

<b>Designer Databases</b>	<b>Project Management</b>	<b>Skills Training</b>
<b>Written for your business</b>	<b>On time and on budget</b>	<b>Improve Productivity</b>

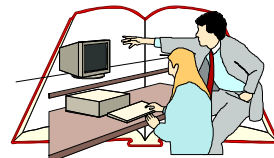
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Book I

# Microsoft Access Fundamentals



Versions 2000, XP and 2003



## Scope

This manual discusses all the primary objects in Microsoft Access except Modules. On completion of the course, delegates will be able to write databases of a high standard and know the rules of maintaining data integrity. A basic database will be completed, a useful template for future work.

The course is designed to comply with and exceed the Microsoft Access certification program and with full understanding of this manual, passing the examination should present few problems.

The approach to training Access is quite different to that used in Word or Excel. The latter programs are intuitive and within one day, a student can type a presentable document or set-up a simple spreadsheet. Access is more conceptual, the student needs to appreciate a given set of rules that apply globally to the subject matter.

In database design, we are concerned with the primary objects, tables, queries; forms etc. that together provide a productive solution to very specific information needs. The fundamentals of table normalisation, data types, relationships and the individual properties of fields or controls need full comprehension if a database is to perform as planned.

The course assumes that delegates have a basic understanding of the Windows operating environment and a sound knowledge of a spreadsheet program or a data management system.

## ***Table of Contents***

- ◆ Manual Conventions
- ◆ Access Communicates
- ◆ Evolution
- ◆ Access – Benefits and Limitations
- ◆ The Future
- ◆ Terminology
- ◆ Terms to Remember
- ◆ Useful Shortcuts
- ◆ Access File Types

## **A Relational Database - defined**

### **❖ Access Tables**

- ◆ Section objectives
- ◆ Exercise T1 – Laying the Foundation
- ◆ Exercise T2 – Sub-Datasheets
- ◆ Table Normalisation
- ◆ Enforcing a 1 → 1 relationship
- ◆ Exercise T3 – Set-up a 1 → 1 Relationship
- ◆ Resolving  $\infty \rightarrow \infty$  relationships
- ◆ Exercise T4 – Exploring Many → Many
- ◆ Table Types
- ◆ Tables Summary

Review Questions – Tables

### **❖ Access Queries**

- ◆ Section Objectives
- ◆ Select Queries
- ◆ The QBE Grid
- ◆ Exercise Q1 – Single table queries, Setting parameters
- ◆ From text to numbers
- ◆ Multi-table Queries
- ◆ Exercise Q2 – Manipulating related data in queries
- ◆ Inner and Outer Joins
- ◆ Exercise Q3 – Understanding table joins
- ◆ Action Queries

- ◆ Append (Insert) Queries
- ◆ Exercise Q4 – Moving data between tables
- ◆ Delete Queries
- ◆ Exercise Q5 – Clean-up the database
- ◆ Update Queries
- ◆ Exercise Q6 – Change data to reflect new conditions
- ◆ Make Table Queries
- ◆ Exercise Q7 – Add tables On-The-Fly
- ◆ Specialised Queries
- ◆ Crosstab Query
- ◆ Exercise Q8 – Viewing data in summarised form
- ◆ Exercise Q9 – Viewing data by Month, Quarter or Year
- ◆ Introducing DateSerial()
- ◆ Exercise Q10 – Controlling Dates
- ◆ Union Queries – An Introduction to SQL
- ◆ Exercise Q11 – Bring similar data together

Review Questions – Queries

#### ❖ Access Forms

- ◆ Section Objectives
- ◆ Principles of form design
- ◆ Exercise F1 – Letting Access do the work
- ◆ Producing an automatic form
- ◆ The Form Wizard
- ◆ Exercise F2 – Manipulating Controls in forms
- ◆ Exercise F3 – Forms and their properties
- ◆ Form Properties discussed
- ◆ Exercise F4 - To Bind or not to Bind
- ◆ Adding unbound controls
- ◆ Exercise F5 – Reduce user input
- ◆ Option Box Control
- ◆ Exercise F6 – Another ActiveX Control
- ◆ Retrieving data from other tables
- ◆ Exercise F7 – Using Built-In Functions
- ◆ Exercise F8 – Putting the form on the straight and narrow
- ◆ Fixing the Tab Order
- ◆ A Question of Style

- ◆ Exercise F9 – Benefit from your creativity
- ◆ Conditional Formatting
- ◆ Exercise F10 – Always know where you are
- ◆ Creating Sub-Forms
- ◆ Exercise F11 – 1 → ∞ Form design
- ◆ Exercise F12 – Prepare to Tab around
- ◆ Create a custom toolbar .
- ◆ Exercise F13 – Offer users exactly what's needed
- ◆ Form Filtering Techniques
- ◆ Exercise F14 – Built-in Search, no work involved
- ◆ Navigation with unbound forms .
- ◆ Setting up Menus
- ◆ Exercise F15 – Point everyone in the right direction
- ◆ Enter the DoCmd Object assisted by the RunCommand Action
- ◆ Exercise F16 – Useful one-liners
- ◆ Continuous forms
- ◆ Exercise F17 – View loads of stuff on one screen
- ◆ Pivot Tables and Pivot Charts → XP
- ◆ Exercise F18 – At last we have a charting tool

Review Questions – Forms

#### ❖ **Access Reports .**

- ◆ Section Objectives
- ◆ Exercise R1 – The reason we use databases, for Output
- ◆ Report Properties
- ◆ Adding Sub-Reports
- ◆ Exercise R2 – 1 → 1 Reporting
- ◆ Report Options
- ◆ Exercise R3 – Export to other file formats
- ◆ Grouping information in reports
- ◆ Exercise R4 – Sensible Grouping
- ◆ Adding calculated controls to reports.
- ◆ Exercise R5 – Get the numbers right
- ◆ Adding a chart to a report
- ◆ Exercise R6 – From summary data to a chart
- ◆ Exercise R7 – Use the charting power of Excel
- ◆ A useful report wizard

Review Questions – Reports

❖ **Access Pages**

- ◆ Access to the Web
- ◆ Section Objectives
- ◆ Exercise P1 – Going out to the world
- ◆ Exercise P2 – The ∞ side of a 1 relationship.
- ◆ Exercise P3 – We're not rock stars but groups are great

Review Questions - Pages

❖ **Access Macros**

- ◆ Section Objectives
- ◆ Exercise M1 – Make a Splash
- ◆ Exercise M2 – Automate the database open routine
- ◆ Exercise M3 – Alternative solution
- ◆ Exercise M4 – Don't let mistakes happen
- ◆ Using macros to control and automate forms
- ◆ Exercise M5 – Debugging a Macro
- ◆ Exercise M6 – Combine Macros with code

Review Questions - Macros

Additional Topics:

- ❖ **Linked Table Manager**
- ❖ **Link to Excel**
- ❖ **Startup Parameters**
- ❖ **Make an MDE file**
- ❖ **Compacting**
- ❖ **Encryption/Encoding**
- ❖ **Security**
- ❖ **Further Reading**

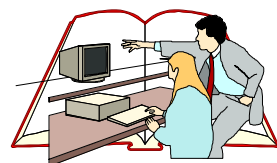
Book II

# Microsoft Access

## Develop & Program



Versions 2000, XP and 2003



## Scope

The course assumes that the delegate has a sound understanding of Microsoft Access, specifically, table normalisation rules, field data types and the organisation of tables as related entities. In addition, the creation of complex queries, forms, reports and pages should be known. Ideally, the **Access Fundamentals** course should be completed first.

The course is designed for people who wish to pursue the development and implementation of Access in a multi-user environment.

For those unfamiliar with the Visual Basic language, a brief primer is included before launching into practical coding of the **Access Object Model**. The accent is on user productivity, offering solutions that provide ease of use whilst meeting complex information gathering requirements.

The manual is complimented by a wealth of follow-up information on CD, invaluable to delegates designing their initial databases.

Most code examples are taken from databases currently in use by our clients. The manual does not take an academic approach to programming, rather the down-to-earth practical application of code in real-life situations.

Access automation, security and replication are covered in detail.

## ***Table of Contents***

- ❖ Manual Conventions
- ❖ Why Create a Database?
- ❖ Benchmark, benchmark, benchmark
  
- ❖ **Implementation Guidelines**
  - ◆ A Bottom-up Approach
  - ◆ The Nature of a Brief
  
- ❖ **A Visual Basic Primer**
  - ◆ Section Objectives
  - ◆ The Visual Basic Editor (VBE)
  - ◆ Exercise VB1 – setting up the VBE
  - ◆ The Standard VB Toolbar
  - ◆ The Debug Toolbar
  - ◆ Some VB definitions
  - ◆ Declaring Variables
  - ◆ Exercise VB2 – Option Explicit
  - ◆ Visual Basic Data Types
  - ◆ Variable Scope
  - ◆ Variable Life
  - ◆ Constants
  - ◆ The Programming Window
  - ◆ Exercise VB3 – the VB text editor
  - ◆ Phrasing
  - ◆ The Immediate Window
  - ◆ Exercise VB4 – The VB Scratchpad
  - ◆ The Locals Window
  - ◆ Exercise VB5 – view the variables
  - ◆ The Watch Window
  - ◆ Exercise VB6 - watch out
  
- ❖ **Programming Access Objects**
  - ◆ Section Objectives
  - ◆ The Microsoft Access Object Model
  - ◆ Visual Basic Reference Libraries
  - ◆ Exercise AO1 – setting up object references
  - ◆ The Object Browser

- ◆ Exercise AO2 – determining programmable objects
- ◆ Standard and Class Modules

#### ❖ **Unfinished Business**

- ◆ Exercise AO3 – adding buttons
- ◆ Exercise AO4 – more on auto-entry
- ◆ Exercise AO5 – adding new entries to combo boxes
- ◆ Exercise AO6 – save on close
- ◆ Finding and Setting Criteria for Reports
- ◆ Exercise AO7 – set-up a Reports menu
- ◆ Exercise AO8 – match report to menu
- ◆ Exercise AO9 – creating a picture button.
- ◆ Exercise AO10 – programming reports
- ◆ Exercise AO11 – a shady trick
- ◆ Exercise AO12 – preventing accidental closure

#### ❖ **Practical Code from Real-Life Databases**

- ◆ Section Objectives
- ◆ The Recordset Object
- ◆ DAO vs. ADO – Comparison
- ◆ Deciding whether to use DAO or ADO
- ◆ Exercise PC1 – explore the database
- ◆ Exercise PC2 – date calculations in code
- ◆ Exercise PC3 – working with recordsets
- ◆ Exercise PC3 – communicating with Outlook
- ◆ Exercise PC4 – picking up totals in a sub-form
- ◆ Exercise PC5 – getting statistics on users
- ◆ Exercise PC6 – security at control level
- ◆ Exercise PC6 – sequential numbers
- ◆ Exercise PC7 – protecting the system master
- ◆ Transactions
- ◆ Using the Begin...End and Rollback routine
- ◆ Exercise PC8 – Completing all the legs

## ❖ **Automating other Programs**

- ◆ Section Objectives
- ◆ Automation examples
- ◆ Principles of Automation
- ◆ Limitations and Issues
- ◆ Exercise A1 – Exporting data to Excel
- ◆ Exercise A2 – Importing data from Excel
- ◆ Exercise A3 – Fine tuning with range names
- ◆ Word Automation
- ◆ Exercise A4 – A contract with Word
- ◆ Exercise A5 – Linking to Outlook

## ❖ **Error Handling**

- ◆ Section Objectives
- ◆ From tedious to mystical
- ◆ 1) The up-front code
- ◆ 2) The after installation code
- ◆ Errors and error handling
- ◆ Exercise E1 – Resume...Resume Next
- ◆ Getting the message
- ◆ Exercise E2 – Display why the error occurred
- ◆ Handling calculations
- ◆ Exercise E3 – Errors in numbers

## ❖ **The Access User-Level Security Model**

- ◆ Section Objectives
- ◆ Exercise AS1 – import all objects
- ◆ Exercise AS2 – create a new security file
- ◆ Exercise AS2 – change password
- ◆ Exercise AS3 – assign permissions
- ◆ Security in a Front-End/Back-End Solution
- ◆ Exercise AS4 – exposing the user
- ◆ Exercise AS5 – securing the code
- ◆ Exercise AS6 – change the icon

## ❖ **Database Replication**

- ◆ Section Objectives
- ◆ Two Reasons to Replicate
- ◆ Exercise RP1 – a front-end example
- ◆ Exercise RP2 – import a toolbar
- ◆ Partial Replication
- ◆ Replicating Tables
- ◆ Managing Replication

## ❖ **The Final Clean-up**

- ◆ Points to note before offering a database to users
- ◆ Object review
- ◆ Code review
- ◆ Further reading

# Microsoft Excel Advanced - Menu Options

Select priorities from the list below. Course fully customisable for delegate needs. Course can be 1 or 2 days depending on content.

- ◆ Internet links – Hyperlinks
- ◆ Toolbar customise with VBA
- ◆ Workspaces
- ◆ New printing techniques
- ◆ Expert editing tips
- ◆ Adding comments
- ◆ View & Report Managers
- ◆ Picture charts
- ◆ Graphing techniques
- ◆ Formulas
- ◆ The Function Wizard
- ◆ Macros – Visual Basic for Applications (VBA)
- ◆ Named Ranges
- ◆ Auto & Conditional formatting
- ◆ Styles
- ◆ Sharing work files
- ◆ Tracking the changes
- ◆ Protecting data
- ◆ Filtering data – setting criteria
- ◆ Working with input forms
- ◆ Data validation
- ◆ Using tables
- ◆ Converting text data to column format
- ◆ Consolidate data from different sources / linking
- ◆ 3D formulas in sheets & other WorkBooks
- ◆ Grouping data
- ◆ Pivot Table models
- ◆ The Add-in Tools:
- ◆ Goal Seek
- ◆ Scenario Manager
- ◆ Auditing
- ◆ Solver
- ◆ Microsoft Query – getting external data
- ◆ Using Excel with other Office programs
- ◆ Designing spreadsheets for others to use

## **Assumptions:**

- Sound basic knowledge of program, navigation, simple formulas and formatting
- Absolute/relative cell addressing
- Basic charting techniques

# Financial modelling using the advanced features of Microsoft Excel

## Course Outline

Intro & history, bibliographical notes.  
Scope of Excel.  
Setting up desired options and add-ins.  
Customise Toolbar.

Multi-user modelling concepts, planning for data integrity

Start with the end – EXLPlan – a UK cash flow model

### Scrapbook - Revision:

Absolute & Relative cell addressing.  
Exercise – Jimmy's Sportswear.  
A quick look at dates.  
Conditional formatting, cell validation techniques.

Exercise: Named Ranges – Natural Language formulas.

### Macros - Recorded

The Costing model analysed.  
First **Macros** – automate procedures, reduce repetitive tasks, and place information where you want it.  
The template macro – add to menu.  
ActiveX controls – how they can help you and your users.

Model: BOM/Code generator - Blow a Gasket!

Condomise your models – prevent a tragedy

### Exercise:

From one If to many Ifs, Ands and Ors. Why VBA might be better and easier.  
NestedIf, Error cleanup, formats, auditing.

### Basic Financial exercises:

Goal Seek – single variable calculation.  
Multi-variable Scenarios.  
Massage dates.  
Arrays – save work and memory.  
More on Nested Ifs.  
One dimensional tables.  
Two dimensional tables.  
Simple margin analysis.  
Use a basic Macro function to calculate the cost of trees.  
Win the Lotto – random numbers.  
The **SUMIF** formula.  
**Functions** – common, financial, statistical – set up a histogram.

Data **Filtering** Techniques.

**Outlining** Data.

**Subtotalling** large spreadsheets.

The **Lookup** Functions: V/Hlookup, Choose, Mask.

- Using Forms to input data
- manipulating text

The built-in forms feature for rapid spreadsheet editing.  
Use a workbook as a web page.

### **Macros – written**

Communication to and from users – Input and Message forms.

**Model: Provide workbook navigation techniques using hyperlinks and dialog forms – Visual Basic for Applications**

Use Excel's **Consolidate** technique to total regional P & L accounts.  
Compare to **3D** formulas.

Financial **reporting** – link to **Word**.  
Advanced **graphing** techniques.

Using Excel's **Report Manager**. Microsoft dropped this feature in XP.

**Share** workbooks – multi-user considerations.

Working with enterprise data.

- Importing text data
- importing '**foreign**' information

**MS Query** – message data from a mainframe/server.

Summarising data with **PivotTables and Charts**.

Run **Solver** to optimise an Ad. Campaign.

**Styles** – setting up preferences

**Model: MRP - WIP**

During the course models from governments and companies will be reviewed.  
Current state of the art examples of Excel applied in practical financial applications.

**All courses duration: 2 days (Excel Advanced – depending on client requirements).**  
**Location: On-site or Corlett Drive, Bramley**  
**On-site courses available nation-wide**

