UNDERSTANDING MICROSOFT ACCESS 2016

Microsoft Access has a reputation for being a more difficult application to learn and use than other Office applications such as Word, Excel and PowerPoint. There are many reasons for this and a good orientation to Microsoft Access will greatly help in understanding how this powerful application can be used to perform a range of useful jobs.

How Access Is Different

Unlike other Office 2016 applications such as, Word, Excel and PowerPoint where you can start to create something useful almost immediately and directly on the screen, with Access you must first design and create structures to hold your data, and then create special template layouts for displaying, manipulating and presenting that data in a useful and meaningful way. In other words, rather than just creating something through trial and error, Access requires more thought, more planning and good designs in order to be used effectively. While there is a lot of 'learn by doing' involved with Access, there is also great deal to learn before you start using it.

How Access Works

Basically, Access allows you to do two main things:

- it allows you to *store* huge amounts of data
- it allows you to *manipulate* that data to produce relevant and useful information. This is what *Database Management Systems* (DBMS) are all about, and the good news is that Access is one of the easiest of these to learn and use.

Data is *stored* in *tables*. Tables are structures made up of rows and columns and are similar in appearance and operation to Excel worksheets. You need to design and create these tables yourself before the data can be entered.

The data in tables is manipulated using *forms*, *reports* and *queries*. A *form* is mostly used for data entry (although you can enter data directly into a table). A *report* is used to manipulate the data and present it either on the screen or printed on paper in a more pleasing way. A *query* is used to produce a subset of the data – for example, in a sales system you may only want to see the sales in the northwest region.

Forms, reports and queries are created as layout frameworks. Once the framework has been designed you can then run the data from the tables through them. Indeed, this is a common theme throughout Microsoft Access: *design* versus *display*. You create or modify a form, report or query in *design mode*, and then preview the data in *display mode*.

Even tables (that store your data) conform to this design/display metaphor. You *design* a table structure, then enter the data in a *display* (they call it a *datasheet*) view.

Tables, forms, reports and queries are known as *database objects*. In fact, each of these is like a mini-application within the broader Access application. Each has a very large range of commands and options that you can use to both design the structure or framework, and also use to display data.

What Can Access Be Used For?

You can use Access to create a system for managing your music or stamp collection, membership at your local soccer or polo club, petty cash, inventory and stock control, or sales at work and much, much more. Any situation where you need to store data, manipulate it, and then present it as useful information is a perfect contender for Access.

The only disadvantage with Access is that unless you use one of the pre-created system templates, you need to plan and design the system and the database objects (the tables, forms, reports and queries) used in that system. This is what takes time and learning to do.

STARTING ACCESS FROM THE DESKTOP

To create a new database or work with an existing one, the first thing you must do is to start Microsoft Access. The first time you use Access you need to open it from the taskbar *Search the*

web and Windows bar or the *All apps* list in the *Start* menu. You can choose to pin it to the *Start* menu or the taskbar so that you can access it more quickly and easily the next time you use it.

Try This Yourself:

Before you begin, ensure that your computer is switched on and the desktop is displayed…

1   If there is no **Access** icon in the taskbar at the bottom of the desktop, click on the **Windows** icon in the taskbar, as shown, to display the **Start** menu

2   Click on **All apps** to display a list of all the apps on your computer

3   Scroll down to the **A** section

Access 2016 is listed here…

4   Click on **Acces 2016** to start Access

5   Right-click on the Access icon in the taskbar to display a menu of options, as shown, then select **Pin this program to taskbar**

You can now click on this icon to open Access from the desktop. This icon will remain in the taskbar unless you remove it…

6   Repeat step **5** to select **Close window** to close Access

7   Click on the Access icon in the taskbar to open **Access** again
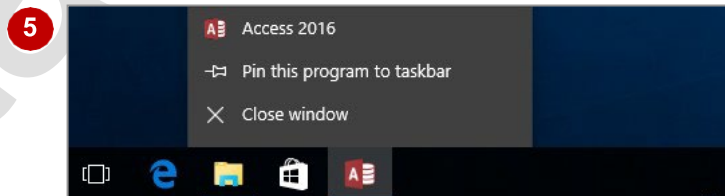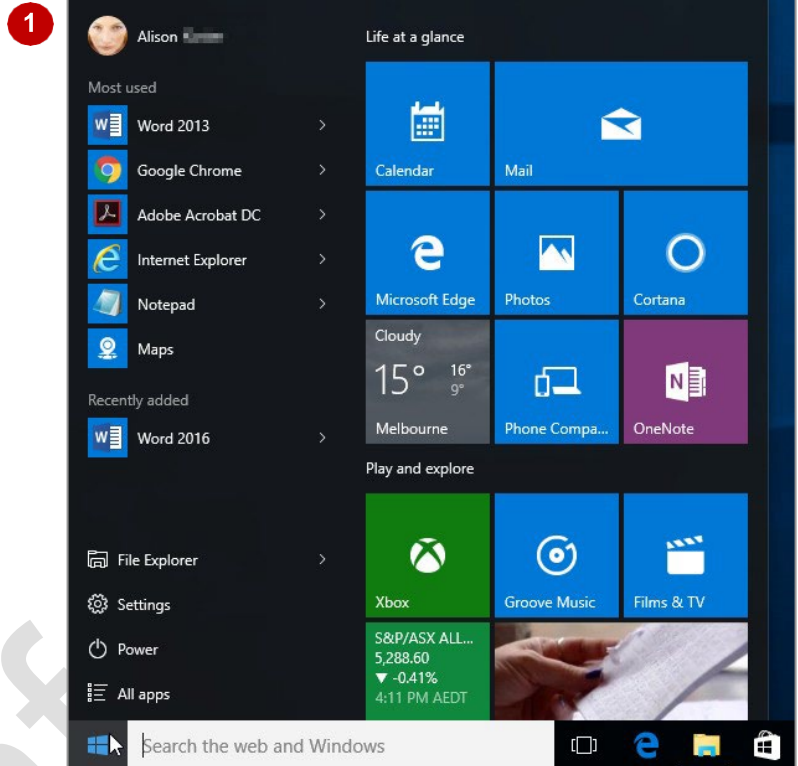
For Your Reference…

To *pin Access* to the *taskbar*:
1. From the **Start** screen, click on the down arrow icon to display the **Apps** screen
2. Locate and right-click on **Access 2016**
3. Click on **Pin to taskbar**

Handy to Know…

- You can start Access by clicking in the taskbar **Search…** bar, typing **access**, then clicking on Access in the list of search results.

- You can pin Access to the **Start** menu by displaying the **All apps** list, right-clicking on **Access 2016** and selecting **Pin to Start**.

UNDERSTANDING THE START SCREEN

Most times you open Access, a *start* screen will display. From this initial screen, you can choose what kind of database you want to work with. You can choose to work with one of your most recently accessed files, open a database which has been saved to *Computer* or *OneDrive* or create a new database using the available templates.

Microsoft Access 2016 Start Screen

The Microsoft Access 2016 *start* screen is very helpful if you want to quickly access a database you have worked on recently or create a new database based on one of the available templates (including the default *Blank desktop database*).

If you have already worked on a database or several databases in Access, a list of recent databases will display below *Recent* in the pane to the left of the screen. If you haven't worked on any databases yet, you can still open existing databases by clicking on the link, *Open Other Files*, located below *Recent*. This lets you open an existing file from your computer or OneDrive.

The main pane of the *start* screen displays available templates you can use to create a new database and a search box you can use to search the internet for additional templates. Templates are simply layouts that have already been created which you can customise to suit your needs and then enter relevant content. If you want to start with a clean slate you can choose the *Blank desktop database* template – you'll probably find this is the one you will use the most. Templates displaying the globe icon (e.g. *Asset tracking*) use the web-based SharePoint servers to host your database and make it available over the internet (note that these templates require subscriptions).

In the top right corner of the screen you'll see information about the account you've used to sign into *Windows* as well as *help*, *minimise*, *restore down*, and *close* tools.
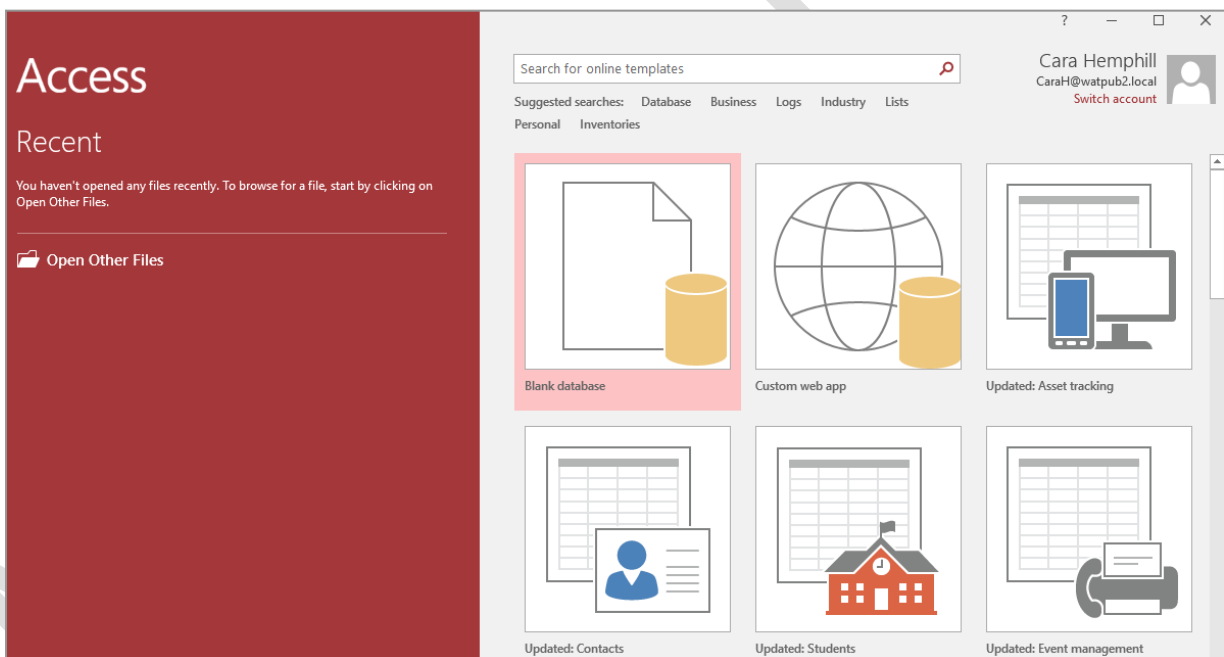
The *start* screen will only display when you launch the *Access 2016* application directly – that is, by clicking on the Access tile on the Windows 10 *Start* screen, clicking on the application on the *Apps* screen or under search results, or clicking on the taskbar icon if the application has been pinned to the *taskbar*.

Access 2016 can also be started in Windows 10 by double-clicking on an Access database in *File Explorer*. When this occurs *Access 2016* will start with the database open on the screen and the *start* screen shown above will be bypassed.

CREATING A NEW BLANK DATABASE

When you launch Microsoft Access 2016, you will be presented with the *start* screen, which enables you to open an existing database or create a new one 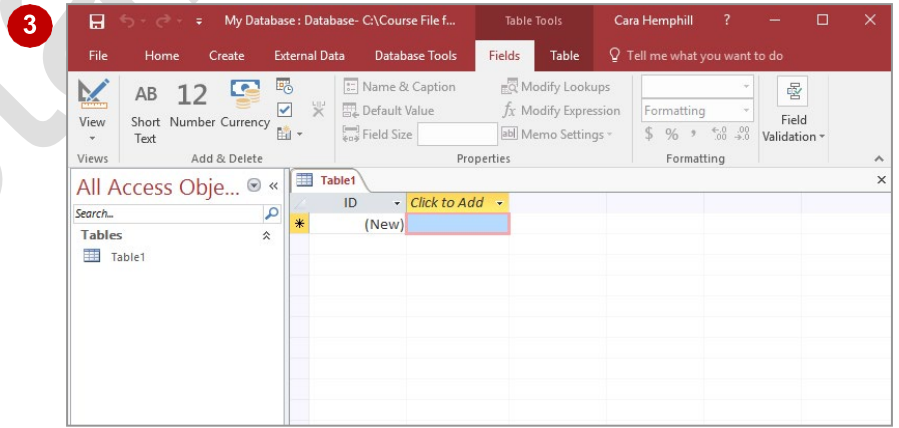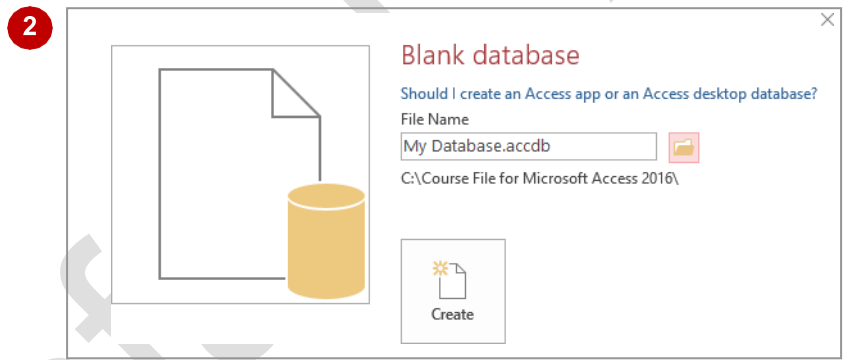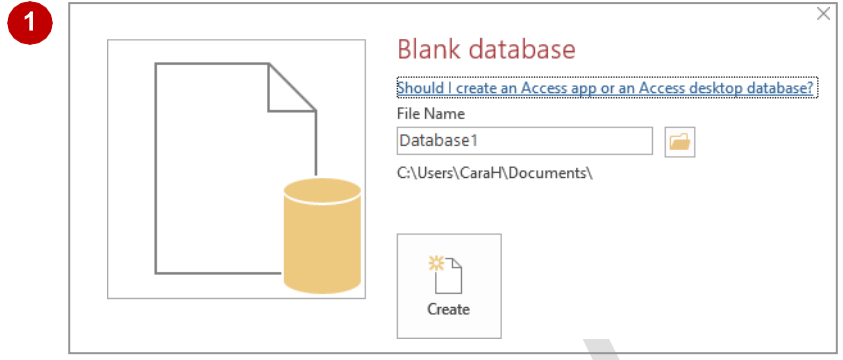based on one of a multitude of available templates. Most of the templates shown are web-based and may involve a subscription to Office 365. You can also simply create a new, blank desktop database which is free.

Try This Yourself:

Before starting this exercise you MUST ensure that the Access 2016 Start screen is displayed...

1 In the right pane, click on *Blank desktop database*

You will be asked to name the database…

2 Type **My Database** in *File Name*, then click on the *Browse* icon to display the *File New Database* dialog box, locate and double-click on *C:/ Course Files for Microsoft Access 2016* and click on **[OK]**

You could click on the Next arrow to display the other built-in templates and use one of those instead, but we will stay with the blank template…

3 Click on **[Create]** to open the new blank database in Access

Access has created a single blank table for you to begin with

1

Blank database

Should I create an Access app or an Access desktop database?
File Name

Database1

C:\Users\CaraH\Documents\

Create

2

Blank database

Should I create an Access app or an Access desktop database?
File Name

My Database.accdb

C:\Course File for Microsoft Access 2016\

Create

3

For Your Reference…

To *create* a *new blank database*:

1. In the *start* screen, click on *Blank desktop database*
2. Type a *File Name*, click on **[Browse]** and select a save in location
3. Click on **[OK]** then click on **[Create]**

Handy to Know…

- If you already have a database open and want to create a new one, click on the *File* tab to open the *Backstage*, then click on *New* and click on *Blank desktop database*.

UNDERSTANDING THE BACKSTAGE VIEW

Before you can properly enter Microsoft Access 2016, you must have a **database file** open. A database file is where your database objects (*tables*, *forms*, *reports*, *queries* etc) for a particular system or project you are working on are located. The **Backstage view** is accessed using the **File** tab and provides you with file information and enables you to print, save and more.

The Backstage

The **File** tab on the ribbon is not a standard tab. Clicking on the **File** tab launches a mini-program within Microsoft Access called **Backstage view**, also called simply **Backstage**.

A navigation pane occupies the left side of the **Backstage**. The options in this pane enable you to access a number of operations, such as printing and saving and can also provide you with information about your database such as size.

Click on the options in the navigation pane to change the display in the pane on the right.
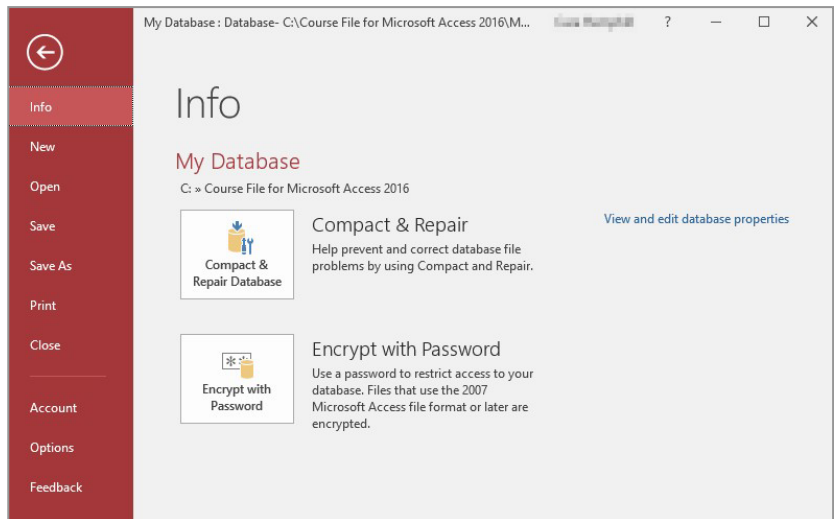
The Backstage Options

|	
Info	Provides status information about the current database and lets you compact and repair the database and encrypt it with a password.
New	Enables you create a new database and provides access to inbuilt templates as well as ready access to a range of online templates.
Open	Provides a list of recent documents as well as the option to search through your Computer, SkyDrive or other place, to find what you are looking for.
Save	Saves your current object (table, query, form etc).
Save As	Enables you to save the current database in a different format (e.g. as .mdb, compatible with versions earlier than 2007) and/or in a different location.
Print	Enables you to print the current object and preview it.
Close	Closes your current database.
Account	Contains product and user information.
Options	Displays the **Access Options** dialog box, which presents you with options for setting up how Access works in general and options (preferences) for the current database.
Feedback	Allows you to provide Feedback to Microsoft on any issues or suggestions you have about Access.
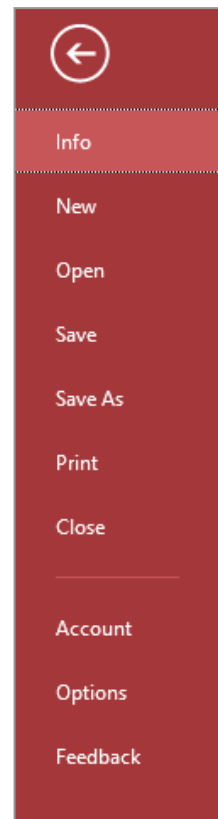
OPENING AN EXISTING DATABASE FILE

A good way to see how Access 2016 works is to open an existing database file. To open a database file, you need to use the *Open* option in the *Backstage*. If the database file has recently been opened, it may appear in the *Recent Database* list. However, if it doesn't appear there, you will need to use one of the other *Open* options to search for and open it.

Try This Yourself:

Before starting this exercise ensure that Access has started...

1 Click on the *File* tab to open the *Backstage*, then click on *Open* to display the *Open* options

Let's change the folder location to display our existing database files…

2 Click on *This PC* under *Open* in the middle pane

This will display the current folder and any recent folders. Let's assume these are not the folders that we need…

3 Click on *Browse* to display the *Open* dialog box

4 Double-click on the icon for *C:* drive, then double-click on the *Course Files for Microsoft Access 2016* folder

5 Click on *A Sample Database.accdb*, then click on **[Open]** to open the database

6 If a security warning displays in the yellow info bar just below the ribbon, click on **[Enable Content]** to close the info bar
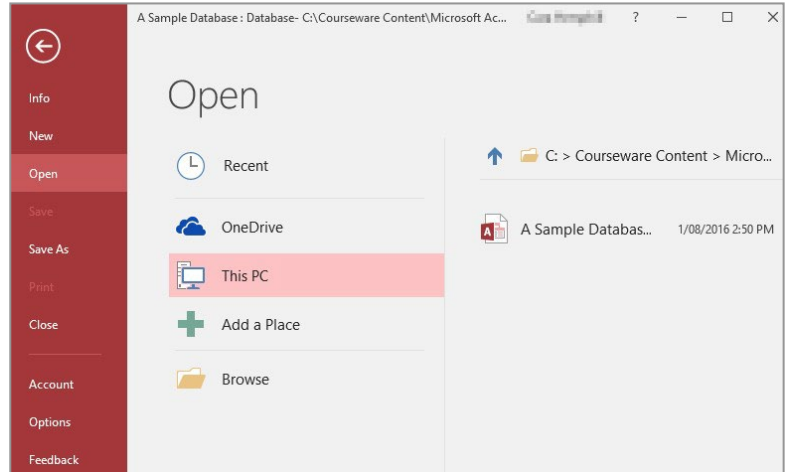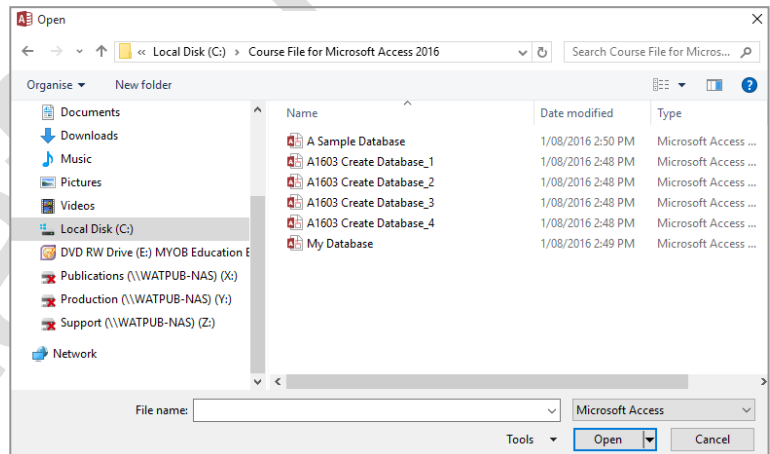
For Your Reference…

To *open* an *existing database file*:
1. Select *Open* in *Backstage* view
2. Move to the folder that contains the file
3. Click on the file to select it
4. Click on **[Open]**

Handy to Know…

- You can use the keyboard shortcut `Ctrl` + `O` at any time to display the *Open* area in *Backstage* view.

UNDERSTANDING THE ACCESS 2016 SCREEN

At first glance there's not much to an Access 2016 database screen. The screen really only gives you access to either *create*, *modify*, or *run* one of the **database objects** in a database file (tables, forms, reports, queries, etc). It isn't until you choose to perform one of these operations that the screen really becomes more intricate.
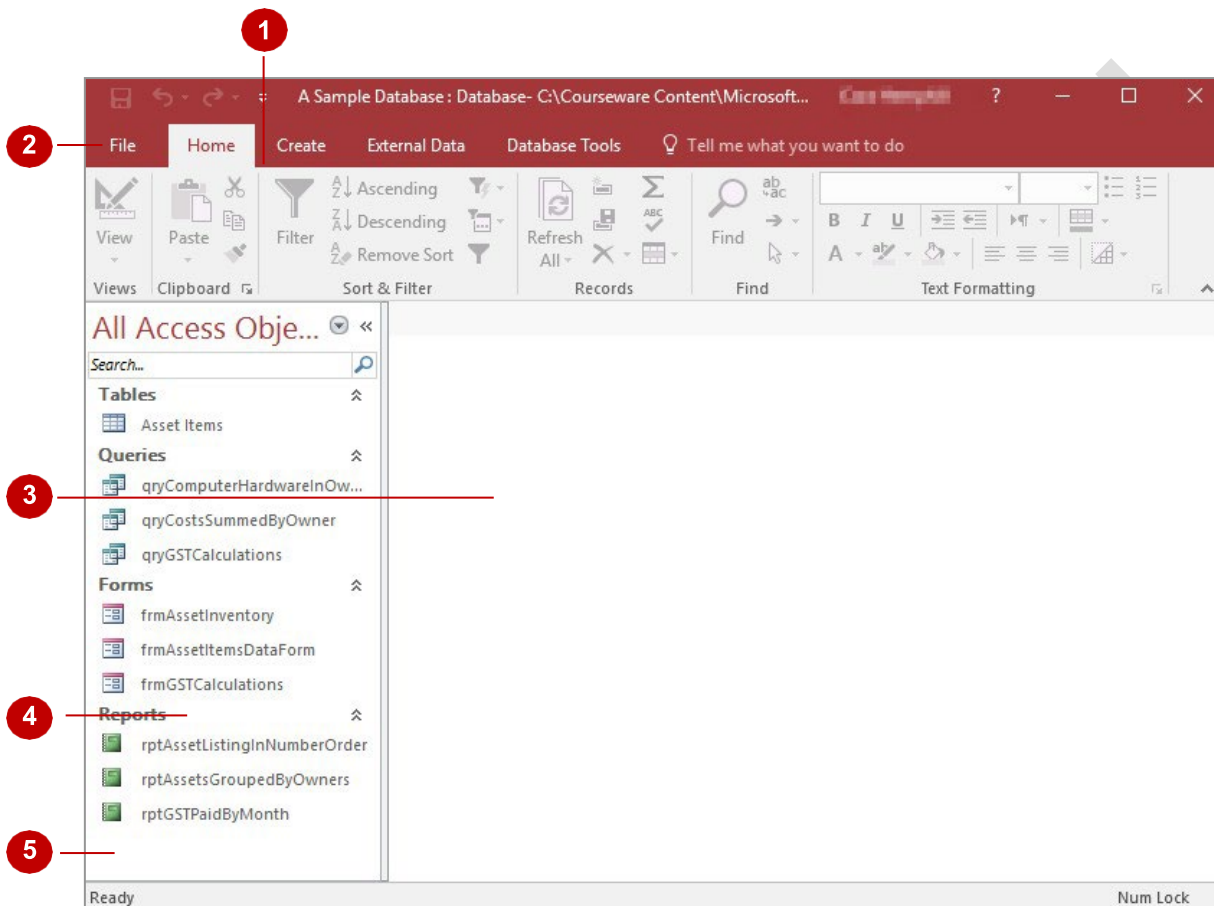
1. The **ribbon** is the tabbed band that appears across the top of the window. It is the command control centre of Access 2016. You use the **tabs** on the ribbon to access **commands** which have been categorised into **groups**. Commands can be buttons or sometimes include **galleries** of formatting options that you can select from. This area really comes to life when a database object is opened.

2. The **File** tab of the ribbon is used to access file management functions such as saving, opening, closing, printing, etc. *Access Options* are also available so that you can set your working preferences and options for Access 2016.

3. The main part of the screen is the data area. Here a **database object** will appear either in design or in preview mode. The database object must first be opened before it will appear so, even though **Asset Items** in the screen above is selected, it hasn't yet been opened.

4. The **Navigation** pane is used to list and navigate the various database objects (*tables*, *forms*, *reports*, *queries*, etc) that exist in the database. By default, all objects are displayed (as shown above) but it is possible to filter the pane to show, for instance, only objects of one type (e.g. tables).

5. The **Security and Message** area displays information about the database object that is currently open. Since there are no objects open the area is not showing much at the moment other than the fact that it is *ready* for you to begin.

USING THE RIBBON

The *ribbon* is the command centre for Access. It provides a series of commands organised into *groups* that are placed on relevant *tabs*. Tabs are activated by clicking on their name to display the command groups. *Commands* are activated by clicking on a button, tool or gallery option. Although there are often several ways to access an option, the ribbon provides a simple, direct approach.

Try This Yourself:

Continue using the previous file with this exercise, or open the file A Sample Database.accdb...

1 In the **Navigation** pane, double-click on **Asset Items** under **Tables** to open the object – examine the **groups** on the **Home** tab

When an object is open, more options on the ribbon become active. The Home tab contains commonly used commands…

2 Click on the **Create** tab

These commands are used to create new objects (tables, queries etc)…

3 Click on the **Table Tools: Fields** tab, then click on **More Fields** in the **Add & Delete** group

A down arrow indicates the option will display a gallery…

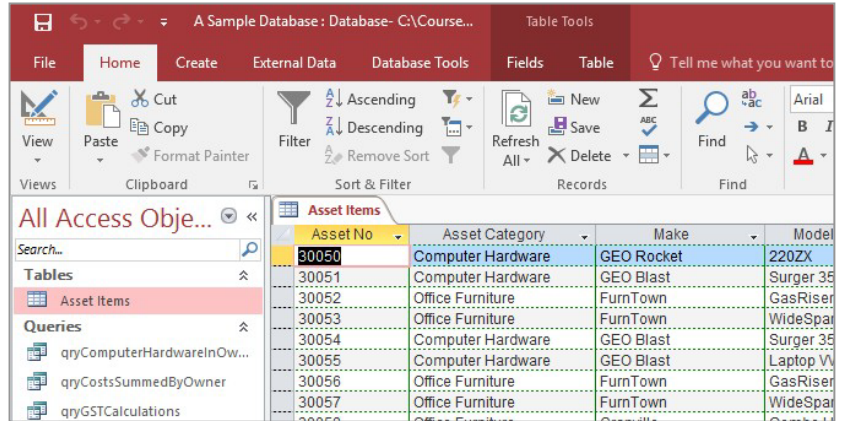4 Click on each of the **tabs** and examine the **commands**

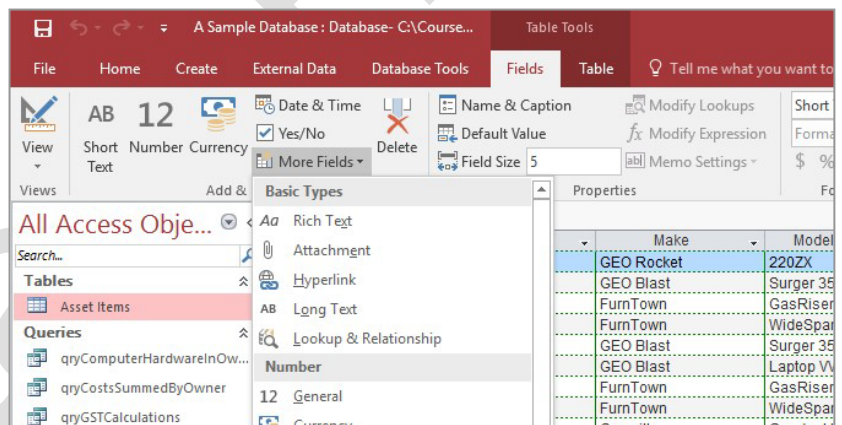*Some commands open dialog boxes…*

5 On the **Home** tab, click on **Find** in the **Find** group to open the **Find and Replace** dialog box

6 Click on **[Cancel]**

For Your Reference…

To *use* the *ribbon*:

1. Click on a *tab* to display the *commands*
2. Click on a *tool* to activate a *command*, display a *gallery* or display a *dialog box*

Handy to Know…

- Additional tabs, known as *contextual tabs*, appear in specific circumstances. For instance, if you open a table, the *Table Tools: Fields* and *Table Tools: Table* tabs appear. This provides quick access to all of the tools you may need to work with tables.

WORKING WITH THE NAVIGATION PANE

The *Navigation* pane is an essential part of Access 2016 as it provides you with access to the database objects that are in your database file. The pane itself can be filtered to show you more or less objects and you should get a pretty good grasp on how it operates before you begin to create tables and other database objects.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file A Sample Database.accdb...

1 Click on the **All Access Objects** drop arrow in the **Navigation** pane, as shown

   A menu will display…

2 Select **Queries** under **Filter By Group** to see only the saved query objects in the database

3 Click on the drop arrow again and select **Reports** to see only the reports

4 Click on the drop arrow again and select **All Access Objects** to see all of the database objects

5 Click on the arrow to the right of **Forms** in the **Navigation** pane

   The forms will be hidden and the arrows will change to double down arrows…

6 Click on the arrow to the right of **Forms** to display the forms again

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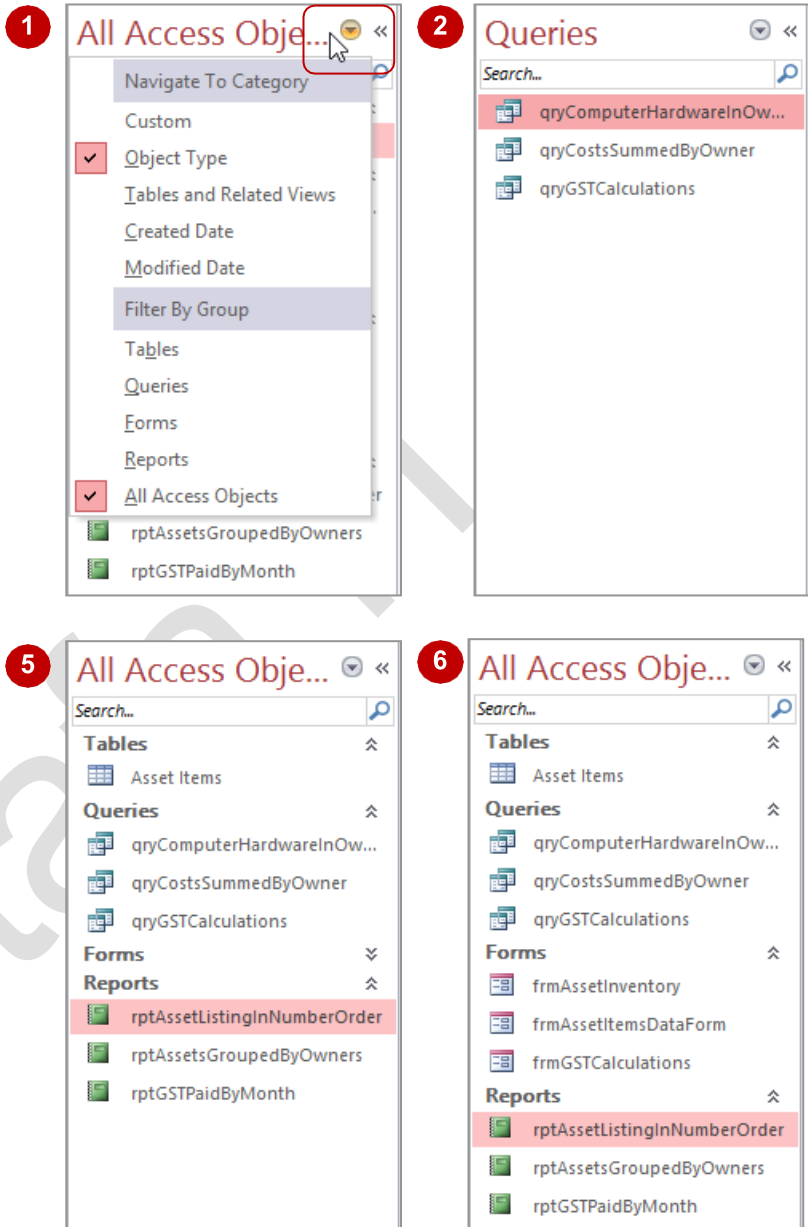
For Your Reference…

To *filter database objects* in the *Navigation pane*:

1. Click on the **All Access Objects** drop arrow for the object type in the *Navigation* pane
2. Select the desired filter option

Handy to Know…

- The *Navigation* pane menu is quite complex. Once you've become proficient with it you can list the objects by date created or modified. However, the best option is to list objects grouped according to their type.

ADDING COMMANDS TO THE QAT

The **QAT** (**Quick Access Toolbar**) is a small toolbar that appears at the top left corner of the Access window and is a handy location to place the commands from the ribbon that you use most frequently. Adding commands from the ribbon involves locating the command, right-clicking on it and selecting **Add to Quick Access Toolbar**.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file A Sample Database.accdb...

1. Point to the first button on the **Quick Access Toolbar** to see the name of the tool and its shortcut

    In our case it's the Save tool – by default, only three tools appear in the QAT (Save, Undo and Redo)…

2. On the **Home** tab, right-click on **Filter** in the **Sort & Filter** group to display a shortcut menu

3. Select **Add to Quick Access Toolbar** to add the *Filter* tool to the **QAT**

4. Click on **Customise Quick Access Toolbar**, as shown, to display a menu

5. Select **Open** to add the **Open** tool to the **QAT**

    It is just as easy to remove tools you don't want from the QAT…

6. Right-click on the **Filter** tool in the **QAT** and select **Remove from Quick Access Toolbar**

7. Repeat step **6** to remove the **Open** tool from the **QAT**
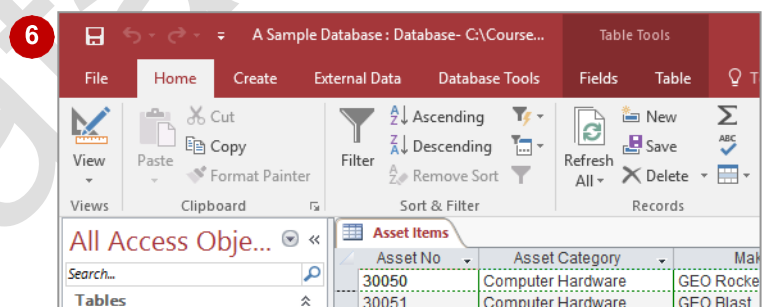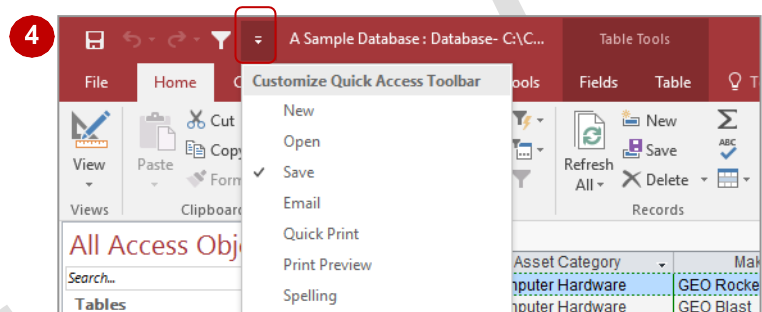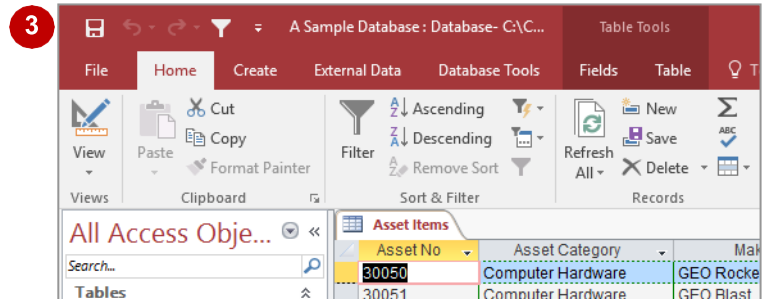
For Your Reference…

To **customise** the **Quick Access Toolbar**

- Right-click on the command you want to add and select **Add to Quick Access Toolbar**, or
- Click on **Customise Quick Access Toolbar** and select a command

Handy to Know…

- You can position the **QAT** under the ribbon by clicking on **Customise Quick Access Toolbar** and selecting **Show Below the Ribbon**. This puts the tools that you use most frequently closer to your workspace making it quicker to access them.

WORKING WITH TOUCH MODE

These days many people are using Office programs on touchscreen devices such as tablets and even smart phones. Because these screens are small, it is easy to accidentally tap the incorrect command. To help prevent this, you can activate **touch mode** which creates more space between tools on the QAT, commands on the ribbon, and the tabs on the ribbon.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file A Sample Database.accdb...

1. Click on **Customise Quick Access Toolbar**, as shown

2. Select **Touch/Mouse Mode**

   This will only add the tool to the Quick Access toolbar, not activate Touch mode…

3. Click on **Touch/Mouse Mode** in the **QAT** to open a menu

   Mouse mode is selected by default. With this mode the commands are optimised for use with a mouse…

4. Select **Touch**

   The tools on the Quick Access toolbar, tabs on the ribbon and each command on the ribbon will spread out significantly. Let's revert to the default Mouse mode…

5. Repeat steps **3** and **4**, selecting **Mouse** to activate **Mouse mode**

   Let's remove the tool from the Quick Access toolbar…

6. Right-click on **Touch/Mouse Mode** in the **QAT** and select **Remove from Quick Access Toolbar**
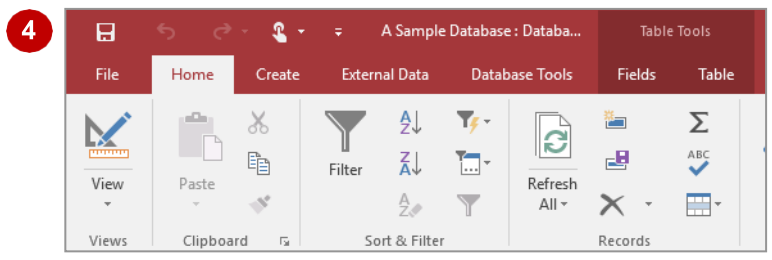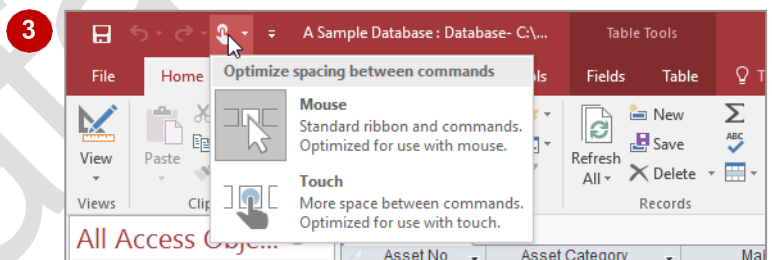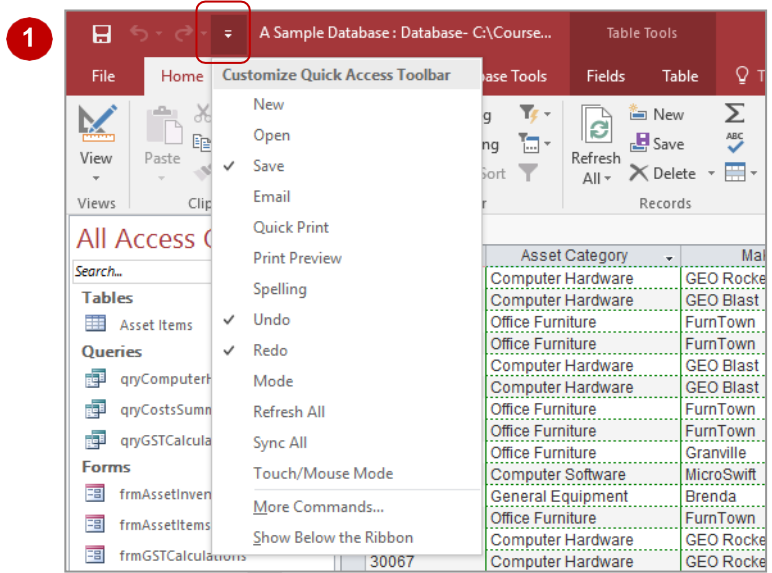
Despite its name, Touch mode can be used with a mouse and may suit people who have difficulty with fine mouse movements.

For Your Reference…

To **activate Touch mode**:

1. Click on **Customise Quick Access Toolbar**
2. Select **Touch/Mouse Mode**
3. Click on **Touch/Mouse Mode** in the Quick Access toolbar
4. Select **Touch**

Handy to Know…

- When you activate **Touch mode** in one Office application, it is automatically activated in **all** other Office programs (Word, Outlook, etc.) immediately.

WORKING WITH A TABLE

A *table* is used in a database file to store data. A table has a defined structure and in Access 2016 whenever the table is open, it is seen either in *Design* mode or in *Datasheet* mode. When it is in *Design* mode you can make changes to the structure of the table but not to the data itself, and when it is in *Datasheet* mode you can make changes to the data but not to the structure.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file A Sample Database.accdb...

1 Ensure *Datasheet* mode is active – if not, in the *Navigation* pane, double-click on *Asset Items* under *Tables* – this mode provides access to the actual data

2 On the *Home* tab, click on the top half of *View* in the *Views* group to switch to *Design* view

*This mode displays the structure of the table.*

There are also view buttons at the bottom of the screen which allow you to toggle between Design and Datasheet modes…

3 Click on *Datasheet View* in the bottom right of the window, as shown, to see the data again

4 Click on *Close 'Asset Items'* in the top right corner of the main pane as shown (just beneath the ribbon) to close the table
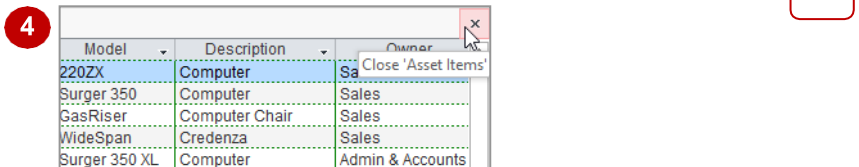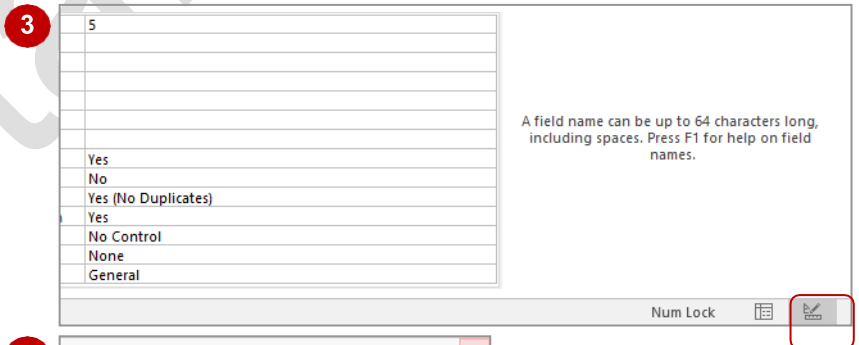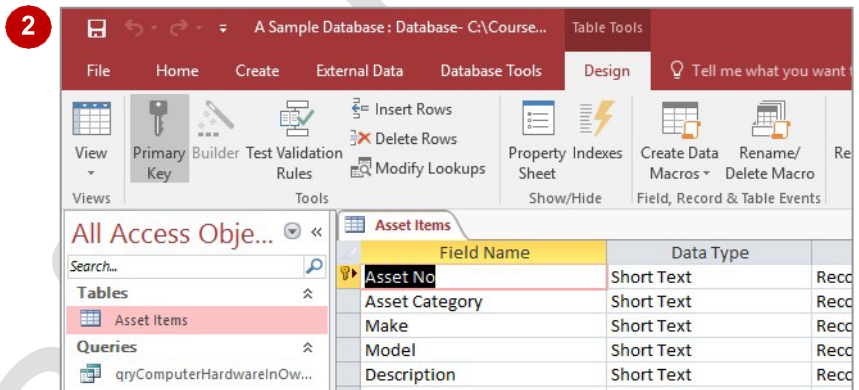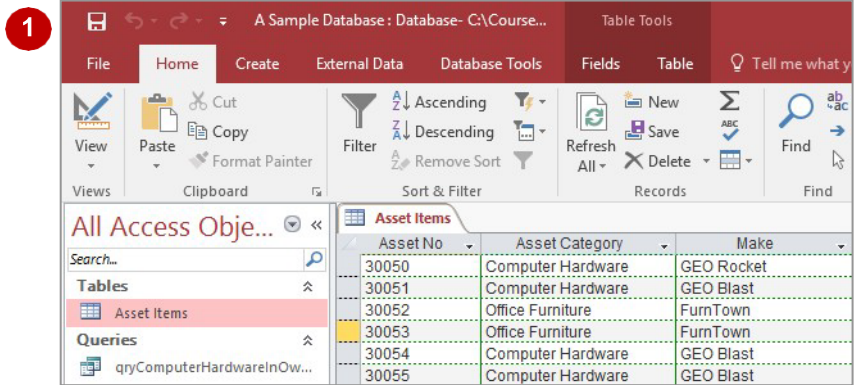
For Your Reference…

To *display* a *table*:

1. In the *Navigation* pane, double-click on the table name to display the table in datasheet view
2. On the *Home* tab, click on *View* in the *Views* group to toggle the view to *Design* mode

Handy to Know…

- Clicking on *View* in the *Views* group (on the *Home* tab) toggles between *Design* and *Datasheet* views for an open table. For example, if you are in *Datasheet* view, clicking on *View* will switch to *Design* view and vice versa.

WORKING WITH OTHER DATABASE OBJECTS

The key thing to remember with database objects including tables is that, when open, they will either be in *Design* mode where you can make changes to the structure or layout of the object, or in *Data* mode where data is parsed through the object's layout and presented to you. Once the object is open, it is easy to toggle between these two modes of operation.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file A Sample Database.accdb...

1 In the *Navigation* pane, double-click on *qryCostsSummedByOwner* under *Queries* to run the query and display the data parsed through it

2 On the *Home* tab, click on the top half of *View* in the *Views* group to display the design of the query

3 Click on *Close* to close the query

4 Double-click on *rptAssetsGroupedByOwners* under *Reports* to run the report and display it in preview mode

5 Click on *Design View* in the task bar at the bottom right of the window to display the design structure of the report

6 Click on *Close* to close the report
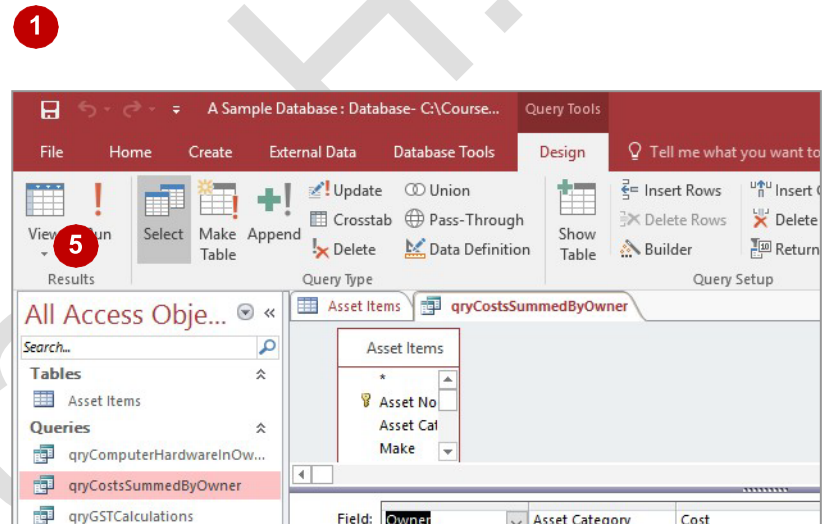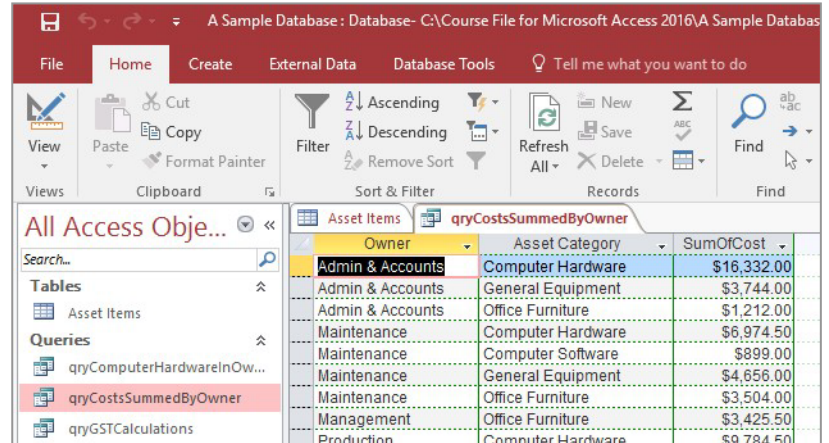
For Your Reference…

To *work* with *other database objects*:

1. In the *Navigation* pane, double-click on the object name to run the object
2. On the *Home* tab, click on *View* to see the design of the object

Handy to Know…

- For forms and reports there is a *Layout* view. In *Design* view you see the name of the controls used to display data. You don't actually see where the data ends up in *Design* view. In *Layout* view you see the data but can still make changes to the actual layout of the form or report.

CLOSING A DATABASE FILE

Closing a database file is a little different to closing files in most other applications. In Access 2016 the data in a database file is saved as it is being entered, while changes to structures and designs are saved when the objects are closed. You will never therefore be prompted to save new data added to a database file because all of this has already been done automatically.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file A Sample Database.accdb...

1. Click on the *File* tab to open the *Backstage*

2. Click on **Close** to close the database and return to the *Home* tab

   The Home tab has been selected because you closed the database. Only one database can be open at a time in Access and Access will always display the Home tab and a blank screen when a database is not currently open

---
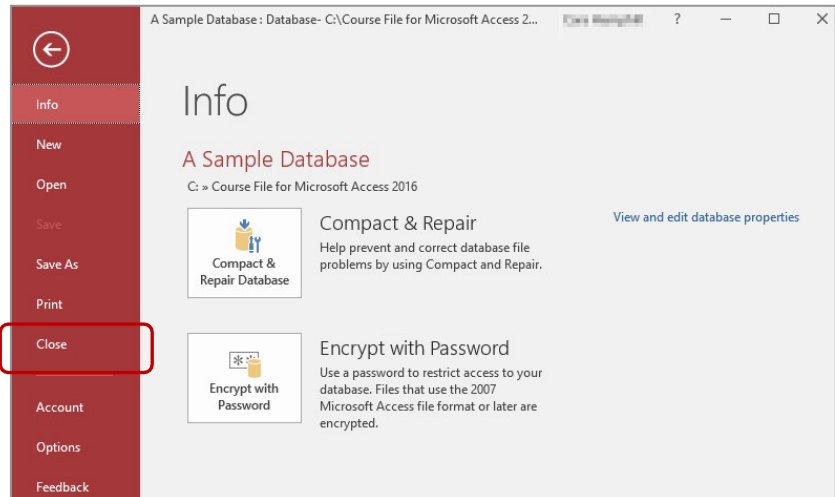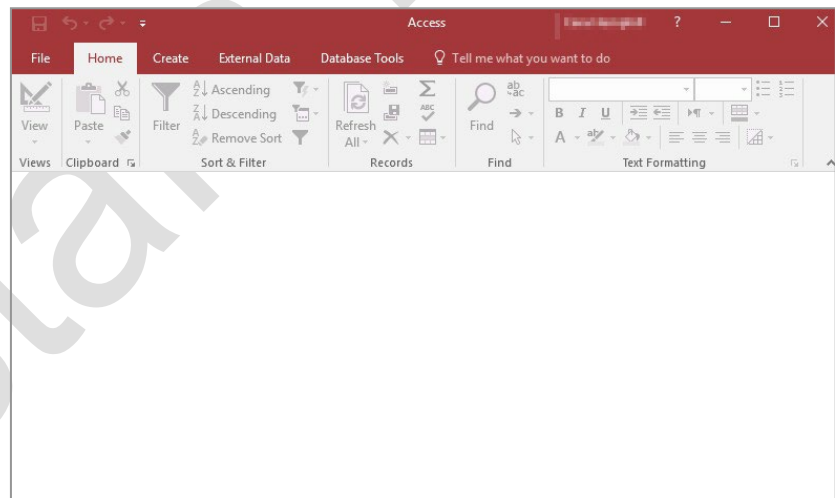
For Your Reference…

To *close* a *database*:

1. Click on the *File* tab
2. Click on **Close**

Handy to Know…

• When closing a database in Access, the only time you will be asked to save anything is if there is a *Design* view window open and unsaved changes have been made to the design prior to closing.

EXITING FROM ACCESS 2016

You can exit from Access 2016 without the need to worry about losing unsaved data. All of the data in a database is saved as the data is entered, while changes to the design of any database objects are saved when the object is closed.

Try This Yourself:

Before starting this exercise, ensure that Access is open...

1 Click on **Close** in the top right corner of the application window to close Access 2016
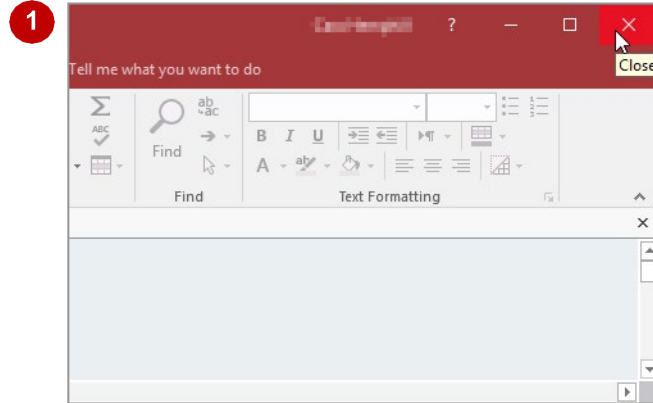
For Your Reference…

To **exit** from **Access 2016**:

- Click on **Close** in the top right corner of the application window

Handy to Know…

- You can use the keyboard shortcut `Alt` + `F4` to exit from Access.
- You cannot exit from Access via the *Backstage*.

CREATING A NEW DATABASE FILE

In Access all elements of your database: tables, reports, forms and the like, are stored in one file with the file extension **ACCDB**. This is what is commonly referred to as the database file – not to be confused with the tables where your data is stored. Before you can create tables, reports, forms, or any other object, you need to create a new database file.


Try This Yourself:

Before you begin, ensure that Access 2016 has started...

1　If the *start* screen is currently displayed, go to step **2**, otherwise, click on the *File* tab to display the *New* area in the *Backstage*

2　Click on the *Blank desktop database* template and type **Employee Expenses**

We'll save it where the other course files are located…

3　Click on the *Browse* icon to display the *File New Database* dialog box, then locate and double-click on the *Course Files for Microsoft Access 2016* folder and click on **[OK]**

The course files folder is now where the database will be saved…

4　Click on **[Create]** to create the new database

5　Click on *Close* to close the automatic table (*Table1*) that has appeared
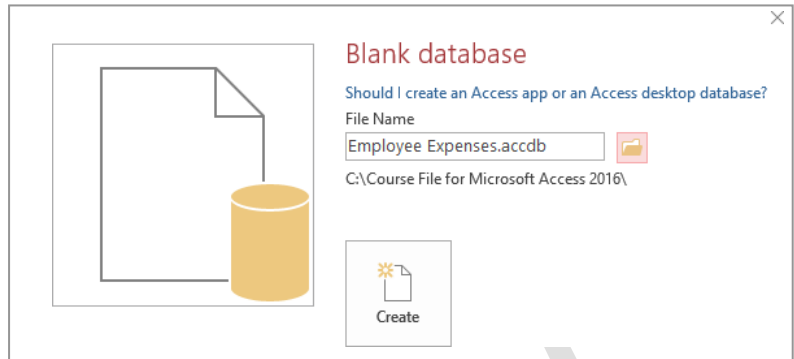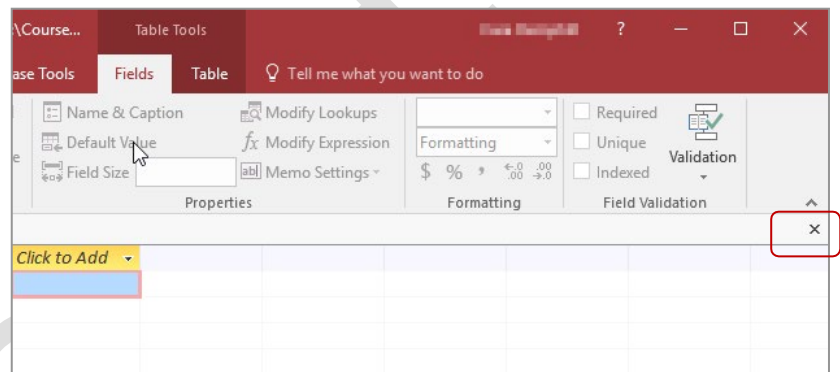
Note: Be sure to click on the Close button for the database object when closing tables, queries, forms etc. – if you click on the Close button in the very top, right corner of the application window, you will close Access

---

For Your Reference…

To *create* a *new database file*:

1. Click on the *File* tab and click on **New**
2. Type the *File Name*, click on **[Browse]** and choose a save location
3. Click on **[Create]**

Handy to Know…

- All new Access 2016 database files will be saved in the same format as Access 2007 and 2010 files (*.accdb*). If you need to provide the file to other users who may be using earlier versions, you can save it as an Access 2003 or earlier file (*.mdb*), but the file may lose some functionality.

CREATING THE LOOKUP TABLE

The lookup table holds the records that will be *looked up* by the transaction table. In this example, the lookup table holds **Employee** records. Creating a lookup table involves creating the fields in the table and specifying their size and type. The fields will hold the employee details that are needed for our database but that are not relevant to specific expense transactions.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file Create Database_1.accdb...

1   Click on the *Create* tab, then click on *Table Design* in the *Tables* group to display a new table

2   Type **EmpNo** in *Field Name*, then press [Tab] to move to *Data Type*

3   Click on the drop arrow for *Data Type* and click on *Short Text*, if necessary, then press [Tab] to move to *Description*

4   Type **Records the employee number**

5   In the *Field Properties* at the bottom of the *Table1* window, select the value in *Field Size* and type **6**

6   Click in the row under *EmpNo* to start a new field, then repeat steps *2* to *5* to create the additional fields as shown

    Leave the table design on the screen for the next exercise
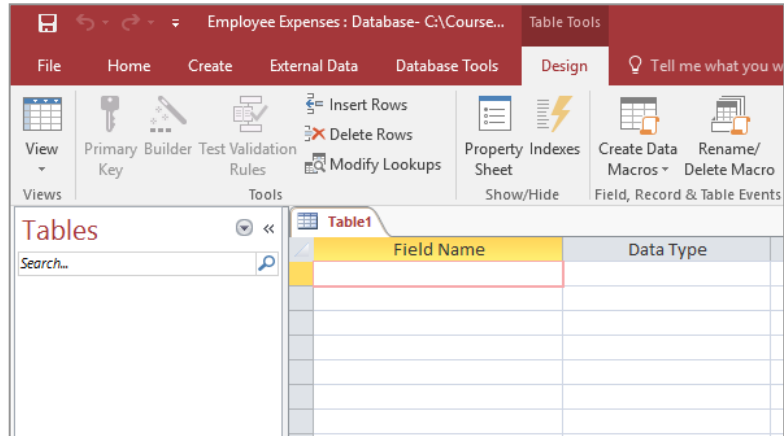
1
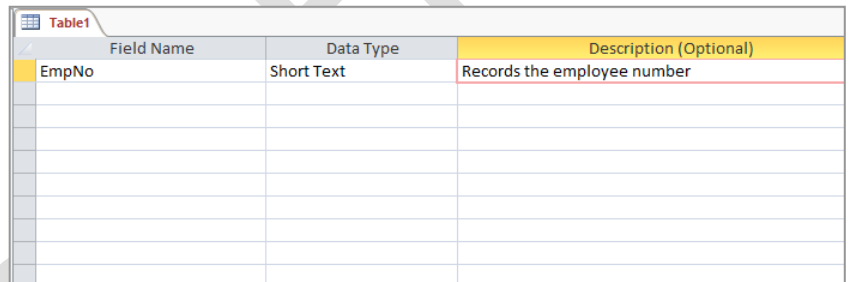
4

6
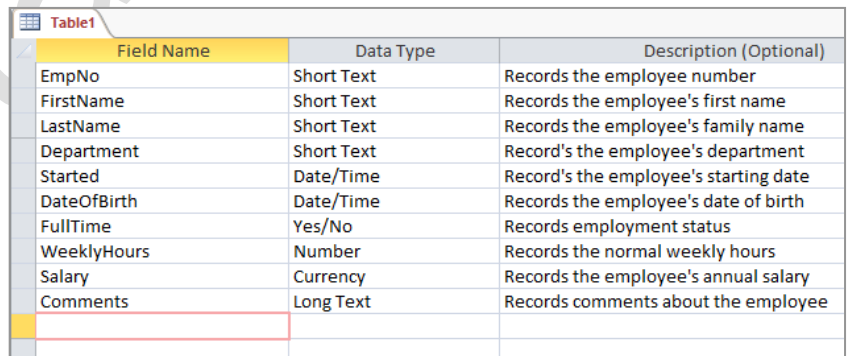
For Your Reference…

To *create* a *new table*:

1. Click on the *Create* tab, then click on *Table Design* in the *Tables* group
2. Type the *Field Name*, select a *Data Type* and type the *Description* for each field

Handy to Know…

- When you click on a field in the table *Design* window, the *Properties* for that field are displayed in the lower half of the window. The number and type of properties that you see will vary depending on the data type of the field.

DEFINING THE PRIMARY KEY

For a lookup database to be useful, it must be able to retrieve data quickly and easily. In addition, it must be able to pull data from different tables together rapidly to provide information. To make this possible, each table should include a field or set of fields that makes each record in the table unique. This field or set of fields is known as the *primary key*.

Try This Yourself:

> *Before starting this exercise, ensure that the table design from the previous exercise is displayed.*

> *A primary key is indicated by a key symbol. Currently, this table does not have a primary key assigned…*

1 Click on **EmpNo** in **Field Name** to select the field

2 On the **Table Tools: Design** tab, click on **Primary Key** in the **Tools** group

> *A small key icon will be displayed to the left of the field to indicate that this is the primary key field.*

> *Leave the table design on the screen for the next exercise*

Field Name	Data Type	Description (Optional)
EmpNo	Short Text	Records the employee number
FirstName	Short Text	Records the employee's first name
LastName	Short Text	Records the employee's family name
Department	Short Text	Record's the employee's department
Started	Date/Time	Record's the employee's starting date
DateOfBirth	Date/Time	Records the employee's date of birth
FullTime	Yes/No	Records employment status
WeeklyHours	Number	Records the normal weekly hours
Salary	Currency	Records the employee's annual salary
Comments	Long Text	Records comments about the employee

1

Field Name	Data Type	Description (Optional)
EmpNo	Short Text	Records the employee number
FirstName	Short Text	Records the employee's first name
LastName	Short Text	Records the employee's family name
Department	Short Text	Record's the employee's department
Started	Date/Time	Record's the employee's starting date
DateOfBirth	Date/Time	Records the employee's date of birth
FullTime	Yes/No	Records employment status
WeeklyHours	Number	Records the normal weekly hours
Salary	Currency	Records the employee's annual salary
Comments	Long Text	Records comments about the employee

2

For Your Reference…

To *define* a *primary key*:

1. In table *Design* view, click on the field that will be used as the primary key
2. On the *Table Tools: Design* tab, click on *Primary Key* in the *Tools* group

Handy to Know…

- Once you have nominated a field as the primary key, Access will only allow you to enter unique values in that field. Duplicate values or empty fields (known as nulls) will not be accepted. *AutoNumber* field types are ideal for primary keys because they are automatically created and are unique.

SAVING AND CLOSING A TABLE

Unlike data that is saved as you move away from a field, tables are objects that must be saved if you want to retain any changes that you make to the design. You can either save the table as you work or save it as you close it. One advantage of this process is that if you want to return to the previous settings, you can simply close the table without saving it.

Try This Yourself:

Before starting this exercise, ensure that the table design from the previous exercise is displayed...
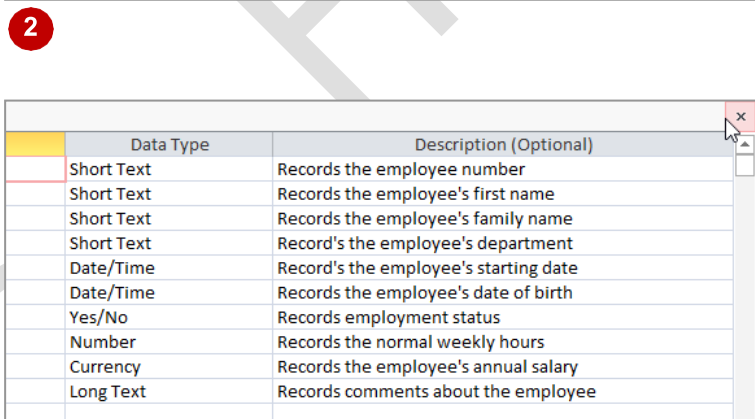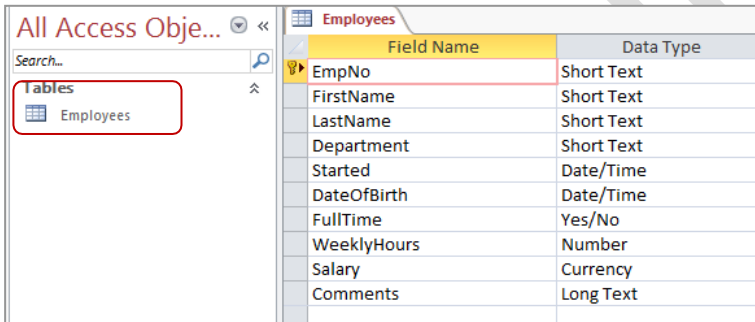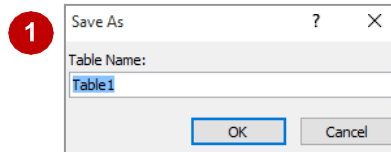
1 Click on the *File* tab and select **Save** to display the *Save As* dialog box

We selected Save, not Save As, because the Save As options relate to the database as a whole and we are only saving an object within the database here. Unlike larger Save As dialog boxes found in other applications, this dialog box is relatively small. This is because the table structure is saved as part of the database file so there is no need to specify a file location for database objects…

2 Type **Employees** in *Table Name* and click on **[OK]**

The table's name will now appear in the Navigation pane, and on the table design tab…

3 Click on *Close* to close the table

1

Save As	? ✕
Table Name:	
Table 1	
	OK Cancel

All Access Obje... ⊙ «

Search...

Tables ⌃
⊞ Employees

⊞ Employees

	Field Name	Data Type
🔑▶	EmpNo	Short Text
	FirstName	Short Text
	LastName	Short Text
	Department	Short Text
	Started	Date/Time
	DateOfBirth	Date/Time
	FullTime	Yes/No
	WeeklyHours	Number
	Salary	Currency
	Comments	Long Text

2

	Data Type	Description (Optional)
	Short Text	Records the employee number
	Short Text	Records the employee's first name
	Short Text	Records the employee's family name
	Short Text	Record's the employee's department
	Date/Time	Record's the employee's starting date
	Date/Time	Records the employee's date of birth
	Yes/No	Records employment status
	Number	Records the normal weekly hours
	Currency	Records the employee's annual salary
	Long Text	Records comments about the employee

3

For Your Reference…

To *save* a *table design*:
1.   Click on the *File* tab to display the *Backstage* and click on **Save**
2.   Type a *Table Name* and click on **[OK]**

Handy to Know…

- If you try to close a table that has been modified but not saved, Access will prompt you to save the changes and provide a dialog box so that you can choose **[Yes]** or **[No]**.

CREATING THE TRANSACTION TABLE

Lookup databases consist of a ***transaction table*** that holds the individual transactions and a ***lookup table*** that the transactions are related to. The transaction table may hold many records for each of the records in the lookup table. To ensure that the relationship can be created, you must ensure that the primary key of the lookup table appears as a field in the transaction table.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file Create Database_2.accdb...

1 Click on the **Create** tab, then click on **Table Design** in the **Tables** group to open a new table

2 Type the fields as shown (set the **Field Size** (in **Field Properties**) for the **Description** field to **30**)

3 Click on **ExpTransNo** in **Field Name** to select the field, then click on **Primary Key** in the **Tools** group to make this field the primary key

4 Click on **Save** in the **Quick Access Toolbar** to display the **Save As** dialog box

5 Type **Expense Transactions** in **Table Name**, then click on **[OK]**

6 Click on **Close** to close the table

The new table is now listed in the Navigation pane and the object name appears in the tab at the top of the design window

Table1

Field Name	Data Type	Description (Optional)
ExpTransNo	AutoNumber	Provides a number for the expense transaction
ExpDate	Date/Time	Records the date of the expense transaction
Description	Short Text	Records a description of the expense
Amount	Currency	Records the amount of the expense

(2)

Table1

Field Name	Data Type	Description (Optional)
ExpTransNo	AutoNumber	Provides a number for the expense transaction
ExpDate	Date/Time	Records the date of the expense transaction
Description	Short Text	Records a description of the expense
Amount	Currency	Records the amount of the expense

(3)

All Access Obje... ⊙ «
Search...
Tables ⌃
  Employees
  Expense Transactions

Expense Transactions

Field Name	Data Type	
ExpTransNo	AutoNumber	Provides a num
ExpDate	Date/Time	Records the da
Description	Short Text	Records a desc
Amount	Currency	Records the an

(5)

For Your Reference…

To ***create*** the ***transaction table***:

1. On the **Create** tab, click on **Table Design** in the **Tables** group
2. Specify the fields and the primary key, then click on **Save**

Handy to Know…

- The ***AutoNumber*** field type provides an automatic and unique number for each transaction. It is ideal for tasks where we need to have a new and unique number for each transaction record that is entered into the table.

UNDERSTANDING LOOKUP TABLE RELATIONSHIPS

A *lookup database* requires at least two tables: the *lookup table* and the *transaction table*. For these tables to work together they must be linked in some way, or as it is referred to in database jargon, they must be *related*. This is done using a field that is common between the two tables. In the lookup table this is normally the field that is unique and is the *primary key*.

One-To-Many Relationships

Lookup databases have a relationship known as a *one-to-many* relationship.

In this type of relationship the lookup table contains unique records and forms the *one* side in the *one-to-many* relationship. The transaction table forms the *many* side in the *one-to-many* relationship because there may be many transactions for each record or entity from the lookup table.

Taking our case study as an example, the *Employees* table is the lookup table – there is only one record here for each employee. The *Expense Transactions* table is the transaction table – there may be many records for each of the employees in the *Employees* table.

Table relationships are made possible by the use of the primary key in the lookup table. In our example, the primary key of the *Employees* table *EmpNo* is used in the table to uniquely identify employees. For the relationship to work it will also need to be in the *Expense Transactions* table against each expense so that we can identify who incurred the expense.

Once the relationships between the tables are established, we can use them in either table to ask questions (or query) the data.

For example, in the *Expense Transactions* table we can ask *"who was the employee that incurred this expense?"*…

In the *Employees* table we can ask *"what are the transactions incurred by this employee?"*…

CONNECTING TO A LOOKUP TABLE

Once you have created a transaction table and a lookup table, you can connect the two tables in a number of ways. One of the easiest methods for connecting the two tables is to use the *Lookup* *Wizard* to create a *Lookup Column* in the transaction table. The wizard enables you to nominate the fields from the lookup table that you want displayed with your transaction data.

Try This Yourself:

Open File

Before starting this exercise you MUST open the file Create Database_3.accdb...

1 Ensure *Design View* is active

If Design View is not active, right-click on the Expense Transactions table in the Navigation pane, then select Design View

This provides a quick method for displaying a database object in a specific view…

2 Click in the row beneath the *Amount* field then, on the *Table Tools: Design* tab, click on *Modify Lookups* in the *Tools* group to start the *Lookup Wizard*

3 Work through the wizard, making the selections as shown

4 Click on **[Finish]** to complete the wizard, then click on **[Yes]** to save the changes

5 Click on the *Employee* field, then click on the *Lookup* tab in the *Field Properties* pane to see the settings that have been created

6 Click on *Close* to close the table

Screen	Task	Then
1	Select *I want the lookup field to get the values from another table or query*	[Next]
2	Select *Table:Employees*	[Next]
3	In *Available fields* double-click on *LastName* then on *FirstName*	[Next]
4	Select *LastName* for the first sort column, then *FirstName* for the second sort column, ensuring that both are set to ascending order	[Next]
5	Ensure that *Hide key column* appears with a tick	[Next]
6	Type **Employee** as the label for the lookup field	

Expense Transactions

Field Name	Data Type	Description (Optional)
ExpTransNo	AutoNumber	Provides a number for the expense transaction
ExpDate	Date/Time	Records the date of the expense transaction
Description	Short Text	Records a description of the expense
Amount	Currency	Records the amount of the expense
Employee	Short Text	

Field Properties

General | Lookup

Display Control	Combo Box
Row Source Type	Table/Query
Row Source	SELECT [Employees].[EmpNo], [Employees].[LastName], [Employee
Bound Column	1
Column Count	3
Column Heads	No
Column Widths	0cm;2.54cm;2.54cm
List Rows	16
List Width	5.079cm
Limit To List	Yes
Allow Multiple Values	No
Allow Value List Edits	Yes
List Items Edit Form	
Show Only Row Source V	No

For Your Reference…

To *connect to* a *lookup table*:

1. Open the transaction table in *Design View*, then click in the first blank row
2. On the *Table Tools: Design* tab, click on *Modify Lookups* in the *Tools* group
3. Follow the steps of the wizard and specify the relevant field details

Handy to Know…

- The connection between tables is only possible through the primary field of the lookup table and must be the field specified in the wizard when creating the connection from the transaction table.

VIEWING TABLE RELATIONSHIPS

Table relationships can be viewed and edited using the **Relationships** window. This window gives you a better understanding of how tables are related or joined together. It also lists all of the fields in each table so that you can locate content easily. The **Relationships** window can be used to document part of your database design by printing it as a report.

Try This Yourself:

Same File

Continue using the previous file with this exercise, or open the file Create Database_4.accdb...

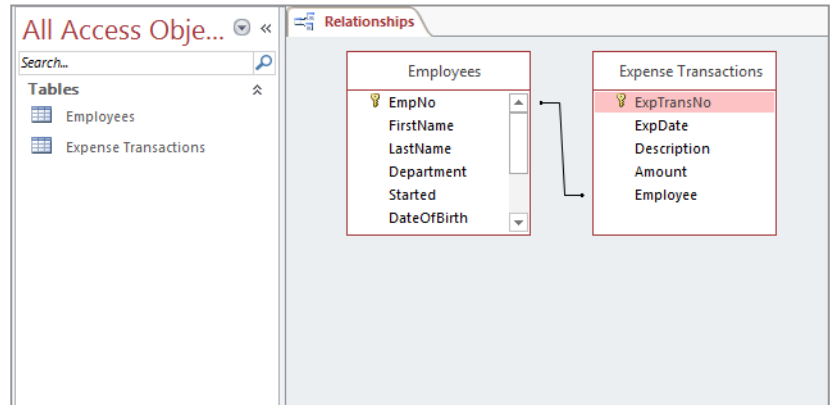1. Click on the **Database Tools** tab, then click on **Relationships** in the **Relationships** group

   The relationship between all tables in the database will now be shown…

2. On the **Relationship Tools: Design** tab, click on **Relationship Report** in the **Tools** group to see a preview of a printable report
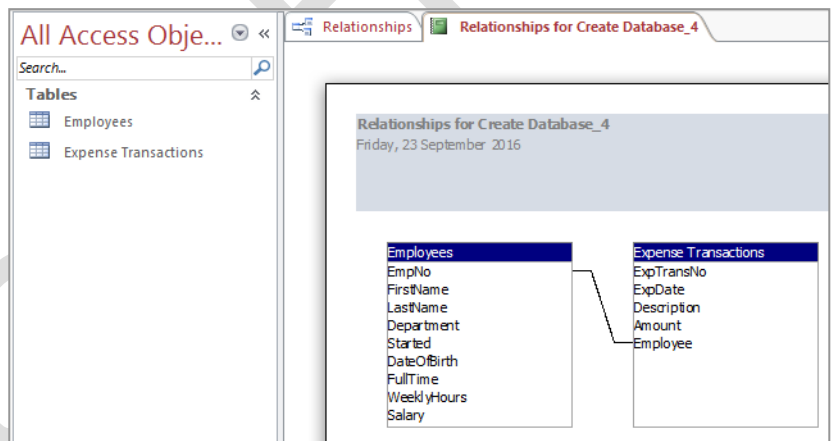
3. Click on the **File** tab and click on **Print** to see the **Print** area, then click on **Quick Print** to send the report directly to the printer

4. Click on **Close** for the **Relationships for Create Database_4…** tab, then click on **[No]** when prompted to save the report

5. Close the **Relationships** window

1

2

For Your Reference…

To *view table relationships*:

- Click on the **Database Tools** tab and click on **Relationships** in the **Relationships** group

Handy to Know…

- The **Relationship Report** is a database object just the same as a table. You could save it if required, however relationships often change so it is better to generate a new report each time rather than saving them.