



©2017 Chris Page

All rights reserved. No part of this manual may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without written permission of Chris Page.

Trademarks: All brand names and product names used in this manual are trade names, service marks, trademarks, or registered trademarks of their respective owners.

Chris Page

11 River Gardens, Shawbury, Shrewsbury, SY4 4LA **Tel** 01939 251094 www.pagecommunication.co.uk

CONTENTS

COURSE OBJECTIVES	1
MODULE 1 – DATABASES AND TABLES	2
OBJECTIVES	2
What is a Database?	2
DATABASE TERMINOLOGY	2
THE COURSE DATABASE	3
THE RIBBON	3
Customising the Ouick Access Toolbar	4
The Access Screen Layout	5
Status Bar	5
Getting Help	5
Wizards	5
BACKSTAGE VIEW	5
OPENING A DATABASE	6
SECURITY SETTINGS	7
DOCUMENT WINDOW OPTIONS	7
THE NAVIGATION PANE	8
Navigation Pane Groups	9
CREATING A DATABASE	9
Creating Tables	
Using the Lookup Wizard/Creating Multivalued Fields	12
Switching between Datasheet View and Design View	14
Setting a Primary Key	14
Multiple-Field Primary Keys	15
Saving a Table	16
Modifying and Customising Tables	16
Modifying Fields	16
FIELD PROPERTIES	17
Field Size	17
Format	17
RENAMING OBJECTS	
MODULE 2 – DATA AND RELATIONSHIPS	19
OBJECTIVES	19
WORKING WITH DATA	19
Viewing Data	19
Adding Records in Datasheet View	
Saving Records	
EDITING DATA	
Copying, Moving and Deleting Data	20
Saving Changes	
Undoing Changes	21
RELATIONSHIPS	
Types of Relationships	
Creating Relationships	
Relationship Options	
Relationship Type	
Saving Relationships	
Editing Relationships	24
MODULE 3 – QUERYING DATA	25
Objectives	25
QUERIES	25
	©2017 Chris Page

Dynamic Data	25
Querying Multi-Value Fields	25
\tilde{C} reating Queries	25
Manipulating Columns in the Design Grid	27
Specifying Criteria	27
<i>Multiple Criteria</i>	
MULTIPLE TABLE QUERIES	
LOOKUP FIELD AND MULTI-VALUE FIELD QUERIES	
Multi-Value Fields	
CALCULATED FIELDS IN QUERIES	31
MODULE 4 – REPORTS	
OBJECTIVES	
CREATING REPORTS	
APPENDIX A - UNDERSTANDING RELATIONSHIPS BETWEEN TABLES IN A	
DATABASE	
FIELDS AND KEYS	
TYPES OF RELATIONSHIPS	

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.

OBJECTIVES

At the end of this section 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.

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.

Records

Empl

Last N

1 Davolio

3 Leverlin

5 Buchanar

Suyam

8 Callahar

9 Dodsworth

7 Kin

10 Page

(New)

2 Fuller

4 Peaco

First Nam -

lancy

ndrew

Margaret

anet

Steven

Michae

Robert

aura

hris

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.

Title

Sales Representative

Manager

ales Representative

Inside Sales Coordinato M

les Representative

Sales Representative

Vice Pre

Fields

Sales Ren

sident, Sales

presentative

esentative

Ti

Ν

D

м

M

N

Μ

M

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 gournet 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

- 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

Ribbon										Help	I
- <u>□</u> 5- ♂- ∓			Table Tools	Company : Database- D:	Ny Docur	nents\Company	v.accdb (Access	2007 - 2016 file for Sig	gnin ?	-	
File Home Create	External Data Da	atabase Tools F	ields Table	♀ Tell me what you wa	ant to do						
View Paste	Filter	nding V Selectio	ed * Refresh	New Datas	Find Find	bac Replace → Go To ▼ → Select x	alibri 8 I U A	• <u>11</u> •Ε≣ •Ž• ∆ • ≡≡≡	ஊ	•	
Views Clipboard	G Sc	ort & Filter	All ¥	Records	F	ind		Text Formatting		6	^
All Accoss Obio	« Employees	\									×
Tabler	Employe	e I 👻 Last Nam 👻	First Nam 🔻	Title 🔹	Title 🗸 🔻	Birth Date 👻	Hire Date 🕞	Address -	City 🗸	Region +	Post Code
	•	1 Davolio	Nancy	Sales Representative	Ms.	08-Dec-1968	01-May-1992	507 - 20th Ave. E.	Seattle	WA	98122
		2 Fuller	Andrew	Vice President, Sales	Dr.	19-Feb-1952	14-Aug-1992	908 W. Capital Way	Tacoma	WA	98401
		3 Leverling	Janet	Sales Representative	Ms.	30-Aug-1963	01-Apr-1995	722 Moss Bay Blvd.	Kirkland	WA	98033
Employees		4 Peacock	Margaret	Sales Representative	Mrs.	19-Sep-1958	03-May-1993	4110 Old Redmond Rd.	Redmond	WA	98052
Events	*	5 Buchanan	Steven	Sales Manager	Mr.	04-Mar-1955	17-Oct-1993	14 Garrett Hill	London		SW1 8JR
Order Details		6 Suyama	Nichael	Sales Representative	IVIF.	02-Jul-1963	17-Oct-1993	Coventry House	London		ECZ /JK
Orders		7 King 8 Callaban	Laura	Inside Sales Coordinate	Mc	29-Iviay-1900	02-Jan-1995	4726 - 11th Avo. N.E.	Soattlo	14/4	RG1 95P
I Products	THE REPORT OF	9 Dodsworth	Anne	Sales Representative	Mc	02-101-1969	15-Nov-1994	7 Houndstooth Rd	London	WA	WG2 7LT
Table1		10 Page	Chris	IT Director	Mr.	10-Dec-1954	01-Jan-1994	1 The Street	Shrewsbury		SY1 1ST
Forms	* * (1	New)							,		
Employees											
	Percent N of 1	of 10 b by bits	No Filter	earch d							b.
Number automatically assigned to p	ew employee.		A NOTILET 3	carci					Nu	mlock	
									110		

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.

I Security Warning Some active content has been disabled. Click for more details. Enable Content

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

 Enable
 Security Warning

 Content *
 Active content might contain viruses and other security hazards. The following content has been disabled:

 *
 VEA Macros

 You should enable content only if you trust the contents of the file.

 Trust Center Settings

 Learn more about Active 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*

Security Warning	? X
Do you want to make this file a	Trusted Document?
This file is on a network location. Other unnetwork location may be able to tamper	users who have access to this with this file.
What's the risk?	
Do not <u>a</u> sk me again for network files	s <u>Y</u> es <u>N</u> o

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.

- 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:

Events

CustomersEmployeesOrdersCategoriesOrder DetailsProducts

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?

