



# A Guide to *Access 2003*

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This guide assumes the reader to have basic knowledge of text editing and formatting using a Wordprocessor. Familiarity with Office XP's adapting menus and toolbars is also assumed.

The exact appearance of Windows varies depending upon the version of Windows you are using. Windows XP is used throughout although for the purpose and scope of this guide, the differences between versions of Windows are largely cosmetic.

Version 1

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# SECTION 1

## INTRODUCTION



### 1.1

A database is a collection of information (data) which is systematically organised. There are many examples of databases in everyday life, for example, an attendance register, a shop stock list, a telephone book. Using a database management system (database program) like Access, databases such as these can be manipulated and searched. For example, Access would allow you to sort a database of publications into alphabetical order based on the author's name, and to search for the author of a particular publication. Access can sort or find information much faster than you could by hand so looking through huge lists of information becomes a practical proposition. Data can also be manipulated using Access, eg. you could find out the total number of publications there are in the database, or how many by a particular author, or published after say, 1980.

Databases are structured into tables, records and fields. A table consists of a set of records (rows). Each record contains a number of distinct fields (columns). An example of a record would be information about a particular publication, say the book 'For Whom The Bell Tolls'. Examples of fields are the author, the publisher, and the ISBN (International Standard Book Number).

As with database programs generally, before you start to use Access you should consider carefully what information you wish to record, the form in which you wish to record it, and what data you may want to retrieve from the database.

### Database Design

Database design is a big topic – entire books have been written on the subject. Traditionally it has been viewed as a difficult task requiring highly specialised skills and consuming a great deal of time and effort. Whilst this may be true for large shared databases which have to take into account a wide range of considerations and users, small or single-user databases are not necessarily always difficult to design and implement. Outlined below are a number of principles that you should keep in mind when you are designing a database.

There are two types of database: Flat File Databases and Relational Databases. Both types can be created using Access.

Flat file databases are a simple type of database which consist of a single table of data, for example, a telephone book. While simpler in design, flat file databases can be inefficient if used to store inappropriate types of data as this can lead to a lot of repetition in the database. In such cases more than one table is required and this is termed a relational database.

Consider the example of a library loan database where a person may borrow several books. If this was to be implemented as a flat file database there would need to be a record containing details about each book including a field for the name of the borrower. If the person were borrowing six books her name would be repeated six times in the database alongside the records of the six books borrowed. In addition the database would need to store the Person's library card number and the loan date. Of course each of these would also have to be stored six times – not very efficient. While with a small-scale database this may not seem important, the larger the database grows the more cumbersome it becomes to search and manipulate.

# 1.2

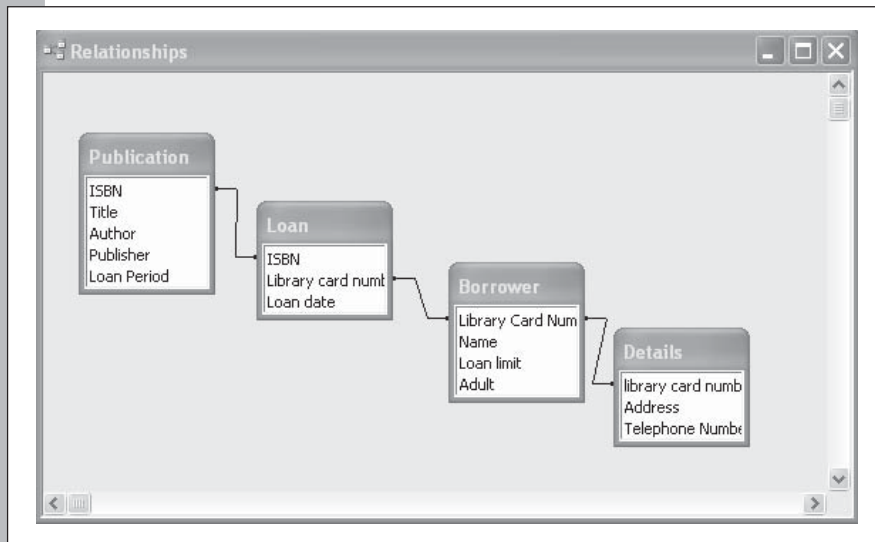
In a relational database details about the book would be kept in a separate table from those of the borrower; in this way the tables can be linked (related) together by a single common field. This linking field is the only repetition required between the tables and this is much more efficient.

The key to relational databases is the process of deciding which tables you should have in the database, how these tables are related, and what fields those tables should contain. A frequent problem in the design of databases is that too few tables are used which can lead to them becoming overloaded or difficult to search, update and expand.

You need to consider carefully the sorts of questions you will want to ask the database and the types of output you will require. Very often you may have to review the design.

## Stages in Creating a Database

- 1 Decide upon the design of your database. Section 1.1.



- 2 Create the required tables based upon your design and define the fields within each table. Section 2.3.

**Table1 : Table**

Field Name	Data Type	Description
field	Text	

**Field Properties**

General | Lookup

Field Size	50
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	No
Allow Zero Length	Yes
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

The data type determines the kind of values that users can store in the field. Press F1 for help on data types.

**3** Enter the data for the database

	ISBN	Title	Author	Publisher	Lo:
+	95857678	Gin Palace to Ale House	Prout	Cyan	
+	98345378	Interpersonal Relationships	Sharpe, Jones	Parker	
+	65457643	A Student's Guide to Access 2002	Beck, Maynard,Rodger	Software Made	
+	65457644	A Student's Guide to Excel 2002	Beck, Maynard,Rodger	Software Made	
▶	0				

**4** If you wish to make data entry easier create a Form. Section 5.0

**5** Search the database using a Query. Section 4.0.

Field:	ISBN	Title	Author	Publisher	Loan Period	T
Table:	Publication	Publication	Publication	Publication	Publication	F
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Criteria:						
or:						

- 6 If you wish to print any data from the database as anything other than a simple listing use a Report. Section 6.0.

ISBN	Title	Author	Publisher
95857678	Gin Palace to Ale House	Prout	Cyan
98345378	Interpersonal Relationships	Sharpe, Jones	Parker
65457643	A Student's Guide to Access 2002	Beck, Maynard, Rodger	Software Made Simple
65457644	A Student's Guide to Excel 2002	Beck, Maynard, Rodger	Software Made Simple

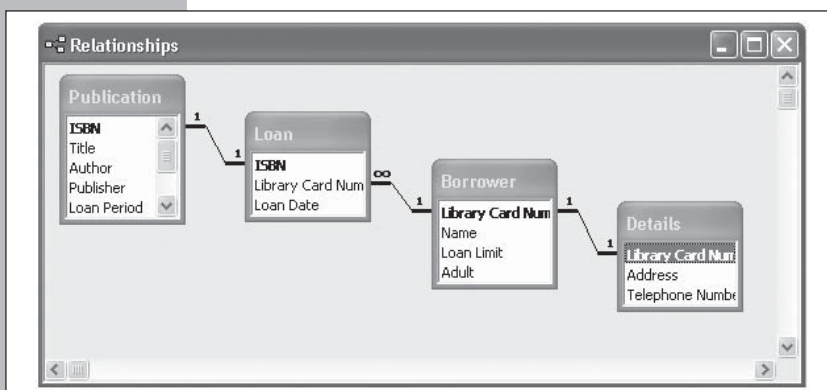
**Sample Database**

Throughout this guide the examples are based on a database designed to operate a local library loan system. The purpose of the database is to enable the library to store and retrieve information about which publications are on loan and to whom.

The following information needs to be recorded about the publications available: which publications are on loan, to whom, and details about people registered to use the library. Each has been logically allocated to one of four tables with the linked element underlined:

- Publication:** ISBN, Title, Author, Publisher, Loan Period, Times Borrowed, Type of Publication, On Loan.
- Loan:** ISBN, Library Card Number, Loan Date.
- Borrower:** Library Card Number, Name, Loan Limit, Adult.
- Details:** Library Card Number, Address, Telephone Number.

While this may appear intimidating, examples in this guide will refer only to the Publication table unless illustrating how to relate tables together and how these can then be manipulated.



The database was divided in this way because it has broken the information which is needed into four distinct entities. The tables are linked either by the ISBN number or the Library Card Number (underlined above). Structuring the database in such a way makes it more efficient to use and reduces problems of duplication and inconsistencies.

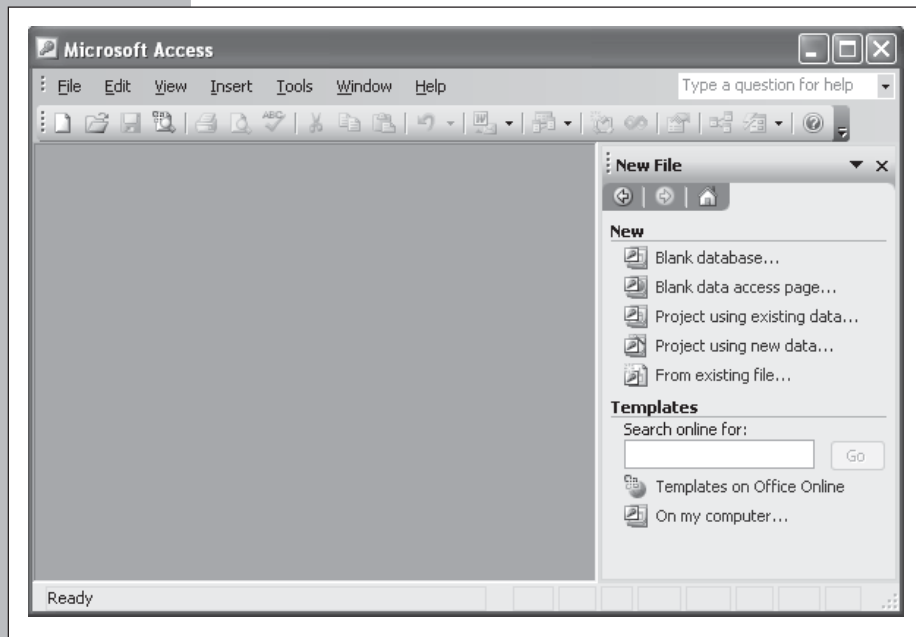
The diagram opposite illustrates the relationship between the four tables which constitute the database.

You should note that the sample database is intended purely as an illustration and that some licence has been taken.

## SECTION 2

### STARTING ACCESS

Unlike most programs where it is possible to get started with little background knowledge, the same is not true of a relational database program. Getting the initial design of the database right is essential.



If you have not done so already, it is suggested that you read Section 1.0 of this guide and if you are still in any doubt then read a book about database design.

To begin using Access choose **All Programs** from the **Start** menu and **Microsoft Access** from the sub-menu or click on the **Access** button on the **Office Shortcut bar**.

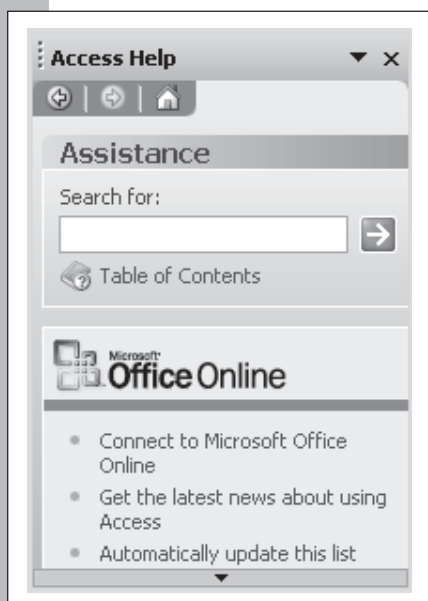
The window shown left is displayed.

There are two ways of starting Access:

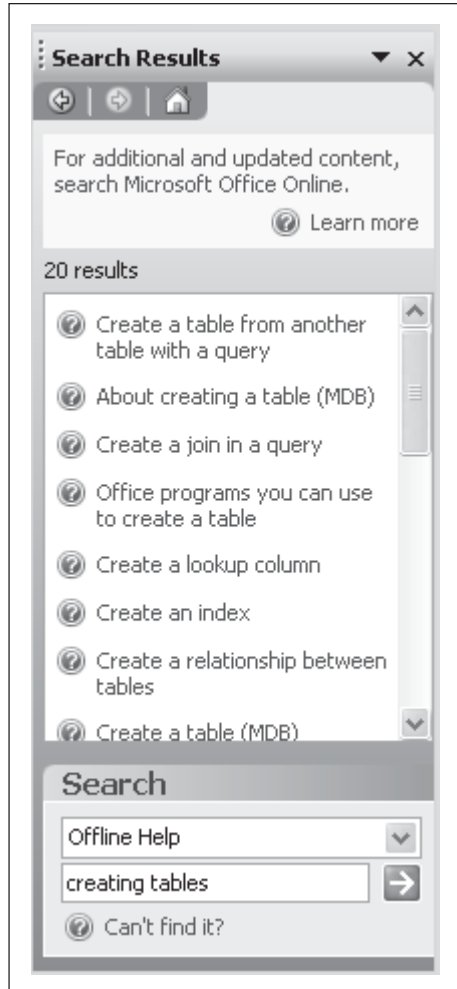
- Using a database which has already been set up (see Section 2.2).
- Setting up a new database (see Section 2.3).

## 2.1

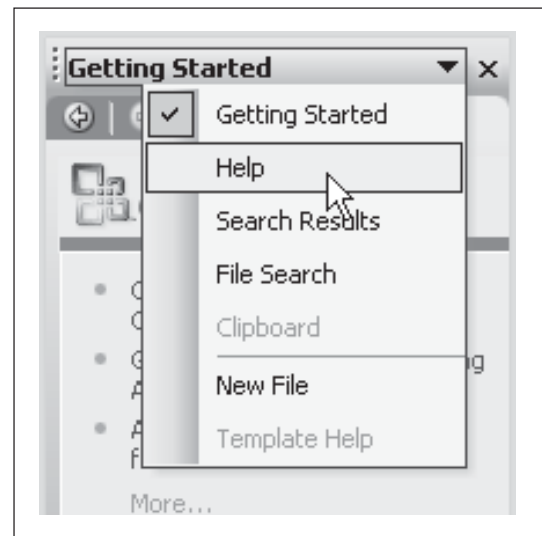
### Help Using Excel



If you have problems with Access the **Access Help** pane to the right of your screen may be able to help. Type the topic that you require help with into the **Search for:** box and click on . Usually a selection of possible answers is returned, and for further details just click on the most appropriate answer.



**Note:** To remove the Access Help pane to give you more room to work click on **x** . To display the Access Help panel choose Microsoft Access Help from the Help menu. If another task pane is displayed to the right of the screen choose Help from the drop down menu.



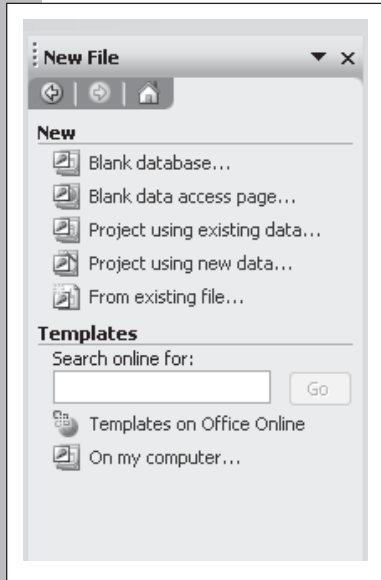
**The Office Assistant:** The Office Assistant is an animated character who provides an alternative to the Excel Help panel. If you would like to display the Office Assistant choose Show the Office Assistant from the Help menu.

**Pop-up Icons:** You may find that common icons pop up while you are working. These icons are designed to help you complete routine tasks, such as inserting or formatting a new line. Click on the icon to take advantage of the shortcuts available.

## 2.2

## Opening an Existing Database


You may have experience of inputting data or working with an Access database created by someone else. If you wish to adapt an existing database or modify one that you have already created. In either case if Access has just started up you will be presented with a dialogue box similar to the one shown below.

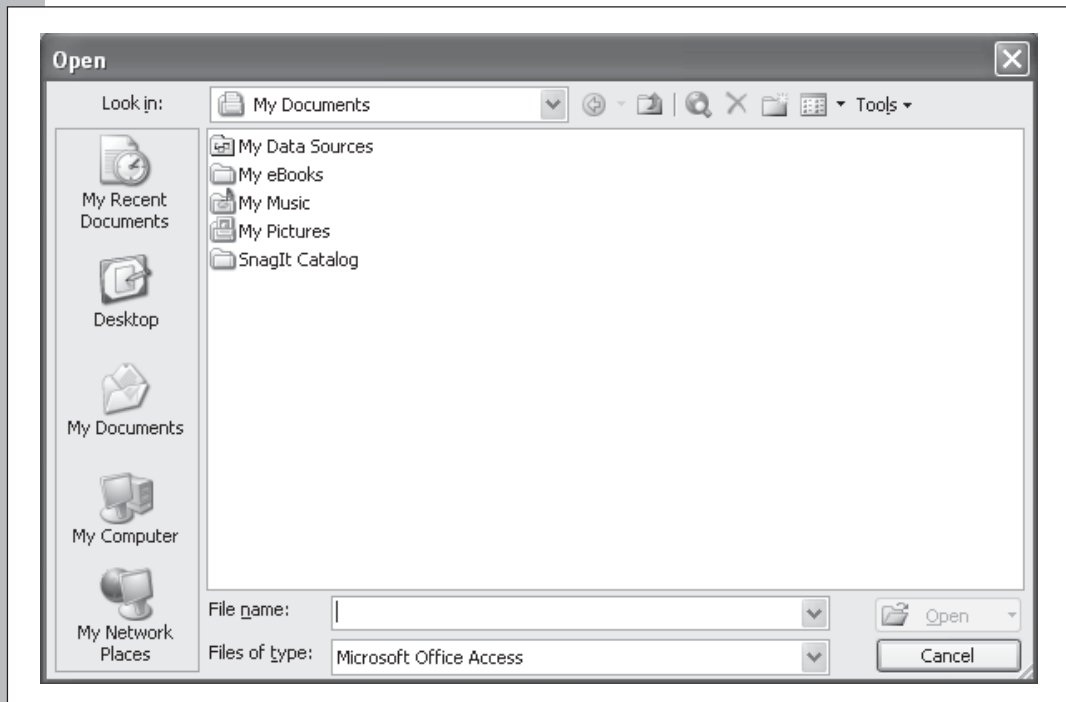


To the right of the workbook is the Task pane which disappears and reappears depending upon your usage of Access. If the database you wish to open has been in use recently then it may be listed in the Task pane. If so a single click on the name of the database will open it.

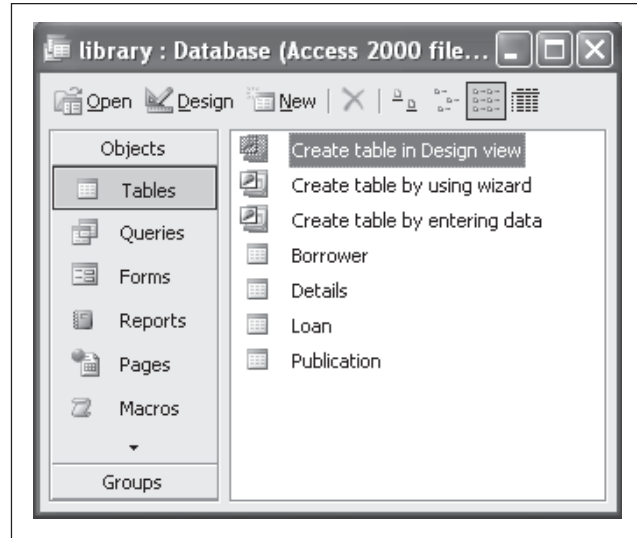
If the database you wish to open is not listed then click on **More Files** and find the database using the Open dialogue box. To open a file on a particular disc choose the disc by clicking on the arrow alongside the **Look in** box and double-click on the disc from those listed. If the file was saved into a particular folder double-click on the folder from those listed and when the desired file name appears in the dialogue box, open it either by clicking on the file name and then on the **Open** button, or by double-clicking the file name.



If the Task pane is not displayed choose **Open** from the **File** menu or click on the  button on the Toolbar. The dialogue box below will appear from which you can open the required database file.



Once a database is open the Database window is displayed and from this you can choose which type of database object you wish to use. If you wish to view data in a datasheet click on the **Tables** button, choose the table you wish to view and click on the **Open** button. Similarly, if you wish to view data as a form click on the **Forms** button, choose the form you wish to view and click on the **Open** button.

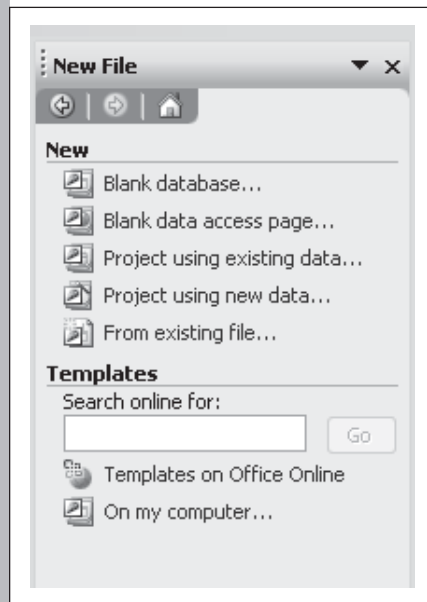


**Note:** The distinction between a datasheet and a form is made later in the guide.

## 2.3

### Creating a New Database

To create a new database you must decide whether to begin from scratch with a blank database or to be guided in creating the database by the **Database Wizard**. The Database Wizard provides several ready-made databases templates (see Section 2.4), if your information is consistent with one of these templates then using the Database Wizard is certainly the easiest way to create your database.



Databases created using the database wizard can be modified to suit your particular requirements both during and after creation, though this can be complicated, and ultimately more time consuming than creating a database from scratch.

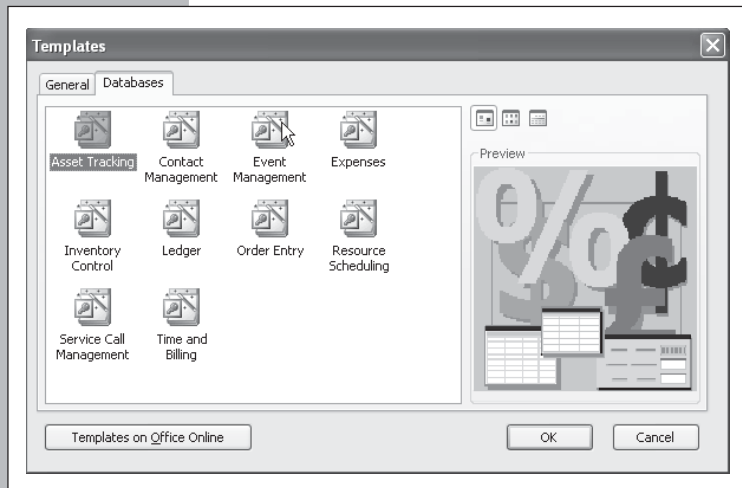
If Access has just started up the Task pane will be displayed on the right of the window, if it is not shown choose **New** from the **File** menu to display it.

## 2.4

## Creating a Database Using the Database Wizard

Access provides a number of templates for databases designed for common purposes. To utilise these templates choose Templates from the New File task pane.

To determine whether the database you wish to create corresponds with one of the Database Wizard templates ensure that the dialogue box displayed has the **Databases** tab to the fore.



If one of the templates is suitable choose it and click on the **OK** button. In the dialogue box which follows you must decide where to save the database file and title it appropriately (for more detail see Section 7.0).

You will then be presented with a series of dialogue boxes, the responses to which allow you to customise the database to your requirements. For example, you can choose from a variety of pre-defined tables and fields whether to include sample data, and you can then choose the style used to display the data.

**Note:** A database created using the Database Wizard is no different to one created from scratch. If you wish to add fields, change the names of tables, or alter the appearance of the database just use the techniques outlined in the following sections.

## 2.5

## Creating a Database from Scratch

By default your database will usually be saved to a folder called **'My Documents'** on the hard disc or network disc. If you wish to save to a different disc click on the down-arrow alongside the **Save In** box and choose the disc from those listed. If you wish to save to a different folder double-click on the folder from those listed in the dialogue box.

Next replace the default file name **'db1'** in the file name box with an appropriate file name for your database.

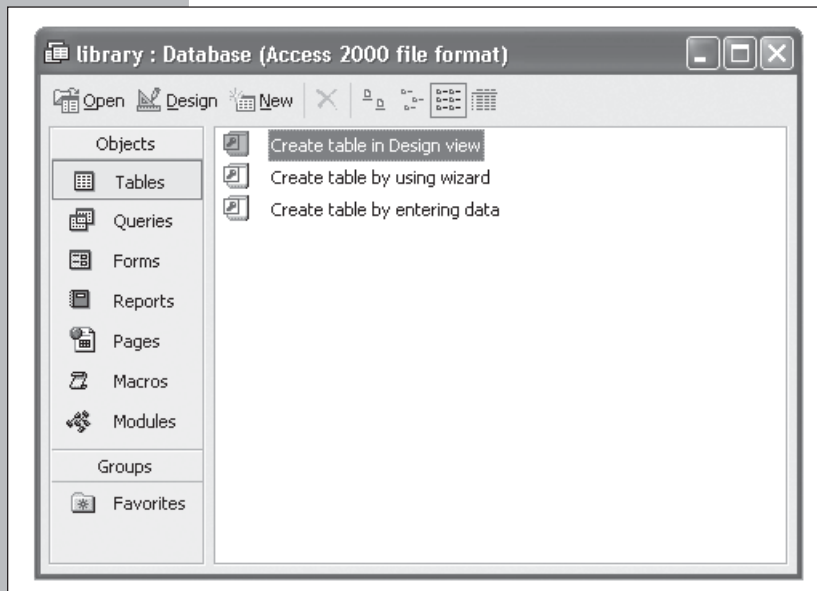
Click on **Create** to create the database.

The tables of the database must now be created.

## 2.6

## Creating Tables

To create a table you must decide whether to begin with a blank table or to be guided in creating the table by the **Table Wizard**. The Table Wizard provides many ready-made tables for you to use and, as with database templates, if this suits your purpose it is certainly the easiest way to create tables. However, more likely than not your data will not conform to one of these ready made tables and you will then need to create your own table from scratch.

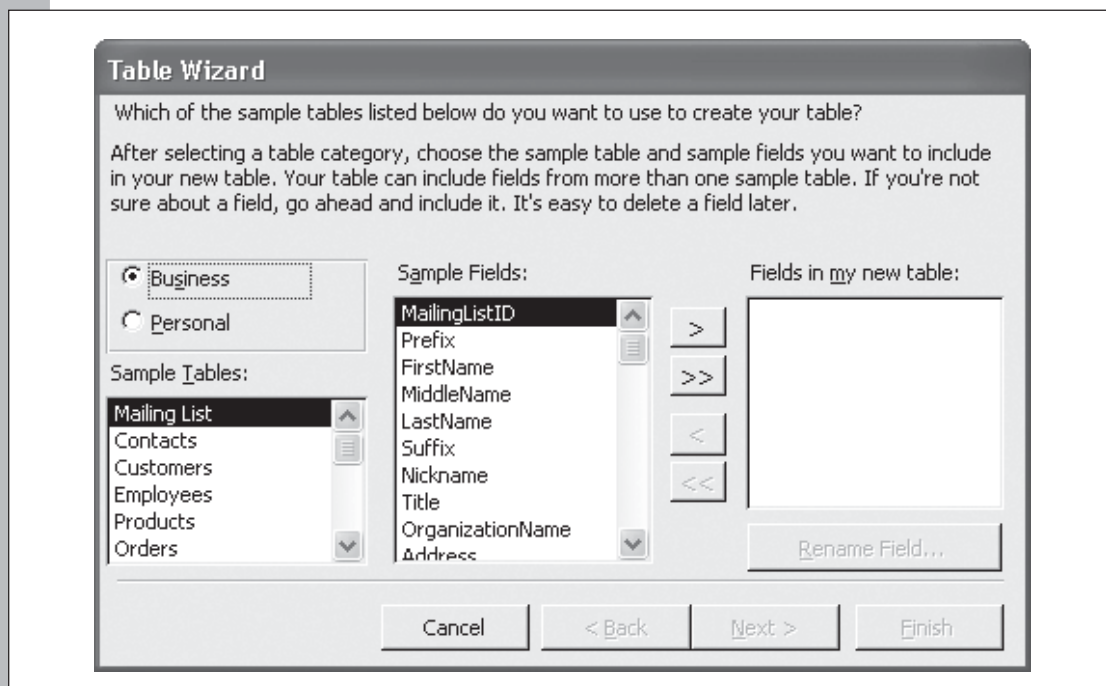




To create a table click on the **Tables** button in the **Database** window and choose **Create table in Design view**, **Create table by using wizard** or **Create table by entering data** and click on the **New** button.

## 2.7



## Creating a Table using the Table Wizard

To determine whether the table you wish to create corresponds with one of the pre-defined tables, choose Create table by using wizard. A series of dialogue boxes is presented; the first displays the pre-defined tables and associated fields.



If one of the sample tables shown on the left of the dialogue box is suitable choose it and examine the associated sample fields. If all the fields in each of the tables are suitable for use in your database, click on the  button to nominate them as fields in your table. Alternatively, for each field which is suitable, select the field and click on the  button. Repeat this for each field you wish to use in the table. If none of the tables is suitable click on **Cancel** and create your table from scratch (see Section 2.8).

**Note:** You can construct your table using sample fields from different sample tables.

Fields may be removed from use using the  button. All fields from a particular table may be removed by clicking on the  button.

Fields may be renamed by selecting them from the **Fields in my new table** section of the dialogue box and clicking on the **Rename Field** button. Simply enter the alternative into the dialogue box presented.

Subsequent Table Wizard dialogue boxes require you to name the table, decide upon how the primary key is specified (Section 2.13), establish any relationships between this and any other tables (Section 2.14) and finally decide how to proceed when the table is created.

## 2.8

### Creating a Table from Scratch

To create a table from scratch choose create table in Design View. A new table will be created. It is at this stage that the fields of the table are defined (see Section 2.9).


More than one table can be created in this way but first the current table must be titled and saved. Saving in Access is different from other programs. For information about saving see Section 7.0.

To close a table you no longer wish to use choose **Close** from the **File** menu.

## 2.9


### Defining Fields

Database tables use a number of categories or fields in which data is stored. Library catalogues – cards with author's name, title of publication, publisher, date of publication – are a case in point of a physical database now increasingly replaced by an electronic one. Each element – name, title, publisher etc. is a field, and these must be defined before data can be entered.

To define fields a table needs to be viewed in **Design View**. If you using a view other than design view the left-most button on the Toolbar will be displayed as . Click on this button to switch to design view.

From the design view window the fields common to every record of the database are defined.

To define a field, type the name you have chosen for the field into the column beneath **Field Name**. Long field names can be accommodated by increasing the width of the column. To do this move the pointer to the line which divides the titles of the Field Name and Data Type columns. The pointer will change shape. Now click and drag right to widen the column as required.

Press the **Tab** (→) key to move to the **Data Type** column and choose a data type by clicking on the down-arrow  and making your choice from the pop-up menu. Definitions of the field data types are provided in Section 2.10. Press the **Tab** (→) key to move on to the Description column where you may if you wish include a full description of the field.

