.

Delete a Column

It is important to keep in mind that if you delete a column, it also goes with any information under it.

To remove a column from a table:

- ✓ Right-click the column's name and click **Delete Field**

OR

- ✓ Select the column (or a group of columns), right-click anywhere in the table and click **Delete Field**



OR

- ✓ Select a column (or a group of columns). Then, in the Add & Delete section of the Ribbon, click the Delete button
- ✓ Any of these actions would generate a warning message to confirm whether you still want to delete the column(s) or you want to change your mind. If you still want to remove the column(s), click **Yes**.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 59

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Change the view



Switch between views

It is useful to be able to switch between **Design** and **Datasheet views**, in order to check the results of any modification that you have made to the design.

This is achieved using the **View** button on the left of the **Table Design/Datasheet** toolbar.

- ✓ On the **Table Design/Table Datasheet** toolbar, click **View** 

OR


- ✓ From the **View** menu, select **Datasheet View**. The table will display in datasheet view, and the button changes to , which allows you to switch to the design view.
- ✓ Click  to return to design view

OR

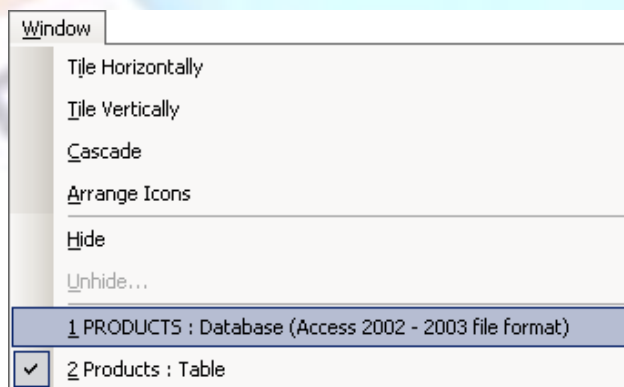
- ✓ From the **View** menu, select **Design View**

Switch Between Windows

You will find that as you work with Access it is necessary to switch between windows regularly. There are several ways to do this.

- ✓ If the window is maximised, on the **Title** bar, click the **Restore** icon 
- ✓ Click a window to select it
- ✓ Click-and-drag a window's Title bar to move it around the screen
- ✓ Click-and-drag a window's borders to resize it

OR



- ✓ Window menu From the bottom of the Window menu, select the database object you want

OR

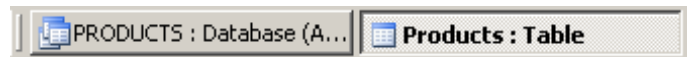
- ✓ Select a Tile option to arrange all the windows on-screen together

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 60

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

OR

- ✓ From the Windows Taskbar, click the icon for the database object you want to select




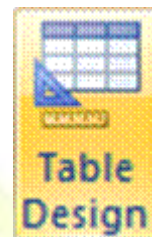
Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 61

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Design view

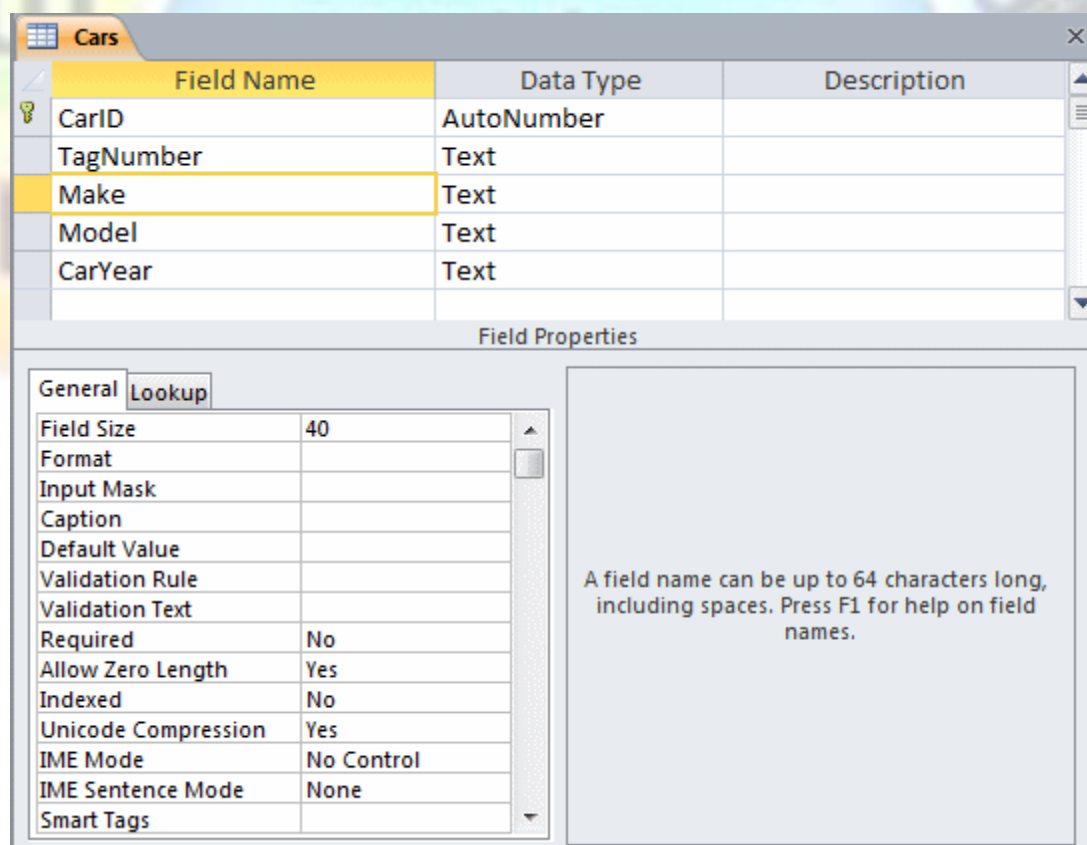
Any table can be also be presented in **Design View**. Instead of the **Datasheet View**, you can start a new table in **Design View** or you can modify an existing table in the **Design View**:

- ✓ To start creating a table in Design View, on the **Ribbon**, click **Create**. In the **Tables** section, click the **Table Design button**
- ✓ To open an existing table in Design View, in the **Navigation Pane**, right-click it and click **Design View**
- ✓ If a table is already opened, to switch it to **Design View**, right-click its tab and click **Design View**
- ✓ If a table is currently opened, to switch it to **Design View**, on the right side of the status bar, click the **Design View button** 



A Table in Design View

A table in Design View is divided in two sections: one in the upper area and another in the bottom:



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 62

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

The top area is made of columns (named Field Name, Data Type, and Description) and rows. When necessary, you will be directed to type or select something in one of the cells. The name of the column under which you must type or select will be specified in the lessons.

The lower portion of the window is made of two sections. To access the lower portion while the top section has focus, you can press F6 or click the lower item you want.

The left section of the lower part is made of two tabs labelled General and Lookup. Each tab contains two columns and various rows. The number of rows and the contents of cells depend on what is selected in the upper section. In our instructions, you will be directed when to do something in a tab or in a cell. As mentioned for the Properties window, the left column of the tabs in the lower section lists the names of characteristics. You cannot change the name of a property. The right column contains the values of the characteristics. When prompted to do so, you will create a new value, modify an existing value, or select one from a combo box. In some cases, a wizard will assist you with creating an expression as the value of a property.

The right side of the bottom part of the table is made of a read-only area that describes what is selected in one of the tabs of the lower-left section.

When given an instruction, you will be dealing with items in the top or the bottom section. To work on an item, sometimes you will be asked to click it to give it focus. You can then click the desired item. Another technique you can use to move from one section to the other is to press F6.

Selecting columns in the design view of a table

In the Design View of the table, there are various types of operations you can perform for database maintenance. Operations include naming or renaming fields, moving or deleting fields, and changing various other properties. In order to perform some of the operations on a field, you must first select it. If the desired operation involves a group of fields, you must first select them:

- ✓ To select one field, you can position the mouse on the box to its left until the cursor turns into a right-pointing arrow:

	Field Name	Data Type
🔑	CarID	AutoNumber
	TagNumber	Text
→	Make	Text
	Model	Text
	CarYear	Text

- ✓ Then click

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 63

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Field Name	Data Type
CarID	AutoNumber
TagNumber	Text
Make	Text
Model	Text
CarYear	Text

- ✓ To select more than one column, you can click and hold your mouse on one of the left boxes, then drag up or down to cover the other desired field names:

Field Name	Data Type
CarID	AutoNumber
TagNumber	Text
Make	Text
Model	Text
CarYear	Text

When all desired field names are highlighted, release the mouse

- ✓ To select more than one column, you can also click one column that will be at one end, press and hold Shift, and then click the column that will be at the other end
- ✓ To select columns at random, click the left box of one of them, press and hold Ctrl, then click the box of each of the desired boxes
- ✓ To select all columns of a table, click the button of the left of Field Name

Moving Columns in the Design View of a Table

The columns of a table are displayed in the sequence in which they were created. We have discussed how to move columns and change their sequence in ***Datasheet View***. You can also change the sequence of fields in the ***Design View*** of a table.

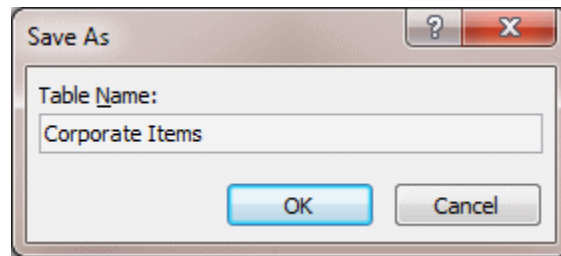
- ✓ To move a column, click and drag up or down. A horizontal line will guide you. Once it gets to the desired location, release the mouse
- ✓ To move a group of columns, first select them and release the mouse. Click and hold the mouse on the left box of one of the selected columns. With the mouse down, drag up or down, referring to a horizontal line as a guide. When the horizontal line gets to the desired location, release the mouse

Activity 3


- Open the Rockville Technologies database created in the previous lesson
 - On the Ribbon, click Create
 - In the Tables section, click Table
 - To save the table, right-click Table1 and click Save
 - Type Corporate Items as the name of the table

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 64

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	



1.5. Click OK

1.6. To close the table, click its Close button 

1.7. In the Navigation Pane window, right-click the Corporate Items table and click Rename

1.8. Type Employees Resources as the new name of the table

1.9. Press Enter

1.10. In the Navigation Pane, right-click the Employees Resources table

1.11. Click Delete

1.12. Read the warning of the message box and click Yes

1.13. Create a table called Employee details

1.14. Under the Field Name column header, double-click ID, type EmployeeID and press Enter

1.15. Click the empty box under EmployeeID, type DateHired

1.16. Press the down arrow key and type EmployeeNumber

1.17. Complete the columns as follows:

EmployeeID
DateHired
EmployeeNumber
FirstName
MiddleInitial
LastName
MaritalStatus

1.18. To save the table, press Ctrl + S

2. Create a blank database and name it National Bank1

2.1. Double-click Add New Field and type AccountType

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 65

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

- 2.2. Add one more column named Description
- 2.3. Change ID to AccountTypeID
- 2.4. Save the table as AccountTypes
- 2.5. Using the Table button of the Creation section of the Ribbon, start a new and change Add New Field to ChargeReason
- 2.6. Rename the ID column to ChargeReasonID
- 2.7. Save the table as ChargeReasons and close it
- 2.8.
3. Create a blank database and name it Watts A Loan1
 - 3.1. After the default ID column, create the following additional columns: FirstName, MiddleName, LastName, Address, City, State, ZIPCode, Country, HomePhone, WorkPhone, EmailAddress, and Notes
 - 3.2. Rename the ID column as CustomerID,
 - 3.3. Save the table as Customers



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 66

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

SECTION FOUR: ADD AND EDIT RECORDS

Specific Outcome

Data is entered into a simple database table from given specifications: At least 5 fields

Assessment Criteria

On completion of this section you will be able to ensure that:

- ✓ A new record is added to the database table: At least 2 records are added
- ✓ Data in the database table is modified: At least 3 records are modified
- ✓ Data in the database table is deleted
- ✓ A record is deleted from the database table

Work with records

Add A Record

After creating a table, you start adding information in the cells of the table. This is called populating the table with data.

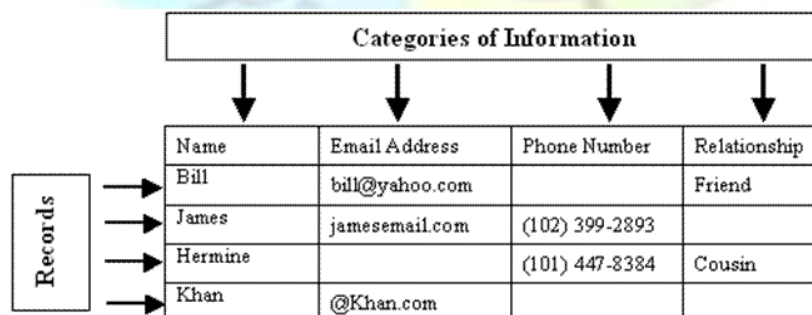
A table's cell holds one particular unit of data. All cells on the same (vertical) column belong to the same category of information. A horizontal range of cells is called a record; and all cells on this range belong to the same record:

Any data entered into the datasheet must be part of a record. A new record is added to existing records by entering data into the blank row at the bottom of the datasheet. This row is marked with an asterisk * in the row selector column.

If you add data to this row, the row selector changes to display an **Editing** icon .

When adding and editing records in a database, it is extremely important to pay careful attention. If you make a mistake when entering data, it can be much more difficult to correct the mistake (compared to a word processing document or spreadsheet).

When you do make a large number of updates to a database, it is a good idea to print a **report** showing the changes made, so that you can check what you have input against expectations.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

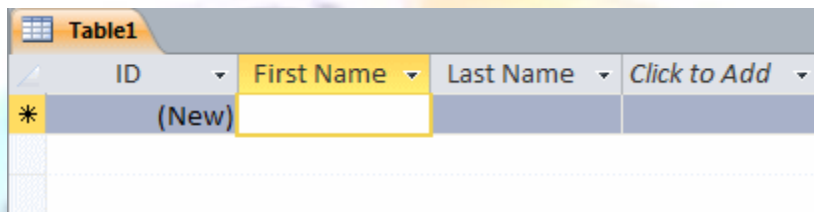
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 67

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Enter date in a table

- ✓ To enter data in a table, can click a cell under a column header and type a value.

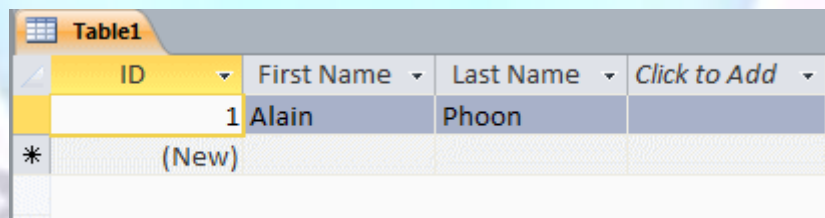
Although a table appears with many rows of cells, when a table is empty with no record, you will be able to see only the cells just under the column header. These cells appear with a type of blue colour. As soon as you click one of these cells, the background becomes white and its borders are orange, indicating that it has been activated and you can now add data.



Another way to indicate an empty record, the field of the most left column is marked with (New) and its row of records uses the same light-blue colour. After typing a value in a cell, you can press **Enter** or **Tab** to move the caret to the next cell.

In many circumstances you will also be able to move to the next cell by pressing the right arrow key. Sometimes you can move to the next record even if the current record is not completed. In this case, you could press the down arrow key.

When a record has been completed, the background colour of its cells will change. The next record under it has the first cell marked as (New) and its empty cells are in blue. The other cells remain white:



You will come across three kinds of fields when working in Access

- ✓ a field in which the you can enter data,
- ✓ a field that displays a list as a combo box that you have to select from,
- ✓ and a field that does not receive input from you -it is deactivated and you cannot add data.

Access also offers two kinds of combo boxes:

- ✓ those that accept new entries from the user
- ✓ and those that only allow you to select from a preset list.

After setting the data in a particular field, you can click another cell and type the desired data. The easiest way is to press the right arrow key to move to the next field or the left arrow to move to the previous field; pressing Enter would work as well.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 68

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

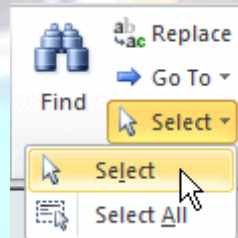
After typing data, if you press Enter at the end of a record, the caret would move to the beginning of the next record.

Select records

- ✓ To select a row or record in **Datasheet** View, click the desired row header

OR

- ✓ To select a record, click any cell on its row. On the **Ribbon**, click **Home**. In the **Find** section, click the **Select** button and click **Select**



- ✓ To select more than one record, **click and drag** over the row headers

OR

- ✓ Select one row, press and hold **Shift**, and then click the last row you want to select

To select all records of a table:

- Press **Ctrl + A**
- **Click** the button at the intersection of the column headers and the row headers

Delete records

- ✓ click a row header and press **Delete**

OR

- ✓ right-click a row header and click **Delete Record**

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 69

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Cabin ID	Cabin Type	Deck	Rate 1 Passe
1	Inside	Riviera	289.00
2	Outside	Riviera	319.00
3	Outside	Riviera	389.00
4	Suite	Verandah	1009.00
5	Inside	Upper	379.00
6	Inside	Main	359.00
7	Outside	Riviera	349.00
8	Inside	Upper	369.00
9	Outside	Upper	429.00
10	Suite	Main	885.00
* (New)			

In both cases, a message box would come up to warn you. If you find out you were making a mistake, you can click **No**. If you still want to delete the record, click **Yes**.

You can use this same approach to delete more than one record.



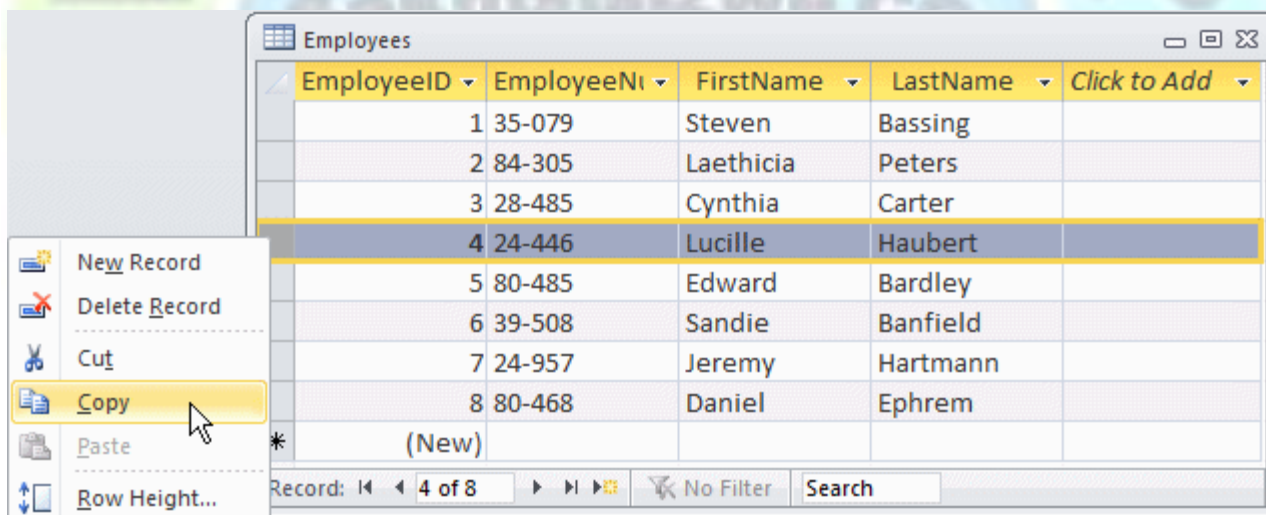
Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 70

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Copy or paste records

To copy the records from one table and paste them in a different table, you have the following options:

- ✓ You can copy the **values** of a column from one table and paste the values in another column. **Both columns should be of the same type.** That is, you should not attempt to paste the names of people in a column of a Boolean type (a Yes/No column that display check boxes).
- ✓ You can also copy and paste **many columns**. When selecting the columns, they should be selected in a range. After selecting and copying, you can paste the values in a range of columns of another table. The columns from the originating table and the range of columns from the target table must be of the same type. In other words, the first column in each range must be of the same type; the second column of both ranges must be of the same type, and so on.
- ✓ You can also copy a whole **record** or a **range of columns**. First select the range of records. Then, either right-click the selection and click Copy, or press Ctrl + C. You can then paste the records in another table.
- ✓ If you display a table in **Datasheet View**, to copy a record, you can **right-click** the box on the left side of the most left field of the column and click Paste:



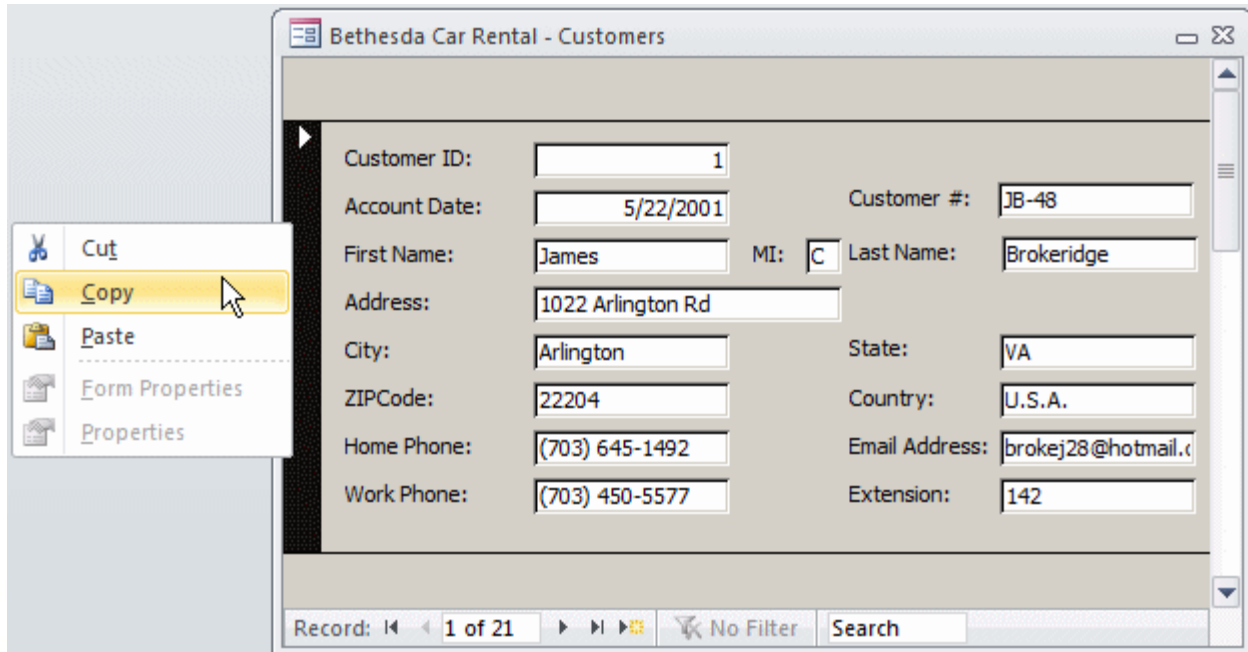
- ✓ To apply the copied record to a new one, right-click the left box of the first empty record and click **Paste**.

Note Before copying a record in a form, the form should have the Record Selectors property set to Yes.

- ✓ To copy a record, you can right-click the record selector and click Copy:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 71

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



- ✓ After copying the record, you can get to the first empty record, right-click its record selector and click Paste.

After pasting a record, you can make the necessary changes

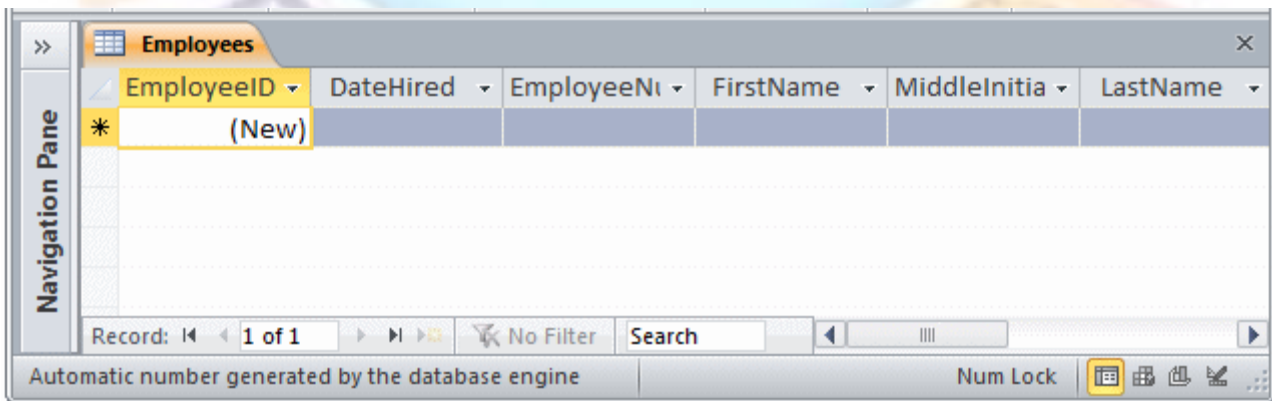
Activity 4

Open the **Rockville Technologies** database created in the previous lesson

Open the table called Employee details

Set the captions of the objects

Notice the words in the columns headers (the captions)



1. Enter the following records:

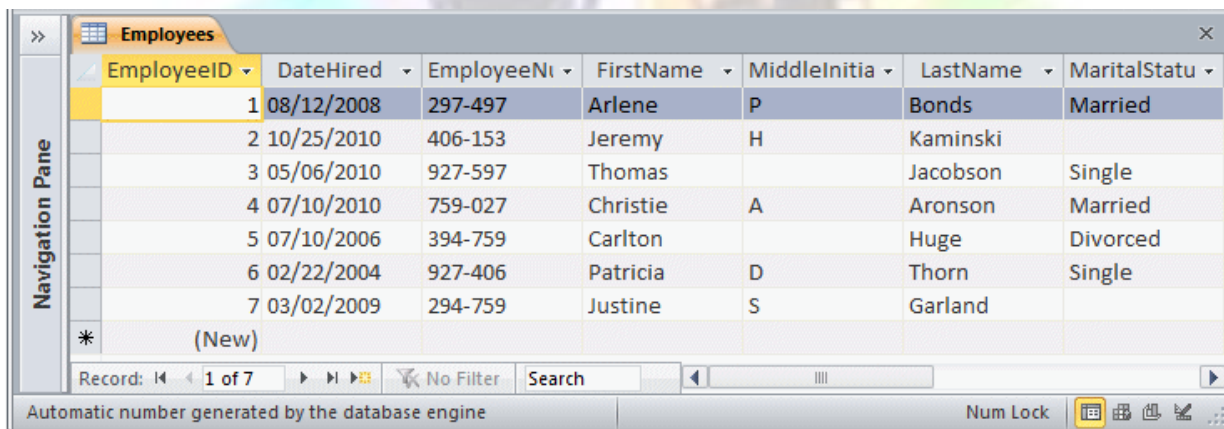
DateHired	EmployeeNumber	FirstName	MiddleInitial	LastName	MaritalStatus
-----------	----------------	-----------	---------------	----------	---------------

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 72

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

08/12/2008	297-497	Arlene	P	Bonds	Married
10/25/2010	406-153	Jeremy	H	Kaminski	
05/06/2010	927-597	Thomas		Jacobson	Single
07/10/2010	759-027	Christie	A	Aronson	Married
07/10/2006	394-759	Carlton		Huge	Divorced
02/22/2004	927-406	Patricia	D	Thorn	Single
03/02/2009	294-759	Justine	S	Garland	



2. To switch the table to Design View, right-click the tab of the table and click Design View
3. In the top section of the table, click EmployeeID
4. In the lower section of the view, click Caption
5. Type Empl ID and press Enter
6. In the top section, click DateHired and press F6
7. Press the arrow keys to put the caret on Caption and type Date Hired
8. Press F6 to up to the upper part
9. Use the arrow keys to select FirstName
10. Press F6, select Caption and type **First Name**
11. In the upper section, click LastName
12. In the lower section, click Caption and type **Last Name**
13. In the same way, set the Caption of MaritalStatus to **Marital Status**
14. To save the table, press Ctrl + S
15. Right-click the tab of the table and click Datasheet View
16. Click a cell under EmployeeNumber

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 73

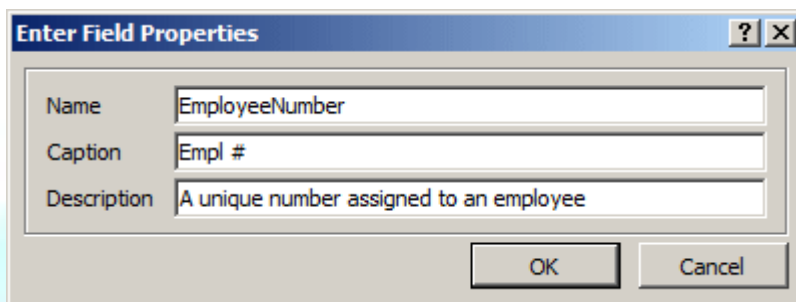
Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

17. On the Ribbon, click Fields

18. In the Properties section, click the Name & Caption button 

19. In the Enter Fields Properties dialog box, click Caption and type **Empl #**

20. Click Description and type **A unique number assigned to an employee**

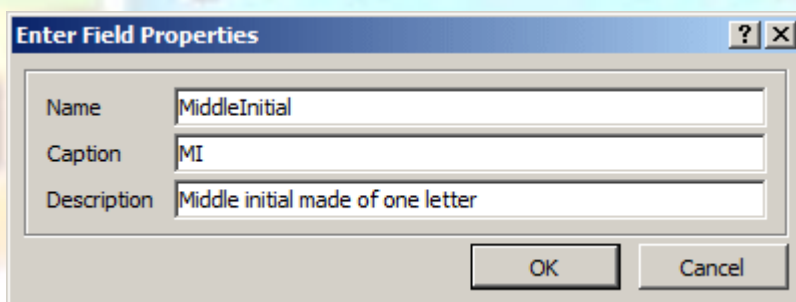


21. Click OK

22. Click a box under MiddleInitial

23. On the Ribbon, click Name & Caption 

24. Click Caption and type **MI**



25. Click OK

26. Right-click the column header of each column and click Field Width. Then click Best Fit

Empl ID	Date Hired	Empl #	First Name	MI	Last Name	Marital Status
1	08/12/2008	297-497	Arlene	P	Bonds	Married
2	10/25/2010	406-153	Jeremy	H	Kaminski	
3	05/06/2010	927-597	Thomas		Jacobson	Single
4	07/10/2010	759-027	Christie	A	Aronson	Married
5	07/10/2006	394-759	Carlton		Huge	Divorced
6	02/22/2004	927-406	Patricia	D	Thorn	Single
7	03/02/2009	294-759	Justine	S	Garland	
* (New)						

Record: 1 of 7 | No Filter | Search

Automatic number generated by the database engine | Num Lock

databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 74

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 75

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

SECTION FIVE: MODIFY THE DESIGN OF A DATABASE TABLE

Specific Outcome

Modify the design of a database table

Assessment Criteria

On completion of this section you will be able to ensure that:

- ✓ An existing database table is opened in design view
- ✓ The consequences of changing a field size are discussed
- ✓ Field formats are modified: Field size, Number field, Date field
- ✓ A field is moved in the database table
- ✓ A new field is added to the database table
- ✓ A field is deleted from the database table
- ✓ The consequences of the changes made are explained and corrected if necessary: Type conversions

Data Types

A data type represents the kind of information that a particular field should, would, or must hold. Every field in your database objects (tables, forms, and reports) should have the right type and you should select the most appropriate of them. This helps both you and the user who performs data entry. Furthermore, a good design will cause you less headache when creating calculated expressions.

Microsoft Access can assist you with allowing or excluding categories of data in database fields. Based on this, you can make sure that the user would not type a contract's date in a project's contact name. To manage different types of information you enter in a database, Microsoft Access helps you organize data by categories.

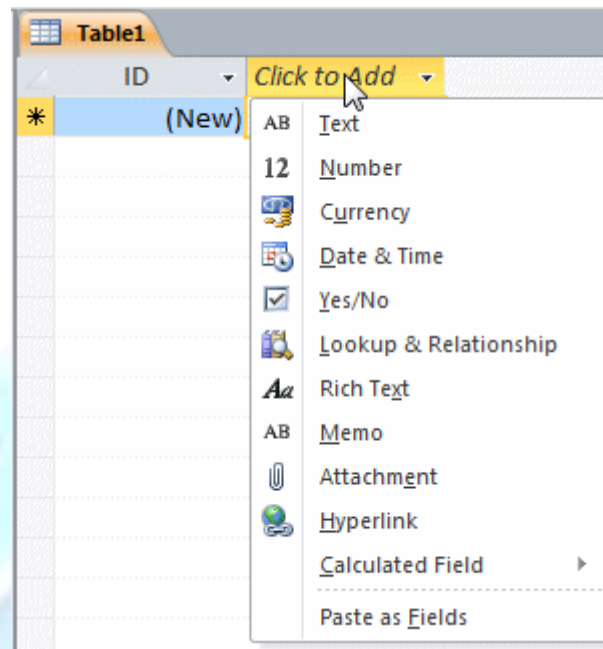
Setting the Data Type of a Field

To make your database efficient, in some circumstances, or depending on the project (or customer), you should exercise as much control as possible on data entry. This aspect is mostly controlled at two levels: tables and forms.

- ✓ We know that, when creating a table in ***Datasheet View***, to create a column, you can select ***Click to Add***, and then select a field type from the list:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 76

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

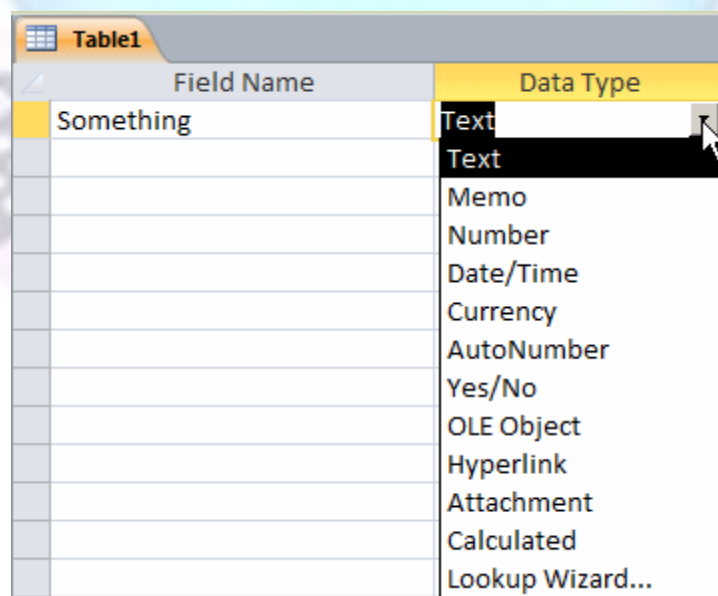


- ✓ Type a name for the column.

After creating a column, if you want to change it, on the Ribbon, click Fields. In the Formatting section, click the arrow of the Data Type combo box and select from the list.

Besides the Datasheet View, you can use the **Design View** of a table to specify the type of value that a field can hold.

- ✓ To do this, after specifying the column name, click the arrow of the corresponding box in the **Data Type** column and select the desired type:



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 77

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

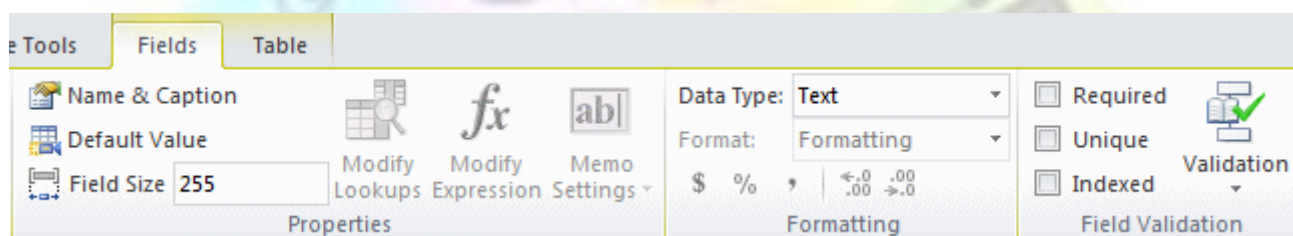
After a field has been configured on a table, when that field is used in a form, it would respect the formatting that was done on the table.

Data Type Properties

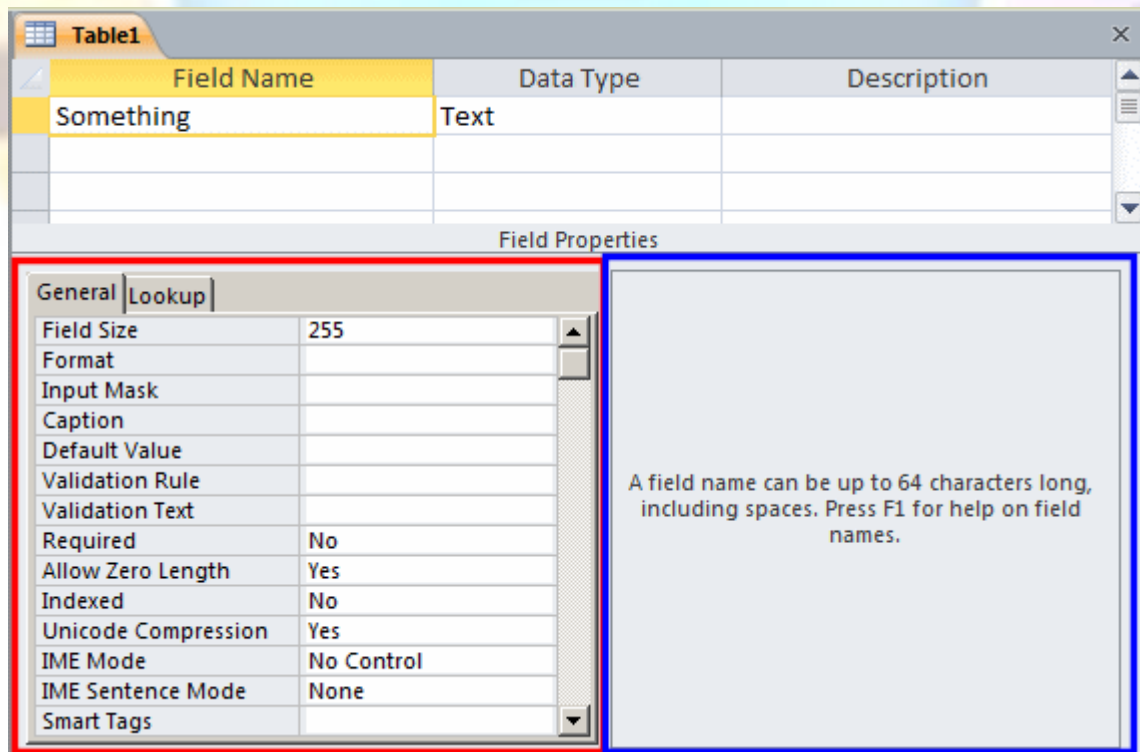
To further control how data is entered and/or how it is displayed on a field, both the table in Design View and the Property Sheet in Form Design provide special fields.

Because the list of data types may appear short to you, each data type provides some configuration that allows you to control how data for that field either would be selectively entered or would display.

To do this in the Datasheet View of a table, click any field under the column header. On the Ribbon, click Fields. Use the options in the Properties, the Formatting, and the Field Validation tabs:



To control the properties of a table in the Design View, after selecting a data type in the Data Type column, in the lower section of the table, you can format or further configure the field. The lower part of the table Design View is made of two sections: the property pages on the lower left and the properties help section on the lower right:

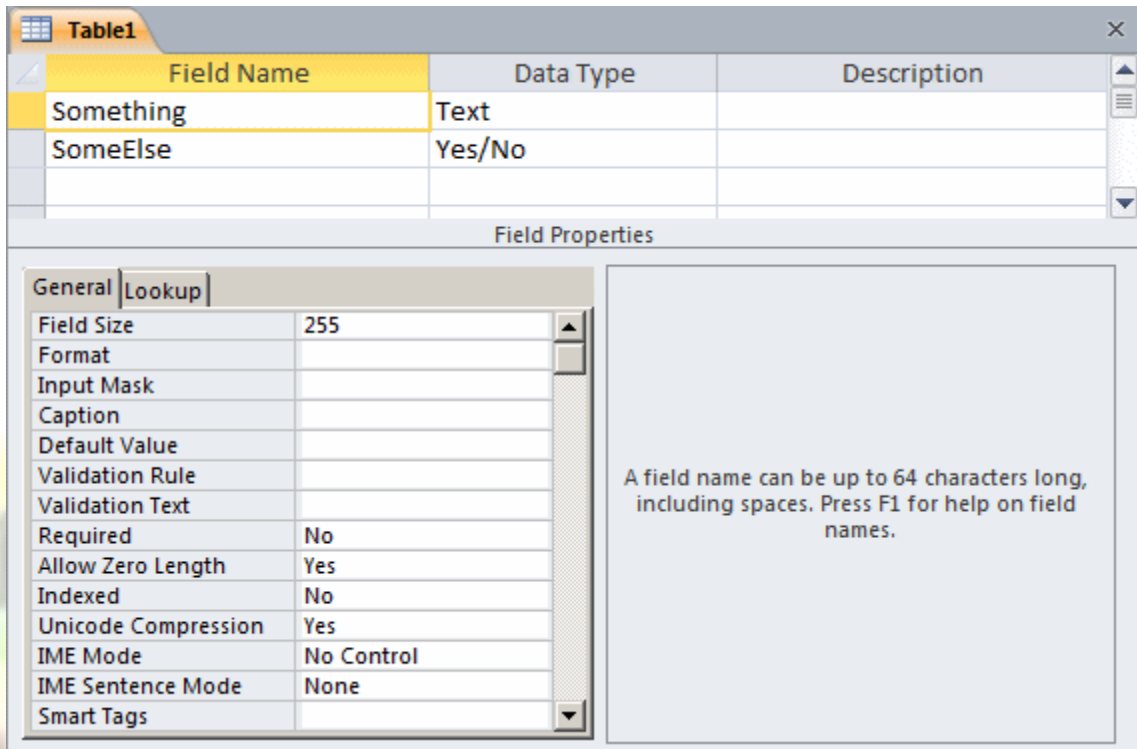


Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 78

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

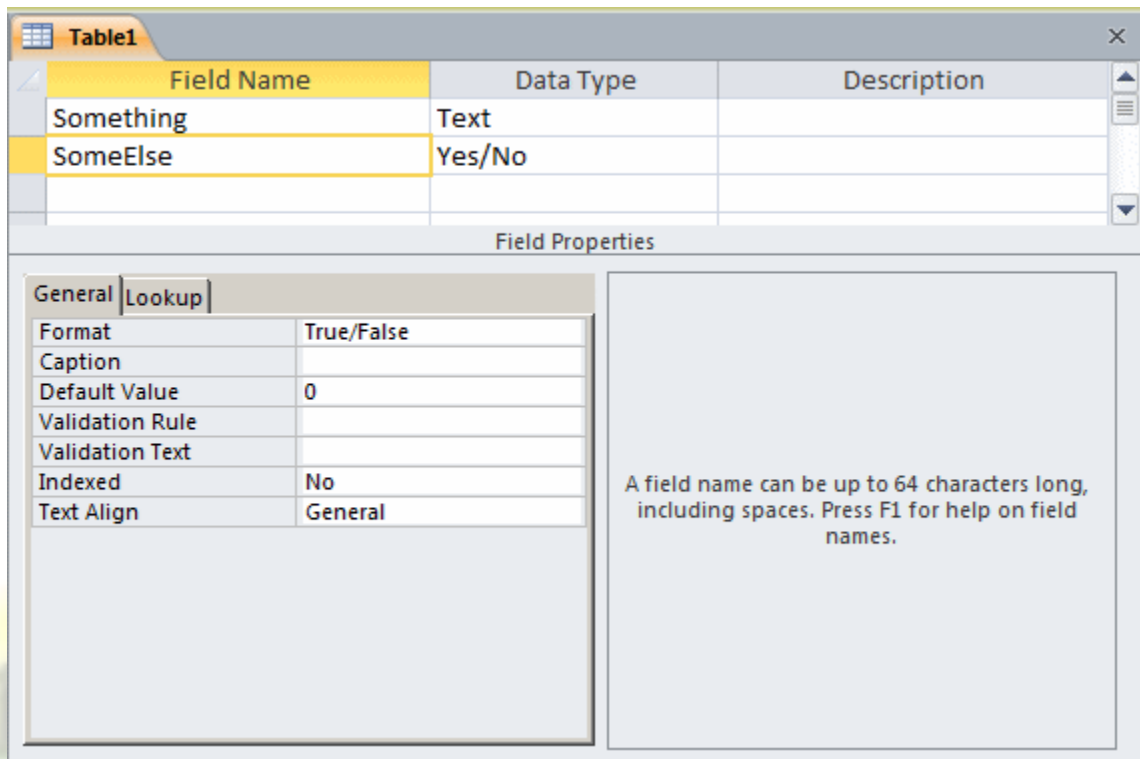
The kind of **Data Type** you set for a field in the upper section controls what displays in the lower section of the view. The **General** property page controls the features of the selected data type. The options in the General property page depend on the data type that was specified:



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 79

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



The **Lookup** tab allows you to specify a feature that is particular to the specific data type that was specified. For some data types, it would display a combo box. For some other data types, the Lookup property page would be empty.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 80

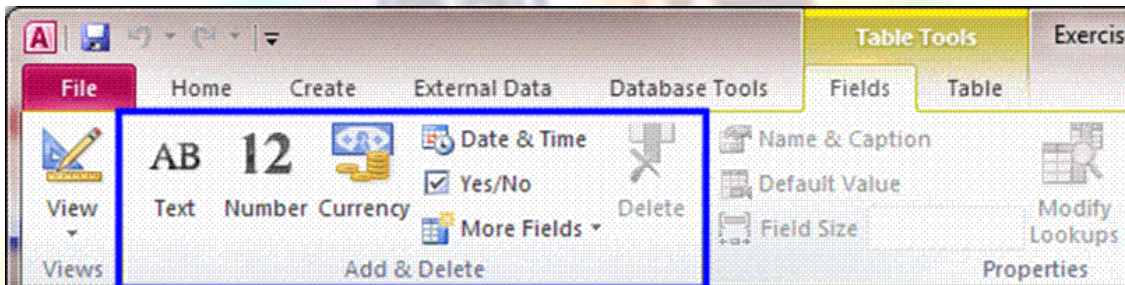
Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Using a Template (Sample Field)

Microsoft Access provides many pre-configured fields you can add to your table.

These ready-made sample columns are referred to as a **Field Templates**.

When you start a table in the Datasheet View, the Ribbon becomes displays a new tab called **Fields**.



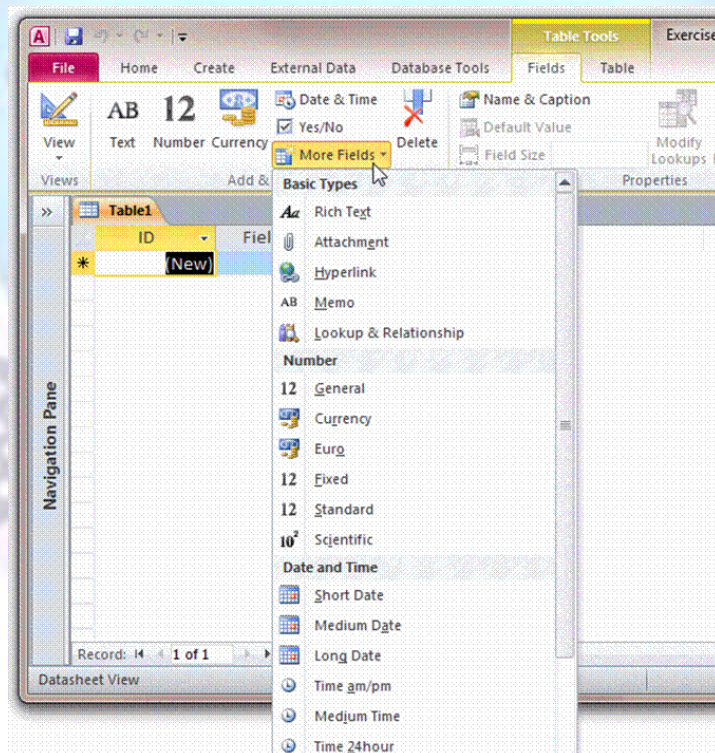
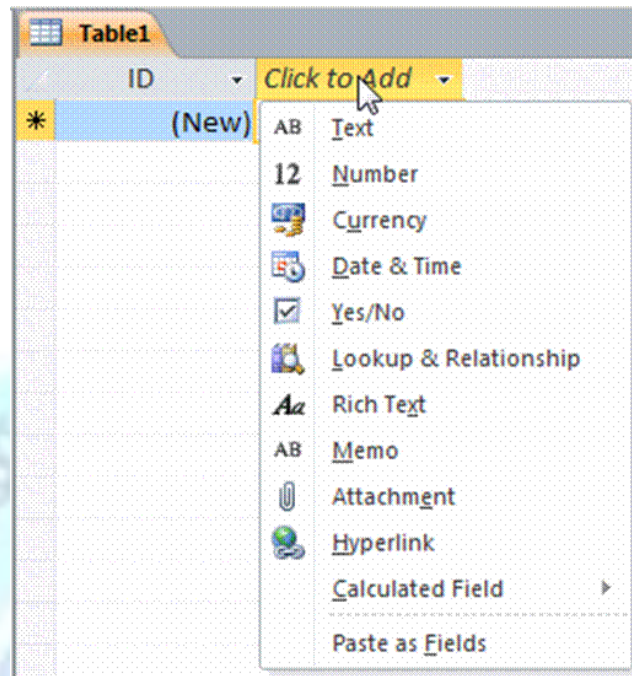
The sample fields and their configurations are distributed in various sections. One of the sections of the Fields tab is named **Add & Delete**:

To use a field template, while the table is display the table in **Datasheet View**:

- ✓ Click or right-click the **header** of a column. This would bring a menu from where you can select an option
- ✓ On the table, click the header column or a cell under the column. In the **Add & Delete** section of the **Fields** tab of the **Ribbon**, click the type of field you want
- ✓ In the **Add & Delete** section of the Ribbon, click **More Fields** to display a list and click an option from that menu

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 81

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 82

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.


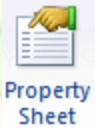
Properties

Field properties provide three areas of functionality:

- ✓ To format the display of data from the field in reports, queries and so on.
- ✓ To protect the field from incorrect entry of data.
- ✓ To improve performance of the database.

You can apply field properties in tables, queries, forms, and reports. In many cases it is better to define field properties in the table itself, because any properties set in a table are carried through to objects based on the table.

When designing a form or a report, one of the objects you will regularly use is called the **Properties** window. To get the Properties window of the properties associated with a control, while the form or report is in Design View, right-click the object and click Properties. To display the Properties window for the form or the report in Design View:

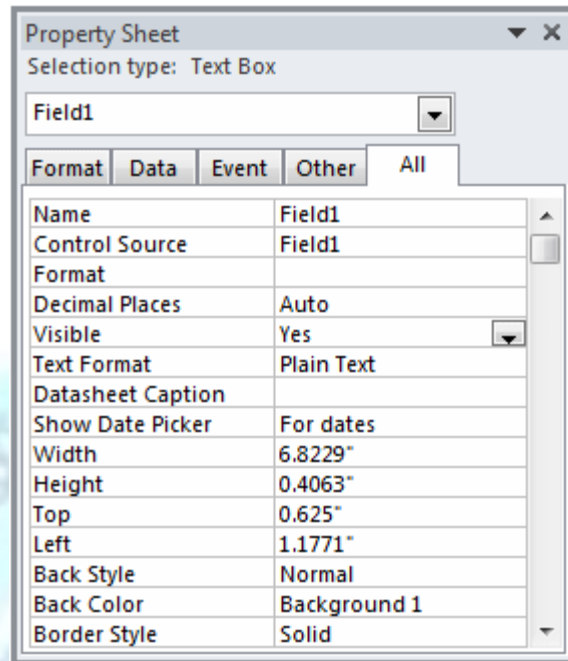
- ✓ You can double-click the button in the top-left section under the tab or the title bar 
- ✓ In the Tools section of the Design tab of the Ribbon, you can click the Property sheet button  button
- ✓ You can right-click anywhere on the form or report and click Properties

Any of these actions would display the Properties window. The Properties window is dockable. This means that you can drag its title bar and position it either in the middle of the screen or to the left or the right side of the screen:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 83

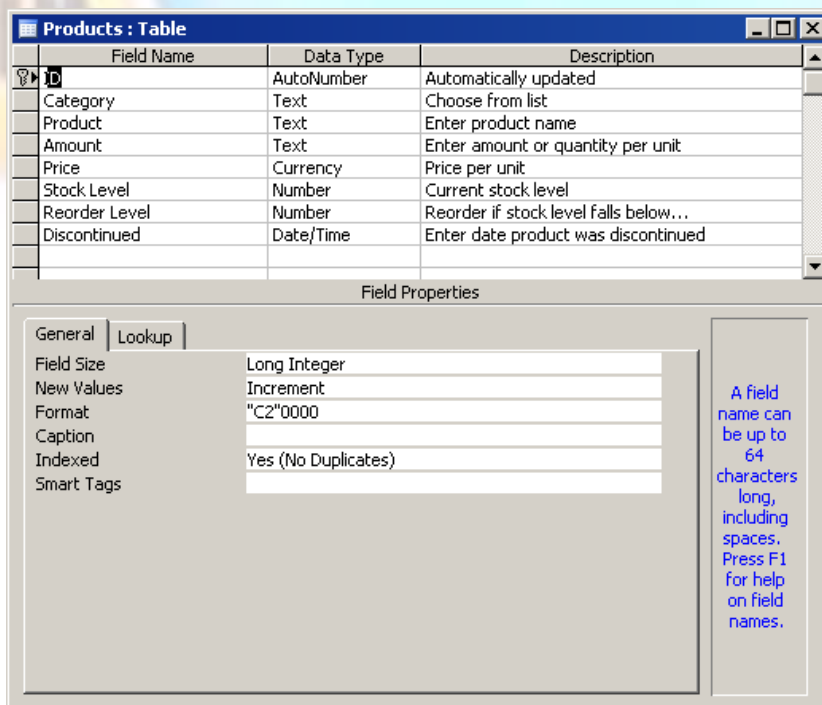
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



Examine field properties

To examine the properties of a field, you need to display the table in design view.

Each data type has a number of appropriate properties that are displayed in the bottom left of the design view window. Some important properties are discussed below, with appropriate references to the data types.

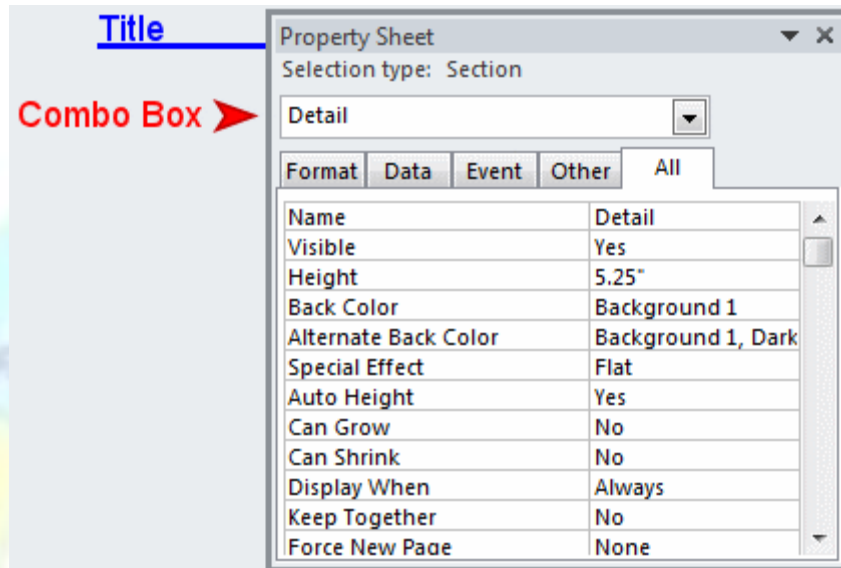


Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

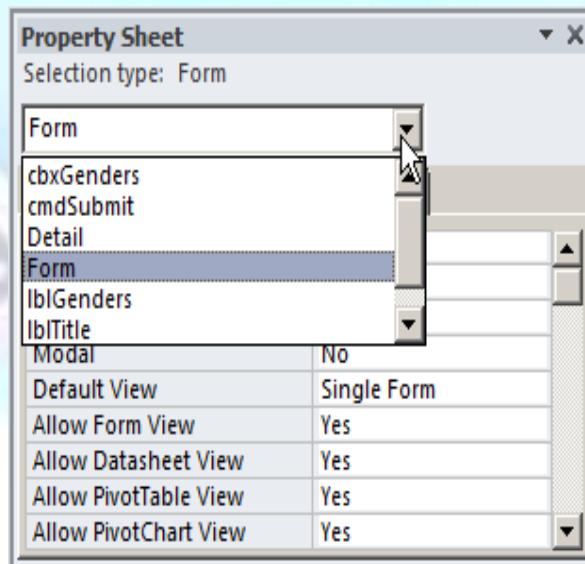
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 84

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

The title bar of the Properties window displays the Property Sheet string. Under the title bar, a label identifies the type of object whose characteristics the Properties window is displaying. Under the label, there is a combo box that displays the name of the object whose characteristics are displayed in the Properties window:



To change the object whose properties you want to access, select its name in the combo box of the **Properties** window



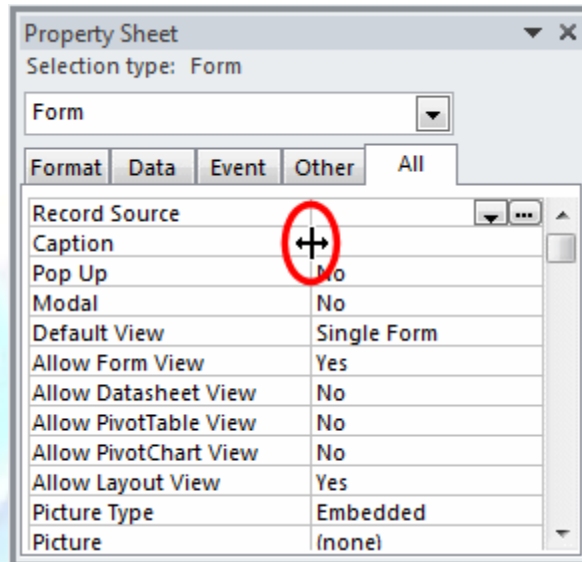
The Properties window consists of five property pages or tabs: Format, Data, Event, Other, and All. The tabs display the characteristics associated with the object or the control that is selected on the screen or in its top combo box. To access a tab, you can simply click it.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 85

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Each tab is made of two sections divided by a vertical line. To make one section wider than the other, position the mouse on the dividing line and drag left or right:



The Field Size Property

You can set the field size of **text** and **number** type fields. The field size property determines how much data the field can store. In the case of text, this is the number of characters; in the case of numbers, it is the range of values.

Larger fields take up more space and can slow the database down. However, these considerations only become really important in quite large databases and if you make the field too small, a lot of time could be lost changing the database design, so it is best to over-estimate the space required in a field.

If possible, test the database with a wide range of records before delivering it to users.

Text field size

Text fields can be up to 255 characters long. The default length is 50 characters, but it is worth changing this, where possible, to optimise the performance of the database.

If you want a larger field in which to store text information, you should use the **Memo** data type, which allows for storage of up to 65,536 characters.

Number field size

Several number field sizes are available. The most useful are summarised in the following table:

Field Size	Use	Decimals	Storage Size
Byte	Store values between 0 and 255	None	1 byte
Integer	Store values between -32,768 to 32,767	None	2 bytes

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 86

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Long Integer (Default)	Store values between -2,147,483,648 to 2,147,483,647	None	4 bytes
Single	Store larger numbers or decimal values	7	4 bytes
Double	Store even larger numbers or decimal values	15	8 bytes

Long Integer is the default setting. It should be obvious that the greater the range of numbers that you allow in a field, the more space Access will use to store this information.

Notes

- ✓ The Byte, Integer, and Long Integer sizes cannot store decimal values. If you need to store values with up to four decimal places only, use the Currency data type in preference to Single or Double number fields.
- ✓ The number of decimal places stored and displayed is set by the Decimal Places property. Confusingly, you can set the number of decimal places for bytes, integers, and long integers! Be warned that during data entry any data typed after a decimal point will be lost if the field is one of these three sizes. For example, if you type 4.67 Access will store (and display) 5.
- ✓ Use the Currency data type for money values or for fixed-point decimal values (the Currency type can store up to 4 decimal places).

The Caption Property

The **Caption** property allows you to supply a plain English label to the field that you are defining. Labels are useful because they are not bound by Access limits on the names that you give to the field. The caption will appear at the top of columns in the table's datasheet view, and as a label for the field when it is displayed on reports and forms.

Adding an appropriate caption for each field speeds up the process of creating forms and reports later. This property applies to all fields.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 87

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

The Format Property

The **Format** property allows you to specify the format of data as it is **displayed** (for example, you could specify that any text entered is displayed in upper case).

Text formats

The following formatting symbols can be used for the Text data type:

Symbol	Description
@	Must have a text character in this position
&	Optionally have a character in this position
<	All characters will be lower-case
>	All characters will be upper-case
space	Display a space between characters
"ABC"	Display the characters inside the quotes ("")
!	Left align the data

All other characters will be displayed as per usual in their position in the format string. The table below demonstrates the use of the text format property:

Format	You Type	Access Displays
>	Hello	HELLO
(@@@@@)@@@-@@@@	0123456789	(012)345-6789
!(@@@@@)@@@-@@@@	0123456789	(01234)567-89
<! "O/N 55"@@@@	BB8F	O/N55bb8f

Number formats

The easiest way to examine the standard formats and their effect on data is to examine the drop-down list that allows you to select a predefined format:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 88

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

General Number	3456.789
Currency	£3,456.79
Euro	€3,456.79
Fixed	3456.79
Standard	3,456.79
Percent	123.00%
Scientific	3.46E+03

Basic number formats can be selected from the list box:

Another property appropriate to the display of number values is **Decimal Places**. With the exception of the **General Number** format (where the data is displayed as you typed it), a number format defaults to 2 decimal places. You can use the Decimal Places property to override this default if your information requires more (or less) precision.

Predefined formats for the Number data type

As well as setting the **Format** property, it may be important to specify the number of **Decimal Places**. With the exception of the **General Number** format (where the data is displayed as you typed it), this number format defaults to 2 decimal places. You can use the Decimal Places property to override this default if your information requires more (or less) precision.

Date/Time formats

The easiest way to apply a format is to select from the drop-down list. Use a 4-digit year style make date data unambiguous.

General Date	19/06/1994 17:34:23
Long Date	19 June 1994
Medium Date	19-Jun-94
Short Date	19/06/1994
Long Time	17:34:23
Medium Time	05:34 PM
Short Time	17:34

to

If you want to use a custom format, use the following characters:

Symbol	Description
d	Display 1-2 characters for the Day (1,2,3...11,12,13)
dd	Display 2 characters for the Day (01,02,03...11,12,13)
m or mm	Display Month as a number
mmm	Display Month as a three-letter code (Jan, Feb, Mar...)
mmmm	Display full Month name
yyyy	Display year with 4-digits
/ -	Display separator character (you can also use spaces)

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 89

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Yes/No formats

Since the data stored by this data type is short and simple, the options for display are limited to variations on the Yes/No theme.

True/False	True
Yes/No	Yes
On/Off	On

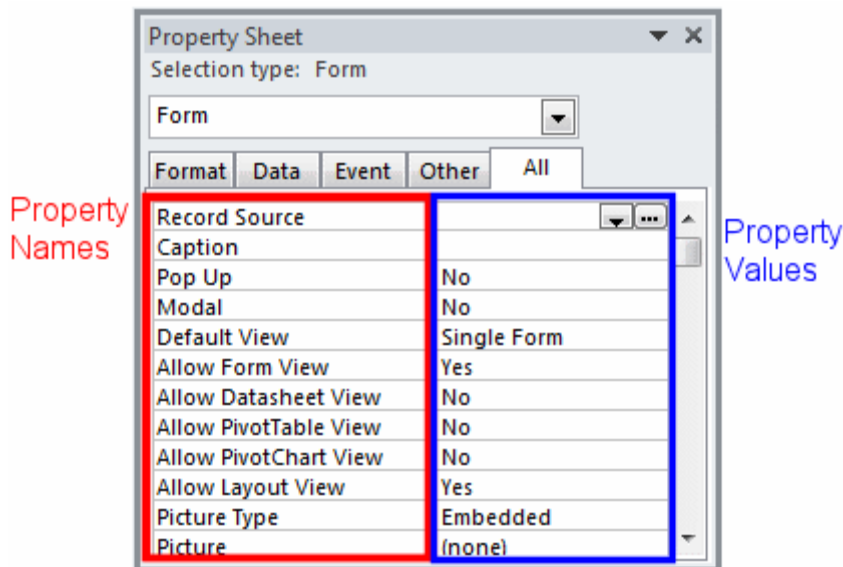


Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 90

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

The name of a property

In order to change a property, first open the table, the form, or the report in Design View, click the object whose property you want to change. In the Properties window, locate the property you want to change and click it. Each field in the Properties window is divided in two sections: its name and its value:



The left column of a tab in the Properties window displays the names of properties. Although you can click a property name to select it, you cannot change it. The property name can be made of one word such as **Width**. It can also be made of a combination of words, such as **Border Style**. Regardless, in our lessons, each property will be called by what displays on that left column. This means that, if a property displays "Width", we will call it "The Width Property". If it displays "Allow PivotTable View", we will call it "The Allow PivotTable View Property".

The right column of a tab of the Properties window displays the value of the property.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 91

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Modify the table

Change the Font

When designing a table, Microsoft Office Access applies a default font (named Calibri) to the headers of the columns. If you want, you can change it. To assist you with setting the fonts of columns, the Ribbon is equipped with a ***Text Formatting*** section in the Home tab.

To change the font of columns and records of a table:

- ✓ Display the table in ***Datasheet View***.
- ✓ On the ***Ribbon***, click ***Home***.
- ✓ In the ***Text Formatting*** section, click the ***Font*** combo box and select the desired font.

The font you select will be applied to all columns and all values (the records) of the table. The font you apply to a table does not have any influence on the form(s) or report(s) that are, or will be, based on that table.

Change the font size

Besides its name, a font is also known for its size. The size defines how much height and proportional width would be used to represent the characters of the selected font.

To specify the font size of the columns:

- ✓ Open the table in ***Datasheet View***.
- ✓ Go to the Text Formatting section on the ***Home*** tab
- ✓ Click the arrow of the ***Font Size*** combo box and select the desired size.

The font size you apply to a table does not have any influence on the controls on the form(s) or report(s) that are, or will be, based on that table.

Change the font style

Another aspect of the appearance of a font is its style, which is a technique of drawing the characters of the text, depending on the font. This characteristic comes in four options:

Style	Example
Regular	Regular Text
Bold	This text is bold
Italic	<i>Italicized section</i>
Underline	<u>The words are underlined</u>

The font style applies only to a control that can display text. When you add a text-based control to a form or a report, by default, Microsoft Access applies the Regular font style to it. You can change this characteristic if you want. To change the font style of a control, switch the form or report to Design View. Select the control or the group of controls. On the Ribbon, click either Home or Design. In the Text Formatting section, click the button that represents the desired style: **Bold** **B**, *Italic* *I*, or Underline U.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 92

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

You can specify more than one style on a control. To do this, click the button of the desired style. When a style is valid for a control, when you click that control, the style button is highlighted: **B**, **I**, or **U**. To remove a style, click the undesired button. To add a style to another style, simply click the desired button. Based on this, you can have one, two or three buttons highlighted in the combination of your choice.

Instead of the buttons on the Ribbon, you can apply a style or a combination of styles using the Properties window. To do this, access the Properties window for the control. If you want to apply the style to many controls, select them and access the Properties window for the group of selected controls. In the Properties window, click either the Format or the All tab:

- ✓ To set a bold style, click the arrow of the **Font Weight** combo box and click its arrow to select one of the following options: **Extra Light, Light, Normal, Medium, Semi Bold, Bold, Extra Bold, and Heavy**
- ✓ By default, text is not italicized. This aspect is controlled by the **Font Italic** Boolean property whose default value is No. To italicize a text, set this property to Yes
- ✓ By default, the text of a new control is not underlined. This characteristic is controlled by the **Font Underline** Boolean property and its default value is No. If you want to underline the control or the text of the selected controls, you can set this property to Yes

As reviewed for the style buttons on the Ribbon, you can apply various styles using the Properties window. To do this, access the Properties window for the control or the group of controls and use the Font Weight, the Font Italic, or the Font Underline properties to set the styles as desired.

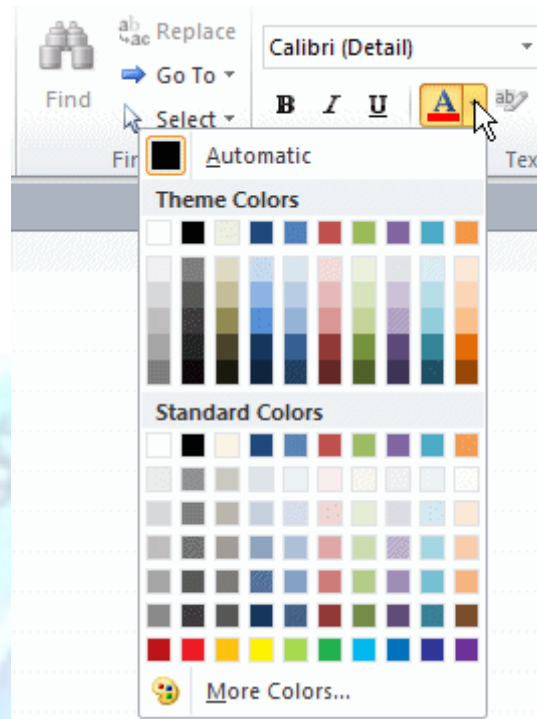
Change the font colour

There are various ways you can change the font colour on a table.

When displaying a table in Datasheet View, on the Ribbon, you can click Home. In the Home section, click the arrow of the Font Colour button. This would display a table of colours:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 93

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



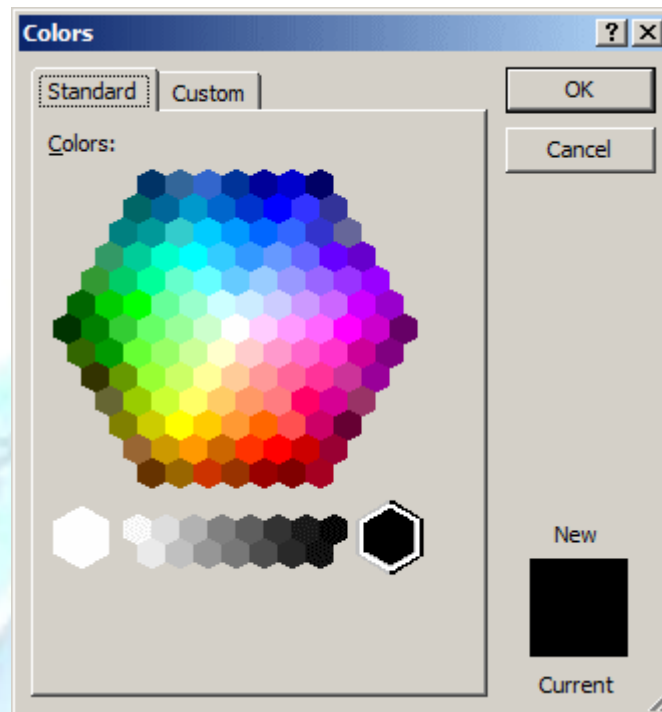
By default, this window displays 2 sections of colours. The top section is labelled Theme Colours. The main section is titled Standard Colours. This is where you will mostly select common colours. This section is made of 10 columns and 7 rows. The intersection of a column and a row shows a coloured button. Each colour has a name. To see the name of a colour, position the mouse on its button and a tool tip would appear.

When the list of colours displays, if you see a colour you like, you can click its button. If none of the displayed colours suits your need, you can click the **More Colours...** button. This would display another dialog box. You can use it to select a colour from the Standard tab:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 94


This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



Or you can use the Custom tab to "compose" a colour by specifying the variances of red, green, and blue.

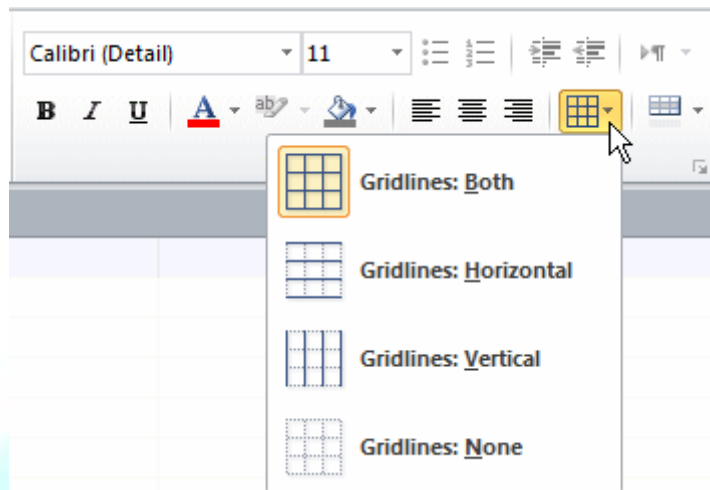
After a colour has been selected, it displays on top of the **Font Colour** button. Next time, if you need the same colour, you can just click the **Font Colour** button and the already selected colour would be applied. In the same way, you can keep changing colours as you see fit. Whenever a colour has been used in your database, it is added to the section under **Recent Colours**. This allows you to keep track of the colours on your objects and to be able to re-apply an already used colour.

Change the grid lines of a table

A table in Microsoft Access appears as a classic spreadsheet with a white background and gray grid lines. If this display is not appealing, you can change it. To do this, display the table in Datasheet View. On the Ribbon, you can click Home. In the Text Formatting section, click the Gridlines button . A window would appear where you can select an option by clicking its button:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 95

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



If you click:

- ✓ **Gridlines: None**, the gridlines would be removed from the table. Here is an example:

Employee IC	Employee N	First Name	Last Name	Title
1		David	Phillips	General Manag
2		Helene	Nice	Administrative
3		Cynthia	Borough	Sales Represer
4		Lester	Vaughn	Network Admi
5		Arthur	Barley	Sales Associate
6		Sandie	Olson	Intern
* (New)				

- ✓ **Gridlines: Vertical**, only the vertical lines that divide the columns would display on the table. Here is an example:

Employee IC	Employee N	First Name	Last Name	Title
1		David	Phillips	General Manag
2		Helene	Nice	Administrative
3		Cynthia	Borough	Sales Represer
4		Lester	Vaughn	Network Admi
5		Arthur	Barley	Sales Associate
6		Sandie	Olson	Intern
* (New)				

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 96

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

- ✓ **Gridlines: Horizontal**, only the horizontal lines that divide the records of the table would display. Here is an example:

The screenshot shows a table named 'Employees' in Datasheet View. The table has five columns: Employee ID, Employee Name, First Name, Last Name, and Title. The records are as follows:

Employee ID	Employee Name	First Name	Last Name	Title
1	David	Phillips	General Manager	
2	Helene	Nice	Administrative	
3	Cynthia	Borough	Sales Representative	
4	Lester	Vaughn	Network Administrator	
5	Arthur	Barley	Sales Associate	
6	Sandie	Olson	Intern	
* (New)				

The table is displayed with horizontal gridlines only. The status bar at the bottom indicates 'Record: 1 of 6' and 'No Filter'.

- ✓ **Gridlines: Both**, both the vertical and the horizontal lines would display. This is the default

The screenshot shows the same 'Employees' table in Datasheet View, but with both vertical and horizontal gridlines displayed. The data and structure are identical to the previous screenshot.

Employee ID	Employee Name	First Name	Last Name	Title
1	David	Phillips	General Manager	
2	Helene	Nice	Administrative	
3	Cynthia	Borough	Sales Representative	
4	Lester	Vaughn	Network Administrator	
5	Arthur	Barley	Sales Associate	
6	Sandie	Olson	Intern	
* (New)				

The status bar at the bottom indicates 'Record: 1 of 6' and 'No Filter'.

Change the background colour

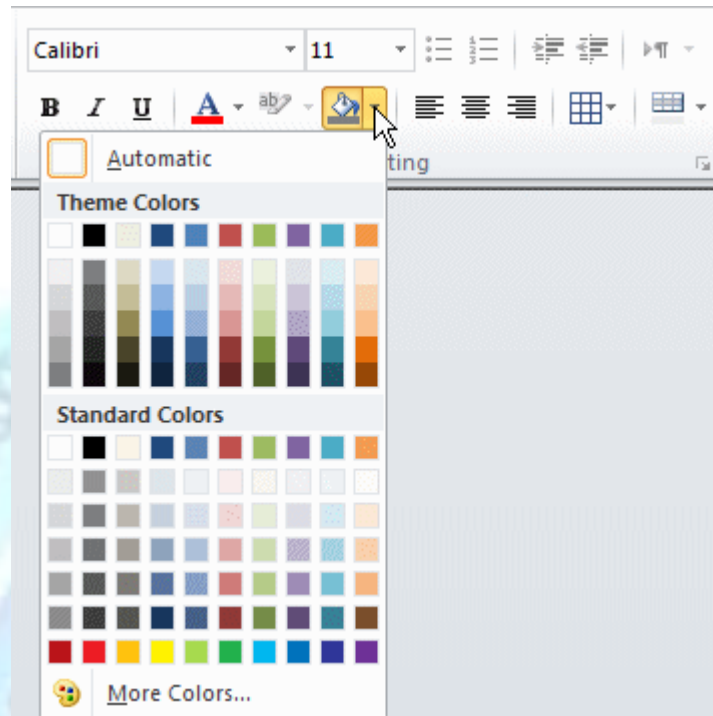
The tables in Microsoft Office Access display their records with alternate colours. This gives them an attractive appeal. If you do not like these default colours, you can change them.

To change one of the background colours of a table, first display it in Datasheet View and click the Home button on the Ribbon. In the Text Formatting section, you can click the arrow of the **Background Colour** button. This would display a window of colours that has the same functionality as the one for the Font Colour button:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 97

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

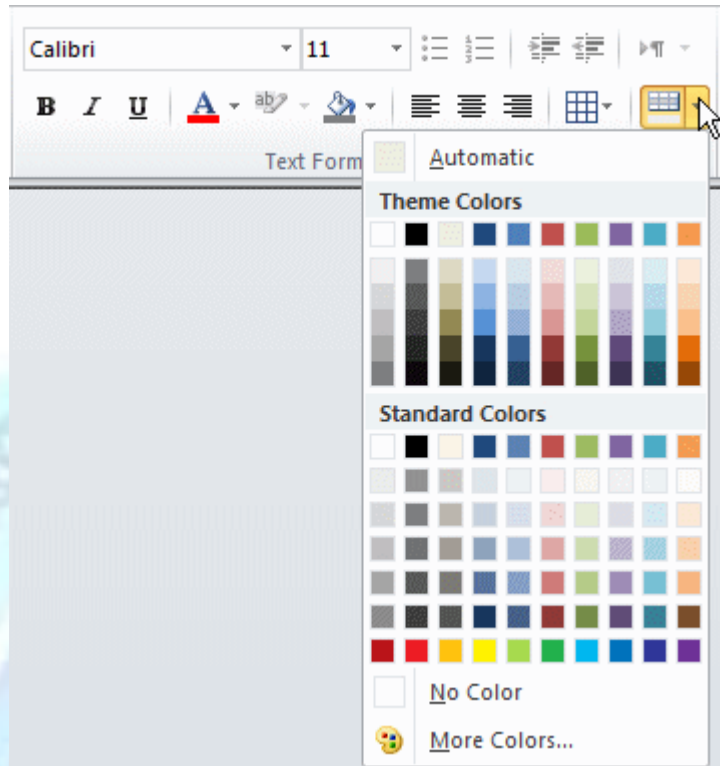


To change the Alternate Row Colour of a table, while it is displaying in Datasheet View, click the arrow of the **Alternate Row Colour** button. A window of colour similar to the one we reviewed for the Font Colour would appear:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 98

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 99




Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Its functionality is also the same. You can then select or compose the desired colour.

Change the text alignment

Most values of a database are made of regular text. Some others are meant to display numeric values, currency, dates, and times. In some cases, Microsoft Access is configured to align the values to the left or the right. In some other cases, you may want to force or customize this alignment of text. On a table, you can align the values of individual columns to the left, the centre, or the right.

By default, the alignment of text-based fields, including any caption on a label, is set to the left (if the user is using a computer that follows US English). To apply an alignment on a table, first display it in the Datasheet View. To specify the alignment of the values of a column, click any cell under that column. On the Ribbon, click Home. In the Text Formatting section, you can click:

- ✓ The **Align Text Left** button  (this is the default button of the section) to position the text to the left
- ✓ The **Centre** button  to position the text to the center
- ✓ The **Align Text Right** button  to position the text to the right

Activity 5

1. To create a new database, in the File Name, replace the contents of the text box with Real Estate1
 - 1.1. Click Create
 - 1.2. Double-click ID, type PropertyID, and press Enter
 - 1.3. Right-click the Table1 tab and click Save
 - 1.4. Set the name to Properties and click OK
 - 1.5. Right-click the Properties tab and click Design View
 - 1.6. Click under PropertyID and add the following fields

Field Name
Property #
Address
City
Province
Postal Code
Bedrooms
Bathrooms
Year Built
Market Value

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 100

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Notice that the default data type for all the fields is Text



1.7. Save the table

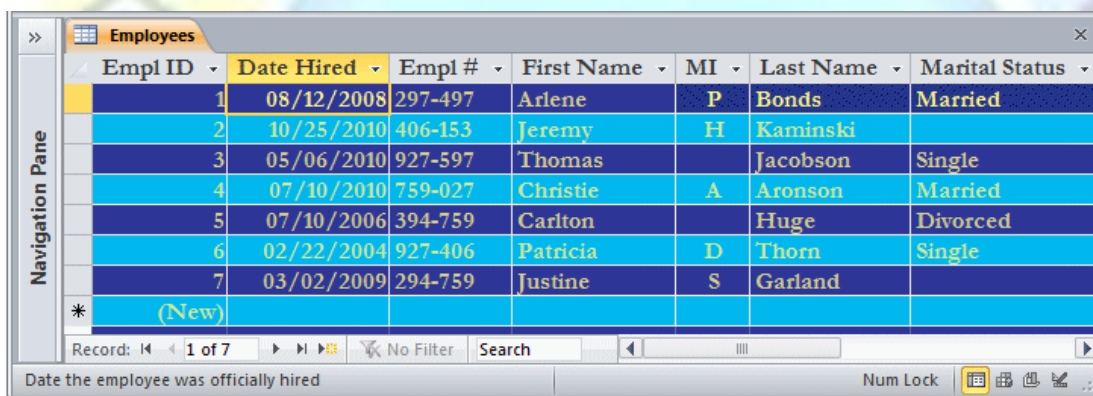


Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 101

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

2. Open the National Bank database

- 2.1. Using the Table button in the Create section of the Ribbon, start a table. After the ID column, using the Add New Field, create the following columns: TransactionType and Description.
- 2.2. Rename the first column from ID to TransactionTypeID.
- 2.3. Save the table as TransactionTypes and close it
- 2.4. Open the Employees table in Datasheet View.
- 2.5. On the table, click MI
- 2.6. On the Ribbon, click Home if necessary.
- 2.7. In the Text Formatting section, click the Centre button 
- 2.8. On the table, click any cell under Date Hired
- 2.9. In the Text Formatting section of the Ribbon, click the Align Text Right button 



Empl ID	Date Hired	Empl #	First Name	MI	Last Name	Marital Status
1	08/12/2008	297-497	Arlene	P	Bonds	Married
2	10/25/2010	406-153	Jeremy	H	Kaminski	Single
3	05/06/2010	927-597	Thomas	A	Jacobson	Single
4	07/10/2010	759-027	Christie	A	Aronson	Married
5	07/10/2006	394-759	Carlton	H	Huge	Divorced
6	02/22/2004	927-406	Patricia	D	Thorn	Single
7	03/02/2009	294-759	Justine	S	Garland	Single
*(New)						

2.10. Save the table

3. Open the World Statistics1 database

- 3.1. Use the Table button in the Tables section of the Ribbon to create a new table with the following fields: ContinentID, ContinentName
- 3.2. Save the table as Continents and switch it to Design View
- 3.3. Open the Countries table in Design View
- 3.4. Use the Lookup Wizard on the GovernmentType column to create a list of the government types. The options will be Republic, Islamic Republic, Monarchy, Communist State, Other, and Unknown. Set the Default Value to "Unknown"
- 3.5. Change the font type to Garamond
- 3.6. Change the font size to 16
- 3.7. Change the background colour of the table

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 102

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

3.8. Save and close the table



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 103

SECTION SIX: SORT AND SEARCH

Specific Outcome

Sort and search for records in a database table

Assessment Criteria

On completion of this section you will be able to ensure that:

- ✓ A record in database table is sorted according to one field: Ascending, descending
- ✓ A record is located in a database table, by searching for specific data within the table

Finding and Replacing Data

Edit Data

Editing a value consists of changing it. This can be done on the table or the form (or on a query as we will learn). To do this, first locate the value in the field. If you are working on a table, you can click the value and use the keys (left, right, Home, End, Backspace, or the Space Bar) to edit the value. If you are working on a form, you can click the label next to a field. This would completely select the corresponding value in the control. You can then press F2 to position the caret in the control and edit its value. Alternatively, you can click the control's field and edit the value.

Find Data

Sometimes there will be some regular problems in your database. For example during data entry, some information could be missing, mistyped, or entered in the wrong field. These problems would be easy to locate on a small table or form. If the database grows, values could become difficult to locate. Fortunately, Microsoft Access provides many tools you can use to find values and take actions.

- ✓ To assist you with finding a value in a table, the **Home** tab of the Ribbon is equipped with a section named **Find**:



To start looking for a value, you can click the **Find** button

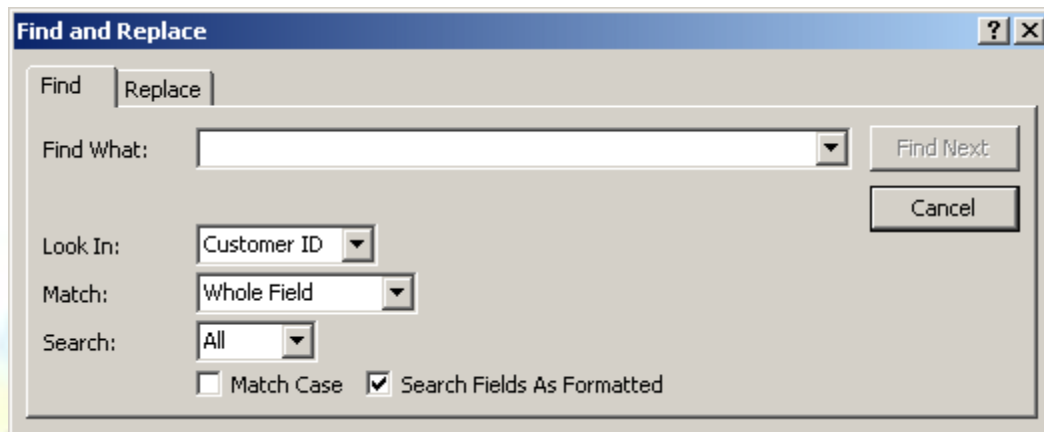
Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 104

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Tip: shortcut key Ctrl + F

This will display the **Find and Replace** dialogue box with the **Find** tab selected:



Note: The Find and Replace dialog box is modeless, meaning you can access the table or form in the background while the dialog box is present.

- ✓ To specify the value to look for, type it in the **Find What** combo box.
- ✓ The **Look In** combo box allows you to select the column where the value should be located.
- ✓ The **Match** combo box allows you to specify how close the match should be. The options are:
 - Any part of field,
 - Whole field (the default),
 - And start of field.

The **Search** combo box allows you to specify the direction to follow. The options are:

- Up,
- Down, and
- All (the default).
- ✓ After specifying the options, select **Find Next**.
- ✓ To dismiss the Find and Replace dialogue after using it, click **Cancel** or press **Esc**.

Note If you have previously used the dialogue box, the Find What combo box keeps track of the previous searches and stores

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 105

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

them in the control. This allows you to perform a search on a value previously used.




Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 106

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Replace Data

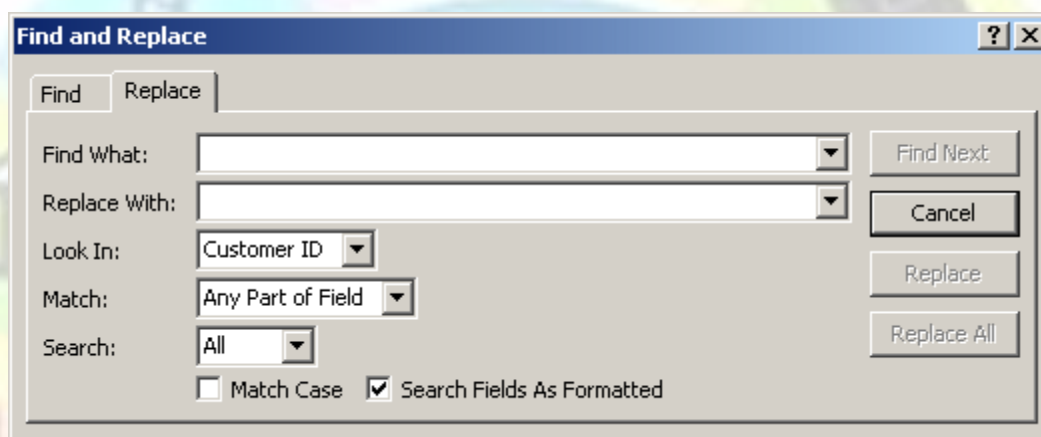
We have seen that you can use the **Find and Replace** dialogue box to simply locate a value. Instead of just finding it, you may want to **replace** the found value with an alternate.

To do this, you will use the **Replace** section of the dialogue box.

In the **Find** section of the **Ribbon**, click the **Replace** button 

Tip **shortcut key Ctrl + H.**

This displays the **Find and Replace** dialogue box with the **Replace** tab selected:



Note **You can also open the Find and Replace dialog box as we did for finding, then click the Replace tab.**

The **Replace** section of the dialogue box provides the same options at the **Find** counterpart with the addition of the **Replace With** combo box, the Replace and the Replace All buttons.

After specifying what to look for in the Find What combo box, the Replace With combo box allows you to specify the value to replace the Find What with.

Sorting and Filtering

Sorting

Sorting records consists of rearranging them in alphabetical, incremental, chronological, or Boolean order. Sorting can be performed on fields that have numbers, strings, date, time, or Boolean values.

It happens that certain fields in a table are left blank when the data is entered or that data is entered and then deleted. As a result, a table may end up displaying empty fields. These are also referred to a **null field** or **null values**. In reality, or behind the scenes as far as an application is concerned, there is a difference between a null field and an empty field.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 107

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

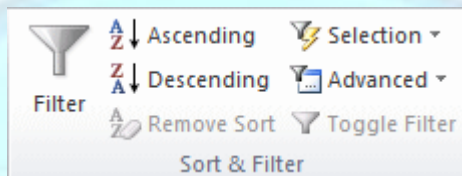
- ✓ A null field is one that has never received any value previously.
- ✓ On the other hand, if the user comes to a field, enters a value in it, then deletes that value (at that same time or at another time), the field is considered empty.

This means that the field has had a value before but that value has been lost, deleted, or removed. To make our discussion easier in these lessons, we will interchangeably use the expressions "null fields" and "empty fields" to mean the exact same thing.

Note *When sorting records in alphabetical, incremental, or chronological order, the empty fields always come first.*

This allows you to view which fields have not been filled; in other words, what records are incomplete or missing.

Display the table in **Datasheet View**. When a table is displayed in **Datasheet View**, the **Ribbon** displays a section titled **Sort & Filter** in the **Home** tab:



Also, when a table or a query displays in **Datasheet View**, each column header displays a down pointing arrow button on its right side:



CompanyAs	Category	Make	Model	Date Acquired	Purchase Price
1	Desktop Comp	Dell	Precision T3500	10/08/2010	1345.75
2	Monitor	AOC	19-Inch Class	10/15/2010	135.95
3	Printer	HP	LaserJet CP352	10/08/2010	1295.95
4	Monitor	ASUS	VW246H 24-Inch	10/09/2010	245.95
5	Laptop	Gateway	NV79C35u	12/05/2010	895.25
6	Desktop Comp	Dell	Vostro 430	10/08/2010	1025.50
7	Digital Camera	Nikon	Coolpix P100	11/06/2010	375.85
8	Printer	Xerox	Phaser 3600/DF	10/22/2010	985.50
9	Monitor	ViewSonic	VA2231WM 22-Inch	10/09/2010	185.85
10	Desktop Comp	Lenovo	Ideacentre K32	10/08/2010	955.50
11	Monitor	ViewSonic	VA2231WM 22-Inch	10/09/2010	185.85
12	Server	Dell	PowerEdge T710	10/15/2010	1625.85
13	Laptop	Dell	Latitude E5510	12/22/2010	1118.85
14	Monitor	Samsung	P2250 22-Inch	12/22/2010	195.95
*	(New)				

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 108

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Before you can sort records, you have to specify the field that would be used as the reference: on the table click a field under the column of your choice.

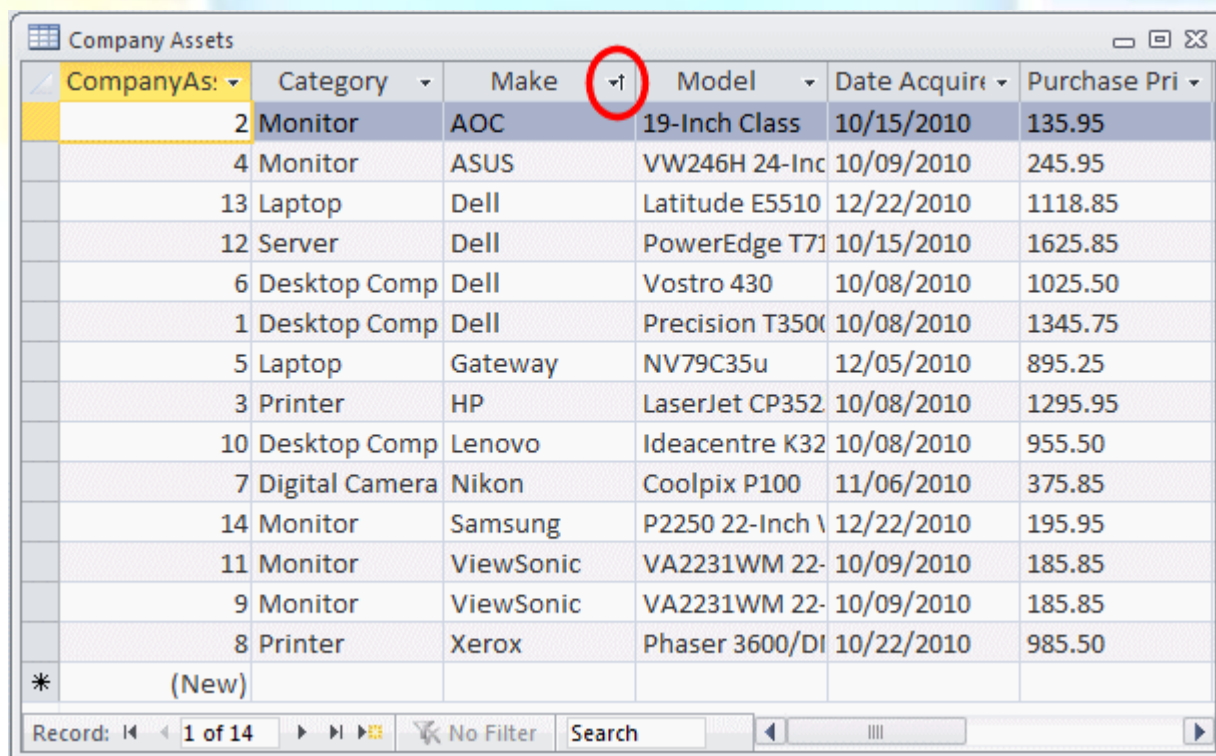
- ✓ To arrange the list, click on the table, and then click the column header or a field under the column.
- ✓ Then, in the Sort & Filter section of the Ribbon, click Ascending  Descending .

Note ***You can also right-click to sort the list.***

Besides the regular arrangement of records, you can also sort records in reverse alphabetical, incremental, or chronological. When you do this, the empty fields will always come last in the list.

When you have finished sorting the records, it is sometimes important to reset the table before continuing unless you want to keep the list sorted.

Note ***When you have sorted the values of a column, the down-pointing arrow button on the right side of the column header becomes equipped with an arrow:***



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 109

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Tip You can keep the list sorted while you are performing other operations. It would remain sorted until you decide to put it back to the way it was previously.

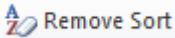


Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 110

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	

Remove the Sorting

In most cases, you should "unsort" a list before continuing. To put the list back in the sequence it previously had:

- ✓ In the **Sort & Filter** section of the **Ribbon**, click the **Clear All Sorts** button


OR

- ✓ Right-click the query and click **Remove Sort**

Filtering Fields

So far in our data analysis activities, we have just been selecting the necessary fields. In some circumstances, you may want to set a limit on the number of records to display or make available to the user. To do this, you must create a rule and ask Microsoft Access to apply it to a set of records. The rule works like a funnel that decides what to let through and what to retain. The rule is also called a criterion. For example, you can set a criterion that asks a query to consider the list of all students in a school but to restrict the list only to female students.

Note ***A filter is a criterion or a set of criteria that must be applied to a set of records to create a list of records that abide by a common rule.***

Filters can be used to isolate records on a table, a query, a form, or a report. There are differences on the way each type of value handles it.

If you have a list of records where fields are empty in a certain column, you can filter the list so that you would get the empty fields only, or you can create a filter that would produce the non-empty fields only.

- ✓ To filter records that display on a data sheet, first decide what column to use.
- ✓ Then: To get a list of records where the fields are empty, you can:
 - Right-click the column and click **Equals Blank**

OR

- Click an empty cell under the column header. In the **Sort & Filter** section of the **Ribbon**, click **Selection** and click **Equals Blank**

After clicking, the table displays only the records that are empty.

To get a list of records where the fields are not empty:

- ✓ Right-click an empty cell in that column and click **Does Not Equal Blank**

OR

- ✓ Click any empty cell under the column header. In the **Sort & Filter** section of the **Ribbon**, click **Selection** and click **Does Not Equal Blank**

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 111

Compiled by: Sakhisisizwe	Approved By: L.Levin
This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.	


After clicking, the table would display only the records that are not empty for that particular column.



Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases		
Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 112

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Remove a Filter

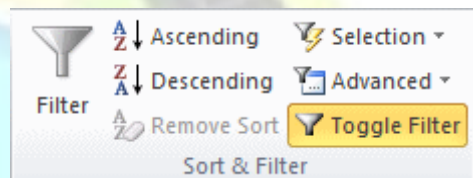
When a table, a query, or a form is filtered, in the Sort & Filter section of the Ribbon, the Toggle Filter button is highlighted .

Also, the bottom section of the table, query, or form displays a Filtered button .

If you perform another filter on the list, only the selected records would be considered. This means that you must decide whether you want the new filtering to apply to all records or only to the new ones. If you want to use all records of the list, you must first remove the previous filter.

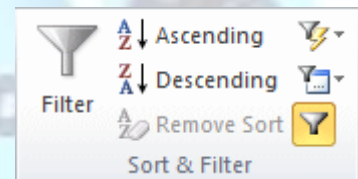
To dismiss the previous filtering operation:

- ✓ In the **Sort & Filter** section of the Ribbon, if the window is large enough to show the **Toggle Filter** button, then click it.



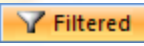
OR

- ✓ If the width used by Microsoft Access is not large enough, then the **Sort & Filter** section would be equipped with the **Remove Filter** button. To remove the filtering, you can click that button



- ✓ Right-click the table, query, or form and click **Clear Filter From ...**

OR

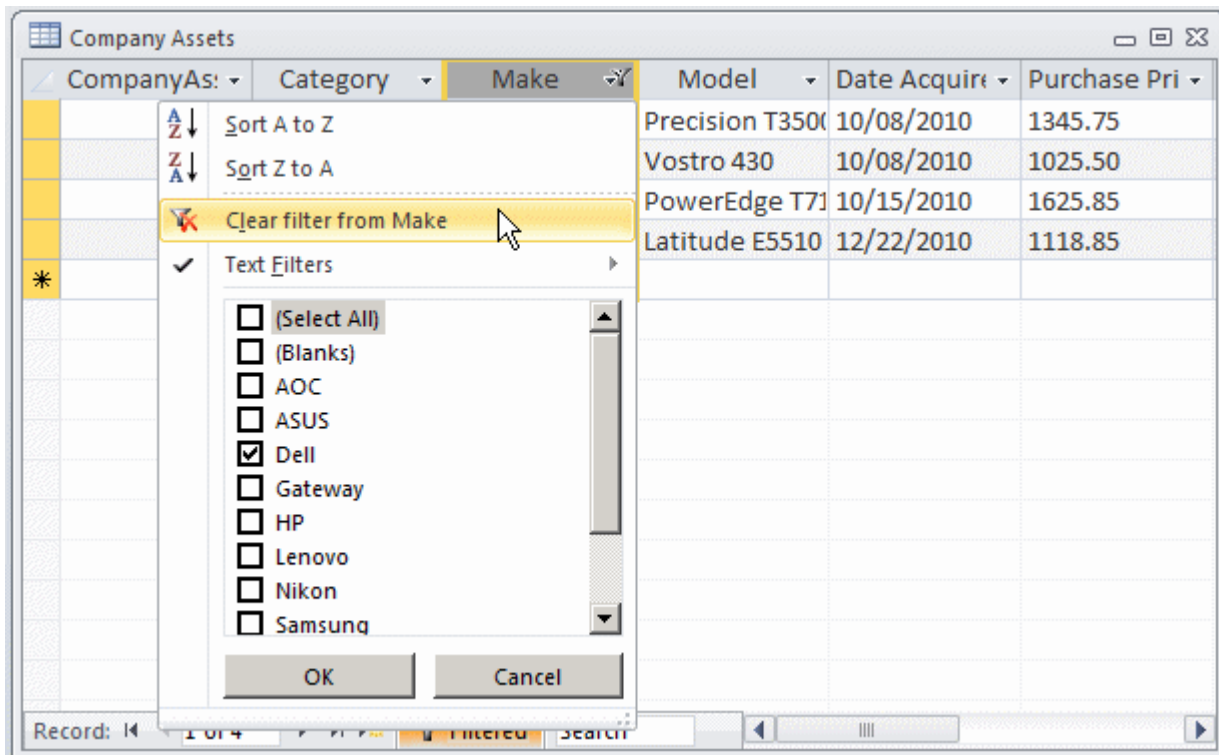
- ✓ Click the down-pointing button on the right side of the column name and click the Clear Filter From option.
- ✓ In the bottom section of the table, query, or form, click the Filtered button .

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 113

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Here is an example:



Filtering String-Based Fields

Imagine you have a table where some records can be recognized as belonging to a category. For example, in a list of persons, you may have a column that shows each one's gender. Obviously different people would have different values but a group of people would have the same value and another group would have another same value. Based on such a field, you can create a list that includes only the people who share one of the values. To do this, you would filter the values. Microsoft Access provides various techniques to visually filter records.

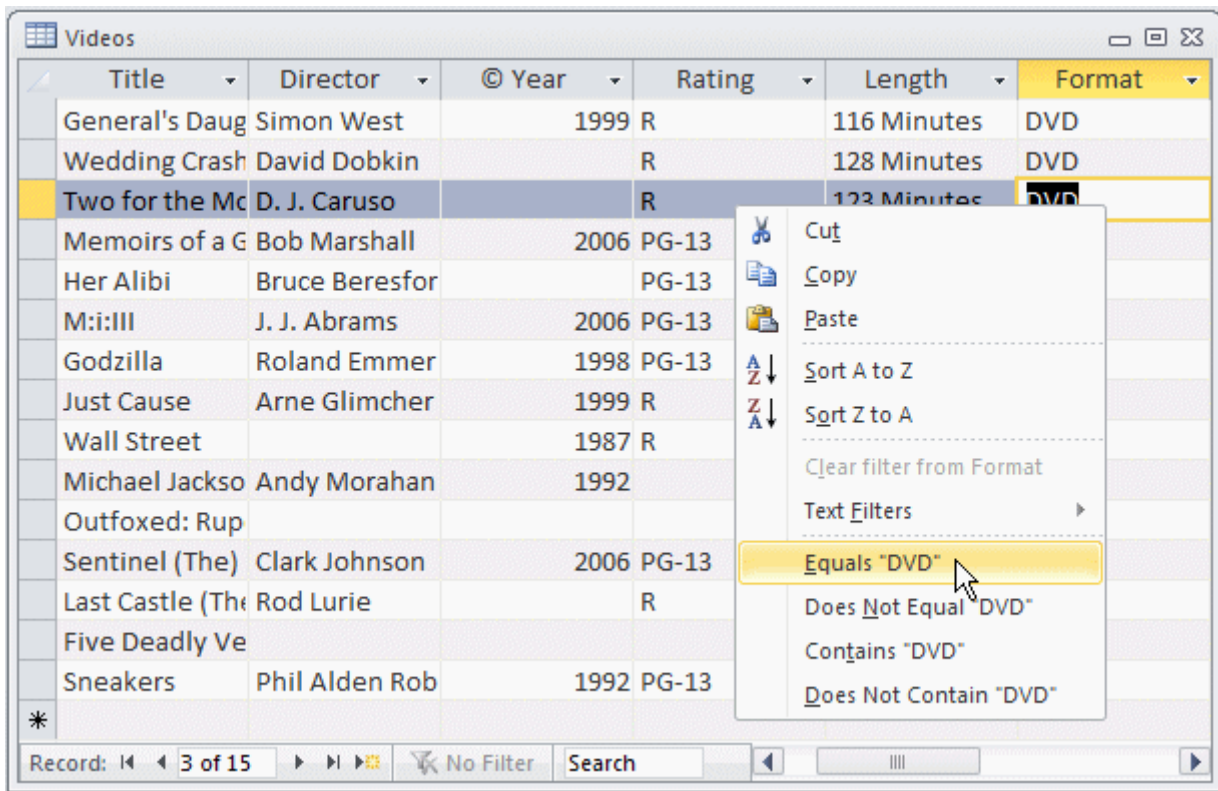
- ✓ To filter records that display in a data sheet, first decide what column holds the value you want to filter by. To get a list of all records that hold the exact same string as that of your column, you can:
 - Right-click the value in the column and click the ***Equals*** option.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 114

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Here is an example:



- ✓ Click the **value**. In the **Sort & Filter** section of the Ribbon, click **Selection** and click the **Equals** option
- ✓ After clicking, the table displays only the records that share the value in the field:

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 115

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

Title	Director	© Year	Rating	Length	Format
General's Daug	Simon West	1999	R	116 Minutes	DVD
Wedding Crash	David Dobkin		R	128 Minutes	DVD
Two for the Mc	D. J. Caruso		R	123 Minutes	DVD
Memoirs of a G	Bob Marshall	2006	PG-13	145 Minutes	DVD
M:i:III	J. J. Abrams	2006	PG-13	125 Minutes	DVD
Godzilla	Roland Emmer	1998	PG-13	139 Minutes	DVD
Just Cause	Arne Glimcher	1999	R	102 Mins.	DVD
Michael Jackso	Andy Morahan	1992		122 Minutes	DVD
Outfoxed: Rup					DVD
Sentinel (The)	Clark Johnson	2006	PG-13	108 Minutes	DVD
Last Castle (The	Rod Lurie		R	2 Hrs. 6 Mins.	DVD
Five Deadly Ve					DVD
Sneakers	Phil Alden Rob	1992	PG-13	2 Hrs. 13 Mins.	DVD
*					

Record: 1 of 13 Filtered Search

Activity 6

- Open the National Bank1 database
- Open the Customers table and sort records by State then remove the criteria
 - ✓ View a list of customers who live in MD
 - ✓ View a list of customers who live outside of MD
 - ✓ Close the table without saving it
- Open the Employees form
 - ✓ View a list of only employees who have the capacity to create a new bank account
 - ✓ View a list of cashiers only (including the head cashier)
 - ✓ View a list of employees who live outside of Baltimore
 - ✓ View a list of employees who earn less than \$16.00/hr
 - ✓ Close without saving the form
- Open the World Statistics1 database
 - ✓ Open the Countries table and show the list of countries that start with Ca
 - ✓ Show the Countries that are a republic

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 116

This document is strictly confidential and may on no account be reproduced, copied or divulged without prior authorisation.

SECTION SEVEN: PRINTING FROM A DATABASE

Specific Outcome

Print from a simple database

Assessment Criteria

On completion of this section you will be able to ensure that:

- ✓ A database table layout is printed
- ✓ The data in a database table is printed: All, selection

The primary function of the table is to provide a means of storing and arranging information of a database. Nevertheless, you can print data of a table, especially if for example you are in a hurry and do not have access to another object. You can print data on a table whether the table is opened or not.

- ✓ To print a closed table, locate it in the Navigation Pane and click it to select it, then click **File**, position the mouse on **Print** and make your selections.
- ✓ In the same way, if the table is opened in **Datasheet View**, click its tab to give it focus, then click **File** -> **Print** and make your selections.
- ✓ After specifying the printer, if you are ready to print, you can click **OK**.
- ✓ To customise the printing job, you have to set the properties of the printer. Once you have done this, click **OK**

Activity 7

Print a table from any of your databases.

Unit Standard 116936: Use a Graphical User Interface (GUI)-based database application to work with simple databases

Revision number	Date revised	Page number
Rev 3	14/5/2016	Page 117

Glossary

Term	Definition
Aggregate Function	A calculation used to summarise a value, such as SUM or AVERAGE.
Allow Zero Length	A property of text, memo and hyperlink fields allowing the user to enter a zero length string.
Append	Add records to the end of a table.
Argument	Information supplied to a function. Different functions require different arguments, some of which may be optional.
Ask A Question	A tool to access the online help system.
AutoForm	An Access tool that automatically generates a form from a table or a query.
AutoReport	An Access tool that automatically generates a report from a table or a query.
Backup	Making a copy of a file to store in a remote location so that data is protected against loss or damage. Backups should be made regularly.
Boolean	A true or false value.
Bound Control	An object on a form or report that is tied to underlying data.
Calculated Field/Control	A query field or unbound control containing an expression that calculates the data it displays.
Caption	A property defining a plain English label for a field.
Chart	A graphical representation of data.
Child Table	The table on the "many" side in a one-to-many relationship.
Clipboard	A temporary storage area for data as it is Cut, Copied and Pasted.
Column	In a datasheet a column represents a field in the database.
Control	In an Access database, an object on a form or report. Bound controls display data from the underlying table or query. Unbound controls can be used to add labels, lines, boxes and graphics to a report or to add a calculated control.
Criteria	A value or expression to match as the basis for selecting records.

Term	Definition
Cursor	Controlled by moving the mouse, the cursor (or mouse pointer) is used to select elements of the screen.
Data Access Page	An interactive form published on a web page, providing a live link to data in the underlying table(s).
Data Source	A connection to a database setup in Windows Control Panel. The connection defines the type and location of the database and optionally specific logon information.
Data Type	A field can only store data of a particular type. Common types include text, number and date/time values. The data type affects how the data is sorted and how it can be used in calculations.
Data Validation	Checking that data entered by the user meets the criteria set for the field.
Database	A set of one or more fields (columns) defining the data held in one or more records (rows).
Datasheet	A simple way of viewing data in columns and rows. Each column in the datasheet is a field. Each row is a record.
Default Value	A property defining the value of a field when a new record is created.
Design View	The view used to make structural or formatting changes to database objects, including tables, queries, forms and reports. You cannot enter data in design view.
Documenter	A tool to produce a report on the design of data objects.
Drag-and-Drop	Moving data using the mouse instead of the Clipboard.
Embed	Storing a data object created and edited using a different application to the file the object is stored in.
Encrypt (Encode)	Encode the database file so that its contents cannot be examined by opening it in a text editor.
Expression	A combination of mathematical operators, functions and values to calculate a result. Expressions are used as filter/query criteria and to calculate values.
Expression Builder	A visual tool for creating expressions (or calculated controls) in queries, forms and reports.
Field	A unit of data storage in a table. A field is defined with a field name and a data type. Additional properties can be set to control how data is entered and displayed.
Field Size	A property determining how much data can be entered into the field.

Term	Definition
File	Data stored on a disk. Files are associated with, and edited using, different applications. Different file types are identified by their icon and file extension.
Filter by Form	Filter by form lets you enter criteria in a form.
Filter by Selection	Creates filter criteria according to data you select.
Find and Replace	A tool for locating text or values in fields that match search criteria. The found values can be replaced with alternative text.
Folder	A directory created on a disk in which to store files.
Font	The typeface (or appearance) of text.
Foreign Key	One or more fields in a child table that match values in the primary key field(s) in a parent table. The primary and foreign keys are set by creating a relationship between two tables.
Form	An interface for entering, editing and viewing data. Most forms display one record at a time, to make data entry easier.
Format	A property determining the display of data fields or controls.
Format Painter	A tool that allows you to copy formats from one selection to another.
Function	A built-in formula that uses a series of values to perform a calculation and returns the result of that operation.
Grouping	Aggregating records that have the same value in a grouping field(s). For example, grouping orders from customers in a particular country.
Header/Footer	An area reserved for text and graphics that appear at the top/bottom of every page or section.
Icon	A graphic or graphic button representing a file or command.
Import	Transferring or copying data stored in one file to another. Data can be imported using the cut, copy and paste, drag-and-drop or Insert/Import commands.
Indexed	A field property that determines whether a field is indexed or not. Indexing a field speeds up searches performed on the field. An index can be set to No Duplicates, in which case the user cannot enter identical values in the field. A primary key field is automatically set to Indexed (No duplicates).
Input	Data entered into a system. A database needs effective input methods to ensure that data is entered quickly and without errors. Examples of inputs include datasheets, forms and imports.

Term	Definition
Input Mask	A property that defines a data input format for a field.
Insert Mode	The normal typing mode. New characters are inserted before existing characters.
Insertion Point	The typing cursor, indicating where text will appear.
Join	A line between a field in one table or query and a field of the same data type in another table or query. There are different join types, which affect how records are selected in a query.
Landscape	Page orientation where the page is wider than it is tall.
Link	Storing a link to a file (or part of a file) within another file.
Lookup Field	A field where a list of values is stored in a table, query or as part of the field definition. The user can select a value for the field from this list and/or type in a value, depending on the properties set for the lookup. Lookups are usually used to select a foreign key value from a list of primary key field values.
Margins	The white areas between the paper edges and the text boundaries on the page.
Menu	A list of related commands grouped under a heading.
Null	The value returned by a blank field.
Object	<p>A unit of data that can be copied between different files and applications. Examples of objects include pictures, charts and tables.</p> <p>Object is also used to refer to components within a file (for example, tables, forms and reports in Access).</p>
Office	A suite of related Microsoft software applications, sharing a common design.
Office Assistant	An on-screen helper that allows you to ask questions and provides tips while working.
Office Clipboard	An extension to the Windows Clipboard allowing multiple items to be collected and pasted in Office applications.
OLE	<p>Object Linking and Embedding. OLE allows different applications to share data. You can insert an OLE object or file in any other file created in an OLE-compliant application. The object can be edited from the destination file using the original application.</p> <p>An embedded object is saved as part of the destination file. A linked object is saved in the original file and can be edited from either file.</p>

Term	Definition
Orientation	The direction of an object, usually used to refer to the dimensions of a page (portrait or landscape) but also of the direction of text.
Output	Data retrieved from a system. A database needs effective output methods to ensure that data is retrieved quickly and in appropriate format to the user's requirements. Examples of outputs include queries, reports and exports.
Paper Size	The type of paper a document is printed on. UK standard paper size is A4 (8.27x11.69" or 21x29.7 cm). US standard paper size is Letter (8.5x11" or 21.59x27.94 cm).
Parent Table	The table on the "one" side in a one-to-many relationship.
PivotTable PivotChart	An interactive view of data. Fields from the data source can be combined in different ways to analyse data. Values can be summarised using aggregate functions, sorts and filters.
Points	Units of measurement relating to the height of text characters.
Portrait	Page orientation where the page is taller than it is wide.
Preview	To view a document as it will print.
Primary Key	A field that uniquely identifies a record in a database table. Values in a primary key field cannot be null or duplicated.
Properties	In Access, the characteristics of an object, such as a field or control.
Query	A query selects records from a data source, such as table(s) or other queries. A query often includes criteria, to restrict the number of records returned and a sort, to change the order of records. Special types of query can also summarise data or change records (action queries).
RDBMS	Relational DataBase Management System. Software allowing the creation and management of relational databases.
Record	Data entered into a single row in a table. The table fields determine what data makes up a record.
Recycle Bin	A Windows feature to store deleted files temporarily in case they need to be undeleted.
Redo/Repeat	A tool for reversing the effect of Undo or repeating previous edits.
Referential Integrity	Ensuring that modifications to data do not result in invalid values in key fields.

Term	Definition
Relationship	<p>In a database, matching values stored in one table with values stored in another table. Storing related records in several tables is more efficient than trying to create a table with fields for every bit of information required.</p> <p>The most common type of relationship identifies a field in a child table (a foreign key) where each value corresponds to one unique value in the parent table (a primary key). This type of relationship is called a one-to-many relationship.</p> <p>Defining a relationship creates a join between the two tables, which is used in queries.</p>
Report	A method of formatting and displaying data for printing or summary.
Required	A property that forces the user to enter a value into the field. If the field is blank, the record cannot be saved.
Restore	Retrieving data from a backup copy.
Row	A row is created for each record added to a table. The data entered into the row is determined by the fields (columns).
Sans-serif	Fonts where the text has plain ends.
Save	Writing data entered into an application to a file on a disk.
ScreenTip	A yellow box displayed over the selected element indicating its function.
Scroll	Scroll bars allow you to view parts of a document that will not fit in the screen area.
Section	Part of a form or report. Sections are used to display data (Detail), summary information and headers and footers.
Serif	Fonts where the text has curly feet.
Share	A resource that is available to multiple users.
Spelling Checker	A tool to check spelling in the document. The Office products use the same spelling tool, though some features are not available in all applications. The checker uses a custom dictionary to keep track of words that are correct but that it does not recognise.
Status Bar	A bar at the bottom of the window displaying information about the file and application.
Subdatasheet	A collapsible datasheet displaying records from a child table linked to the current record in the parent table from within the parent table's datasheet.

Term	Definition
Subform Subreport	A form within a form (or report within a report) displaying child records related to the parent record.
Symbol	Non-alphanumeric characters. Symbols cannot be inserted using normal key strokes.
Table	A collection of fields designed to store related data.
Taskbar	A Windows feature for starting programs and switching between applications.
Toolbar	A bar containing icon buttons for frequently-used commands.
True Type	Fonts designed to match printed output with the screen display.
Typeover Mode	The mode used to type over existing characters in a document.
Unbound Control	Objects such as lines and graphics or calculated controls added to a form or report.
Undo	A tool for reversing previous edits.
Validation Rule	A property setting limits or conditions on data entry in a field.
View	Different ways of looking at and editing a document.
Web	A collection of linked web page documents published on the internet.
Window	Every application runs in a window, controlled using the icons on its Title bar. Some applications, including Excel, can open multiple documents in separate windows.
Zero Length String	A special type of blank field. A zero length string is entered by pressing <input type="text" value="Space Bar"/> or typing <input type="text" value=""/> . A zero length string can be useful for avoiding the return of null values.
Zoom	To view the document at a different size.