Microsoft Access 2016
A One-Day Introduction
Course Notes

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COURSE OBJECTIVES

By the end of this course you will be able to

- Briefly describe the benefits of a relational database.
- Correctly, create an Access database, without reference to notes.
- Briefly describe the use of a primary key.
- Accurately create database tables in design view, without reference to notes.
- Briefly describe the difference between a one-to-one and a one-to-many relationship.
- Establish and edit relationships within a database, referring to notes if necessary.
- Create and modify a simple query using specified criteria, referring to notes if necessary.
- Accurately create a calculated field in query, referring to notes if necessary.
- Create a summary query using specified criteria, referring to notes if necessary.
- Create a simple report using the Report Wizard, without reference to notes.

MODULE 1 – DATABASES AND TABLES

OBJECTIVES

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- Briefly describe the benefits of a relational database.
- Correctly, create an Access database, without reference to notes.
- Briefly describe the use of a primary key.
- Accurately create database tables in design view, without reference to notes.

WHAT IS A DATABASE?

A database is a store of information held in a structured way, to make it quick and convenient to access the information.

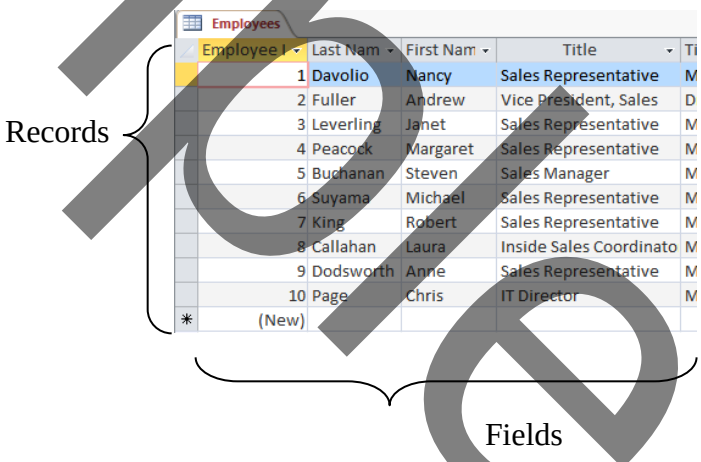
Microsoft Access is a relational database. A relational database holds its data in tables. These tables may be linked together, using common values within them. The tables are not permanently linked together. Each table is an independent data store - but the database system is capable of linking the data together - when required.

Generally speaking, each table contains data relating to a particular subject, for example, customer details could be held in one table, and the orders placed by the customers in a separate table. If you wished to see all the orders for a particular customer, the tables could be linked. See Appendix A for more detail on page 33.

DATABASE TERMINOLOGY

Tables

Databases are made up of one or more tables. Tables are the building blocks of relational databases. Each table usually contains all the information associated with a particular subject, for example, customer details, product details, or personnel information. A table is made up of records, or rows, each containing a number of fields, or columns.



Records

Each record in a table contains information about a single item in the table - for instance a person, an invoice, or a product. Think of a record as a card in a library index.

Fields

Each field within a record is a category of information - for instance the surname, street or telephone number of a member of staff; the invoice number or invoice date of an invoice.

Data Types

This term describes the type of data that is entered into a field. Each field has the same data type for each record in the database file - although the actual data will probably be different. There are many different data types, which we will look at in detail later.

Table Relationships

Tables that can be linked together are said to have a relationship. Linking tables allows you to extract related information from more than one table at the same time. This information could be displayed on the screen, or make up a printed report.

Primary Keys

Primary keys uniquely identify a record in its table. For instance each person has his or her own unique National Insurance number. This would serve as a useful primary key for a typical staff database. This primary key can then be used to link data from its record to other tables.

THE COURSE DATABASE

This course uses a database based on the Northwind Traders database. This database contains information about a fictitious import/export company called Northwind Traders, which specialises in gourmet food from around the world. The tables used in the database file are:

CUSTOMERS	Details of companies who order products from the company.
EMPLOYEES	Details of the sales people working for the company.
ORDERS	Orders placed by the customers. Includes details of where the products are to be shipped to, but no information about the individual items on each order.
ORDER DETAILS	Details of the items on each order such as price, quantity ordered.
PRODUCTS	A list of the products, describing each, plus information about stock levels.
CATEGORIES	A description of the categories that the foods have been divided into.

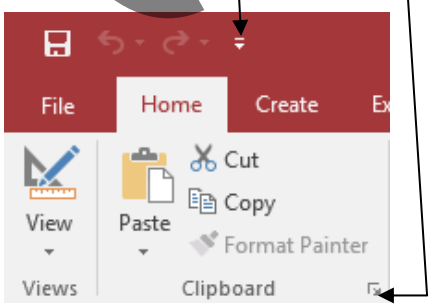
THE RIBBON

The Ribbon is designed to help you quickly find the commands that you need to complete a task. Commands are organized in logical groups, which are collected together under tabs. Each tab relates to a type of activity, such as writing or laying out a page. To reduce clutter, some tabs are shown only when needed. There Ribbon can be customised by end-users.

Some groups have additional *Dialog Box Launchers* which are found at the right-hand end of the Group title bar. Click on one of these to launch a more detailed dialog to have extra control in relation to that group's subject. For example the dialog box launcher in the Clipboard group displays the Office Clipboard.

To always keep the Ribbon minimized

1. Click on the **Customize Quick Access Toolbar** button.
2. In the list, click on the **Minimize the Ribbon** option.
3. To use the Ribbon while it is minimized, click on the tab you want to use, and then click the option or command you want to use.



To keep the Ribbon minimized for a short time

To quickly minimize the Ribbon, double-click the name of the active tab. Double-click any tab again to restore the Ribbon.

To restore the Ribbon

1. Click on the **Customize Quick Access Toolbar** button.
2. In the list, click on the **Minimize the Ribbon** option

Customising the Quick Access Toolbar

The Quick Access Toolbar is a customizable toolbar that contains a set of commands that are independent of the tab that is currently displayed. The Quick Access Toolbar can be located in one of two places - either above or below the Ribbon. You can add a command to the Quick Access Toolbar directly from commands that are displayed on the Ribbon.

To move the Quick Access Toolbar

1 Click on the **Customize Quick Access Toolbar** button.

2 In the list, click on **Show Below the Ribbon** or **Show Above the Ribbon** as required.

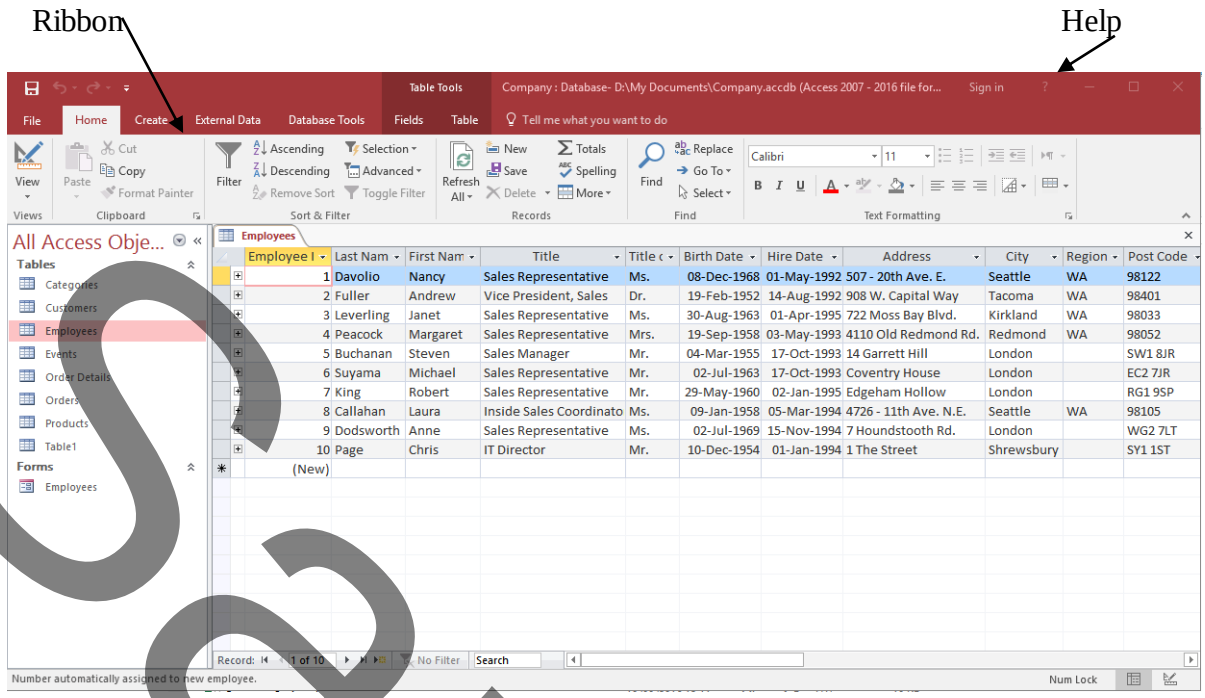
To add a command to the Quick Access Toolbar

1. Click on the **Customize Quick Access Toolbar** button.
2. On the Ribbon, click on the appropriate tab or group to display the command that you want to add to the Quick Access Toolbar.
3. Right-click on the required command, and select **Add to Quick Access Toolbar**.

Notes: You cannot increase the size of the buttons. The only way to increase the size of the buttons is to lower the screen resolution you use. You cannot display the Quick Access Toolbar on multiple lines. Only commands can be added to the Quick Access Toolbar.

The Ribbon is customizable also. This however, is not covered on this course.

THE ACCESS SCREEN LAYOUT



The Ribbon has many tabs. The one shown initially is the *Home* tab. Additional tabs will appear automatically when specific actions or objects are selected.

Status Bar

The status bar can be customised to display or hide various items. Right-click on the status bar and select/de-select the appropriate items.

Getting Help

Access provides on-line, context-sensitive help. Press F1 at any time to obtain help relevant to the particular operation. It is also possible to access **Help** by clicking on the Help icon in the top-right hand corner of the Access window.

Wizards

When creating new objects such as a query, form or report, Access gives you the choice of creating the object from a blank design, or using a Wizard to help you. The Wizard is like having a database expert on hand to help you. It prompts you with questions concerning the design of an object and generates that object based on your answers.

There are many different Wizards available to help with various tasks within Access.

BACKSTAGE VIEW

The Ribbon contains the set of commands for working *in* a database, while the Office Backstage view is the set of commands you use to do things *to* a database.

Open a database, and click on the **File** tab to see the *Backstage* view. The Backstage view is where you manage your databases and related data about them - create, save, encrypt and publish databases, set options, and more.

To open backstage view

Click on the **File** tab.

To close backstage view and return to your document

Either click on the any Ribbon tab, or press Esc on your keyboard.

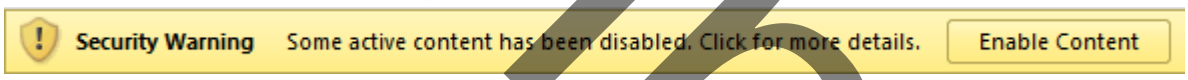
OPENING A DATABASE

A Microsoft Access database is made up of a collection of objects. A single database file can contain tables, queries, forms, reports, pages, macros and programming modules (the latter two types of object will only be seen and listed in the Navigation Pane after they have been created and saved). Together these objects help you to work with your data to the best effect.

Only one database can be opened at any given time, although within a database many tables may be open simultaneously.

To open a database

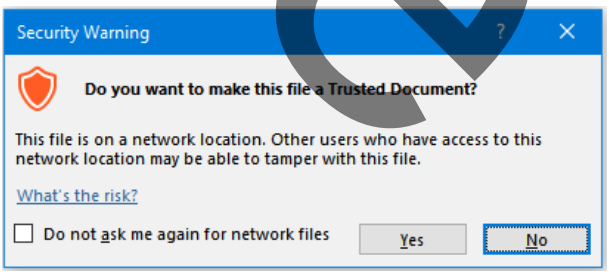
1. Click on the **File** tab**,** then select **Open**.
2. If the database has been opened recently, its name could be shown in the *Recent* list. Otherwise, click on the **Computer** option. Access will display different folder options, including a list a recent folders. Select an appropriate option, navigating to another folder if necessary.
   Note: If you have a OneDrive subscription then you can connect to OneDrive to work with files stored in the cloud. Access will create a local copy and then synchronise the changes with the cloud copy.
3. Choose the required file in the *Open* dialog.
4. If you have not modified any security settings you might receive a warning similar to this shown here.



5. If you are confident the database contains no harmful code, click on **Enable Content**

*Note: You can point and click on **Some active content…** and then choose different enabling options using the backstage view shown here.*

6. If the file has been opened from a network location, you will be prompted to make the file a Trusted Document. If you click on **Yes** you will not be prompted to enable content on future opening of the file. If you tick the *Do not ask me again for network files* box you will not be prompted to enable content for any further files on the network. This is a major reduction in security settings and is not normally recommended.



EXERCISE 1

1. Open the **Traders** database.
2. In the database, create a new table in design view with the following field names and data types:

Field name	Data Type
EventId	AutoNumber
EventName	Text
StartDate	Date/Time
EndDate	Date/Time
Fee	Currency

- Set the *EventId* field as the Primary Key of the table.
- Save the table with the name *Events* and close it down.

3. Open the *Events* table in *Design View* again and modify the following field properties:

Field Name	Field Size	Format	Caption	Indexed	Required
EventName	40	Upper case	Event Name		Yes
StartDate		Medium date	Start Date	Yes (duplicates OK)	
EndDate		Medium date	End Date		

4. Again in *Design View* add the following multi-value field to the *Events* table; make sure you include the *EmployeeID*, *LastName* and *FirstName* fields when using the wizard. Have the names sorted in Ascending last Name order.

Lookup from the Employees table

Field name	Data Type	Description
Employees	Multi-Value Field	Staff members attending this event

5. Open the *Events* table in datasheet view. Add the following records:

EventID	EventName	StartDate	EndDate	Employees
1	Shrewsbury Flower Show	02/08/2013	04/08/2013	Davolio, Page
2	Chelsea Flower Show	11/06/2013	14/06/2013	Buchanan, Callahan

EXERCISE 2

1. From the **Traders** database, ensure all the following tables appear in the relationship window:

Customers	Employees	Events
Orders	Categories	
Order Details	Products	

2. Set relationships between the following tables, enforcing referential integrity each time:

Primary Table	Related table	Field to relate on
Customers	Orders	CustomerId
Orders	Order Details	OrderId
Products	Order Details	ProductId
Categories	Products	CategoryId
Employees	Orders	EmployeeId

   Note: You haven't set up a relationship between Employees and Events as this is managed by Access behind the scenes resulting from the multi-value field that was set up in Exercise 1.

3. Open the Products table. Add in a new product - your favourite drink. Use CategoryId 1 (beverages).

4. Try adding another product using CategoryId 10. What happens when you try to move to another record? Change the CategoryId to 1.

5. Close the Products table and open the Categories table.
   Try to delete Category 4. What happens?