

# D

## Introduction to MS-Access

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### D.1 INTRODUCTION

As we have seen in the previous sections, a database is a collection of data designed to be used by different people. A relational database consists of many interrelated tables. Access is a relational database management system from Microsoft Corporation. In this appendix, we will see how to create an Access database, how to store data in it, how to update it and so on.

When you start Access, the Access Startup dialog box appears (see Figure 1) giving you a choice of how to begin Access. The Access Startup dialog box gives you three options for beginning the Access session. To begin the Access session, choose one option from the three options—you can create a new database or open an existing database. The three options are—create a new access database using a blank Access Database template, create a new access database using wizards, or open an existing Access database. We will see each of these options in a little detail.

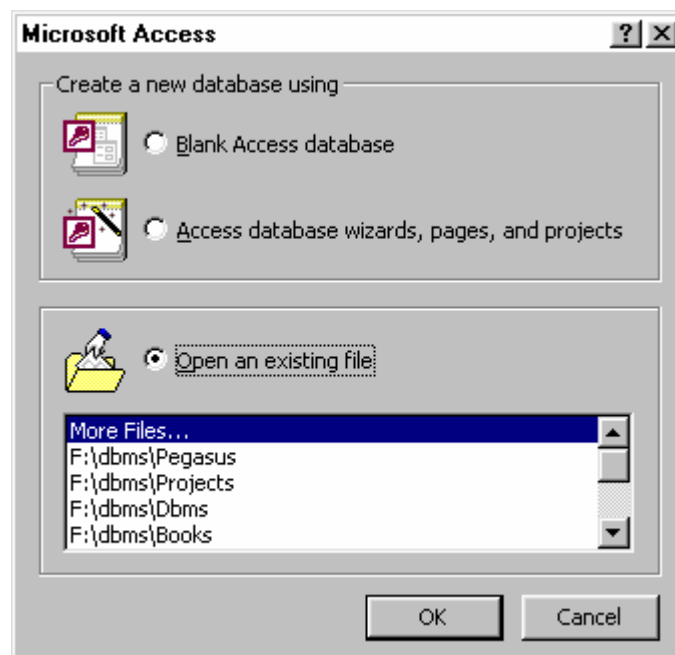


Figure 1 Access Startup Dialog Box

### D.1.1 Blank Access Database

Use this option to create a new blank database. When you click the OK button after choosing this option, the 'File New Database' dialog box appears asking you to specify the location where you want the blank database to be created. By default, the name of the database will be db1.mdb. You can change this by typing the name you want in the File name text box. Access presents with a blank database dialog box. You can create the tables, queries, forms, reports, pages, etc. either in the design view or using wizards.

### D.1.2 Access Database Wizards, Pages and Projects

If you want to create a new database based on a wizard, use this option. Access presents you with the New dialog box from which you can choose a wizard to create the database and its tables, forms, reports and so on.

### D.1.3 Open an Existing Database

This option is used to open an existing Access database. A list of recently opened files appears below the option. If the file you want is not in the list, click on 'More Files...' and press the OK button to bring up the Open dialog box.

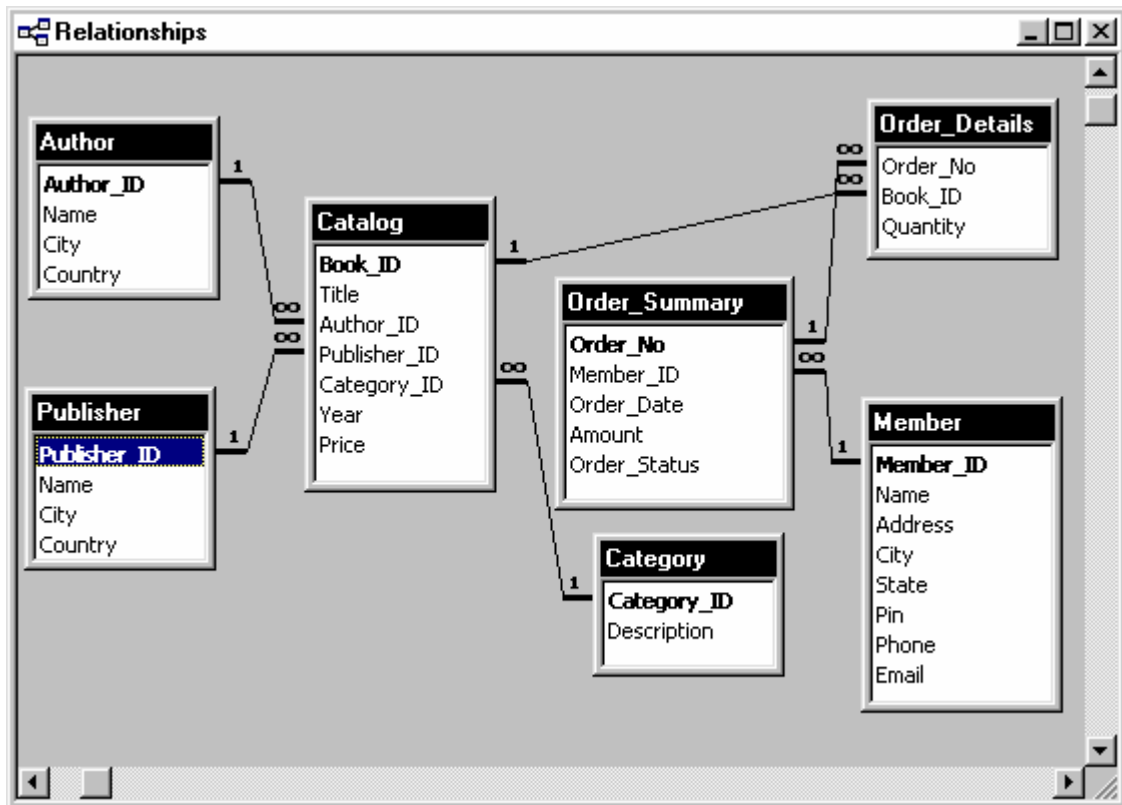


Figure 2 Relationship between the tables in the database

## D.2 VIEWING DATA

In Access 2000, data in a table form, report or query may be presented in several ways, called views. For a table or a form, Datasheet views displays all the data in a tabular format—each row a record and each column a field. When you open a table, it always appears in the Datasheet view, as it is the default view. If a form has already been created for a table, Form view displays the table data one record at a time. In

the Table Design View the table is displayed as a list of fields and their associated properties. Form Design view lets you create a new form or change the structure of an existing form.

### D.3 CREATING ACCESS DATABASE AND TABLES

In this section we will create an Access database we have discussed in Chapter 13. The database contains the tables Catalog, Author, Publisher, Category, Member, Order\_Summary and Order\_Details. We will create the tables using the Blank Access Database feature. The columns or fields of each table are given below:

- **Catalog** – Book\_ID, Title, Author\_ID, Publisher\_ID, Category\_ID, Year, Price
- **Author** – Author\_ID, Name, City, Country
- **Publisher** – Publisher\_ID, Name, City, Country
- **Category** – Category\_ID, Description
- **Member** – Member\_ID, Name, Address, City, State, Pin, Phone, E-mail
- **Order\_Summary** – Order\_No, Member\_ID, Order\_Date, Amount, Order\_Status
- **Order\_Details** – Order\_No, Book\_ID, Quantity

The **Book\_ID** is the primary key of the Catalog table, **Publisher\_ID** is the primary key of the Publisher table, **Author\_ID** is the primary key of the Author table, **Category\_ID** is the primary key of the Category table, **Member\_ID** is the primary key of the Member table and **Order\_No** is the primary key of the Order\_Summary table. A publisher can have more than one book in the catalog. Similarly an author can have more than one book in the catalog. The books in the catalog can be from one of the categories in the Category table. The Author\_ID, Publisher\_ID and Category\_ID are foreign keys of the Catalog table. Member\_ID is the foreign key in the Order\_Summary table and the Order\_No is the foreign key in the Order\_Details table. These relationships are shown in Figure 2.

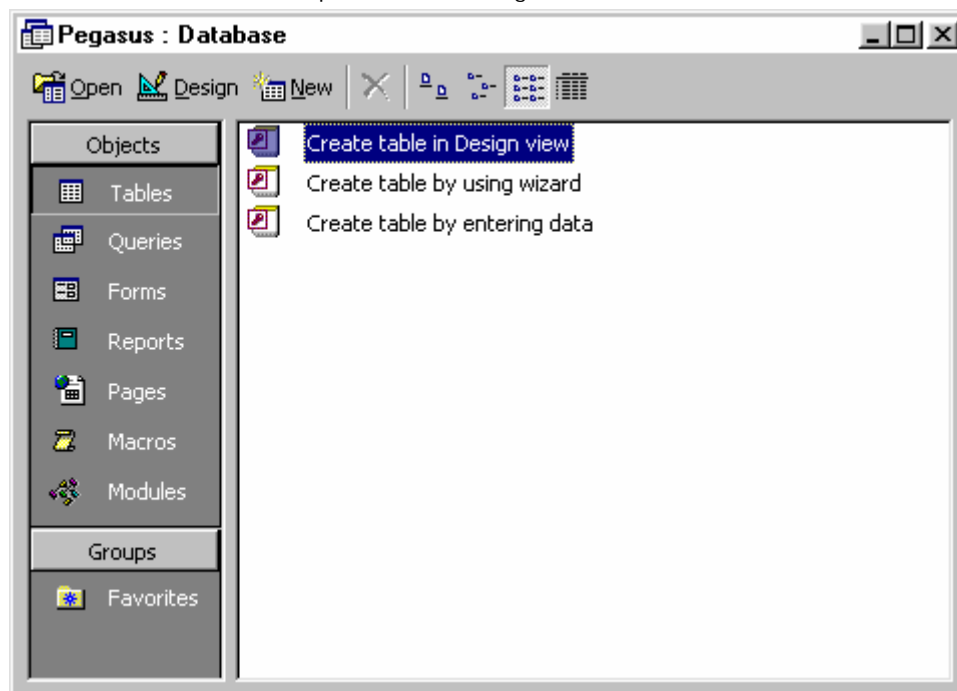


Figure 3 Pegasus Database Window

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To create the database, start Access and in the Access Startup dialog box click on the Blank Database. Click the OK button. The File New Database dialog box appears. Choose the destination (where you want to save the database), change the name to Pegasus.mdb and click on the Create button. The Pegasus Database dialog box appears as shown in Figure 3. Click on the New button on the Database window toolbar. The New table dialog box appears (see Figure 4). Choose Design view to create a new table in the design view and click the OK button.



Figure 4 New Table dialog box

The Design View dialog box appears (see Figure 5). The table name is by default Table1.

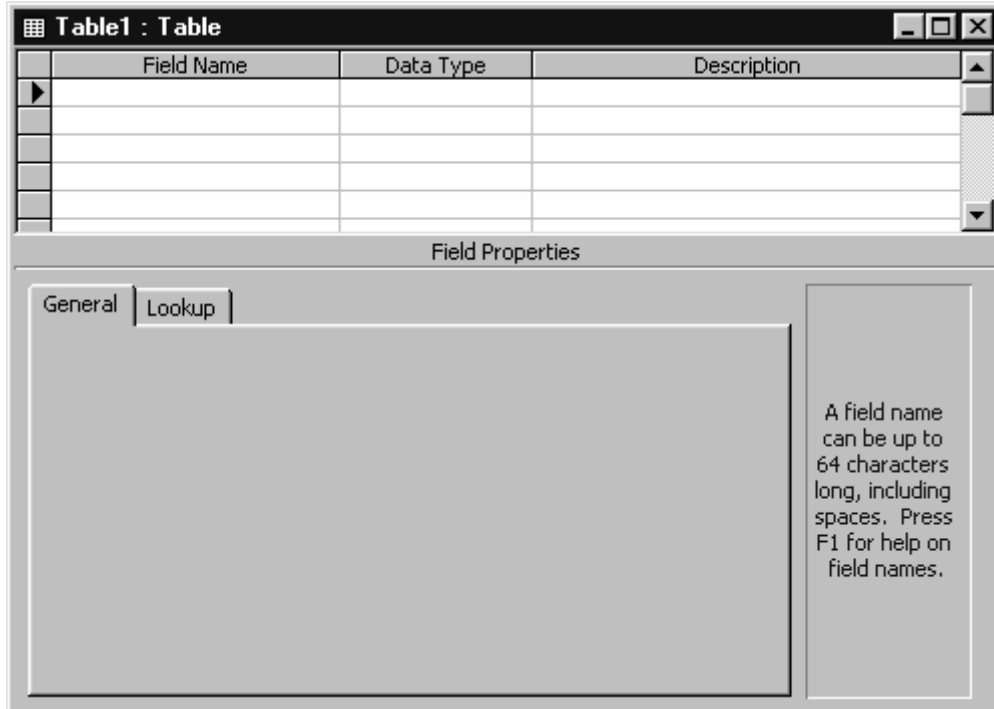


Figure 5 Design View for Table1

In the Field Name column type **Author\_ID**. Click in the Data Type column. A combo box appears. From the list choose **AutoNumber**. In the description column type "**Author Identification Number**". In the second row, in the Field Name column type **Name**, in the Data Type column choose **Text** and in the description column type "**Author Name**". Set the Field Properties as shown—make the field size 100 and so on. Do the same for City and Country.

Click on the first column—Author\_ID. It becomes selected. Click on the Primary Key button on the Table Design toolbar. The field Author\_ID becomes the primary key of the table. The key icon indicates this by the side of the field name. Click on the Save button on the Table Design toolbar to save the table design. The Save Table dialog box appears. Type the name of the table—Author—in the dialog box. Click OK. The table is saved under the name Author as shown in Figure 6. Close the table design window by clicking on the X marked button at the top-right corner of the window.

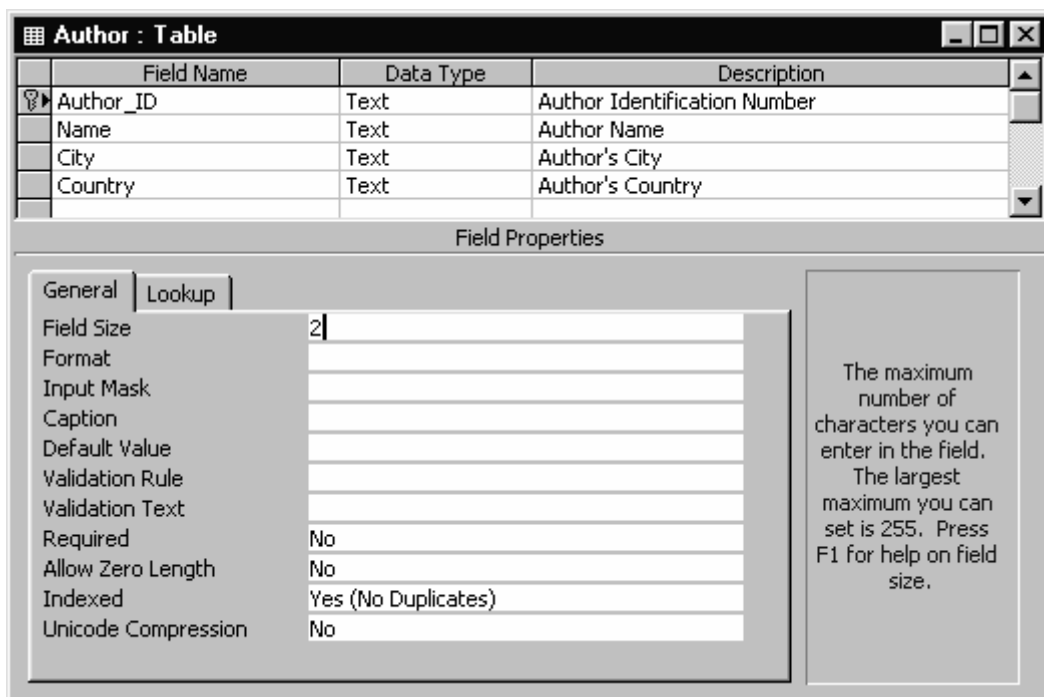


Figure 6 Author Table

## D.4 EXERCISES

Click the New button on the Database window toolbar and create the other tables—Publisher, Category, Catalog, Member, Order\_Summary and Order\_Details. For the Publisher table make the Publisher\_ID the primary key. For the Category table make the Category\_ID as the primary key. For the Catalog table make the Book\_ID the primary key.

## D.5 LOOKUP WIZARD

When creating the Catalog table, for the Author\_ID column, make Data Type as Lookup Wizard. The Lookup Wizard dialog box appears as shown in Figure 7. Click on the 'I want the lookup column to lookup the values in a table or query' option if it is not already selected. Click the Next button. The second screen of the Lookup Wizard appears (see Figure 8) where you can select the table that you want to associate the column. Select Author from the list of tables.

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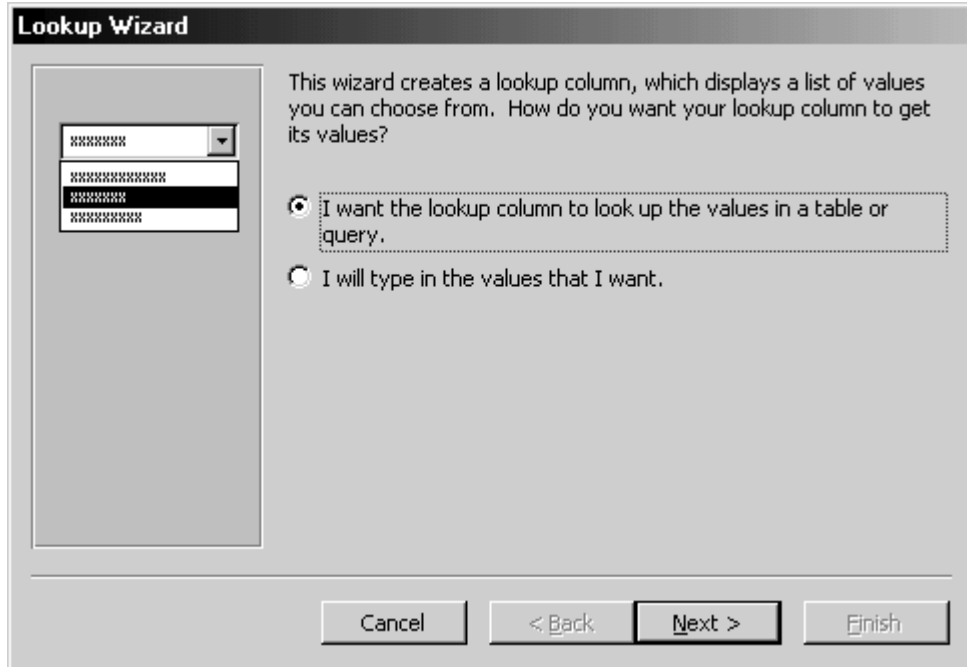


Figure 7 Lookup Wizard

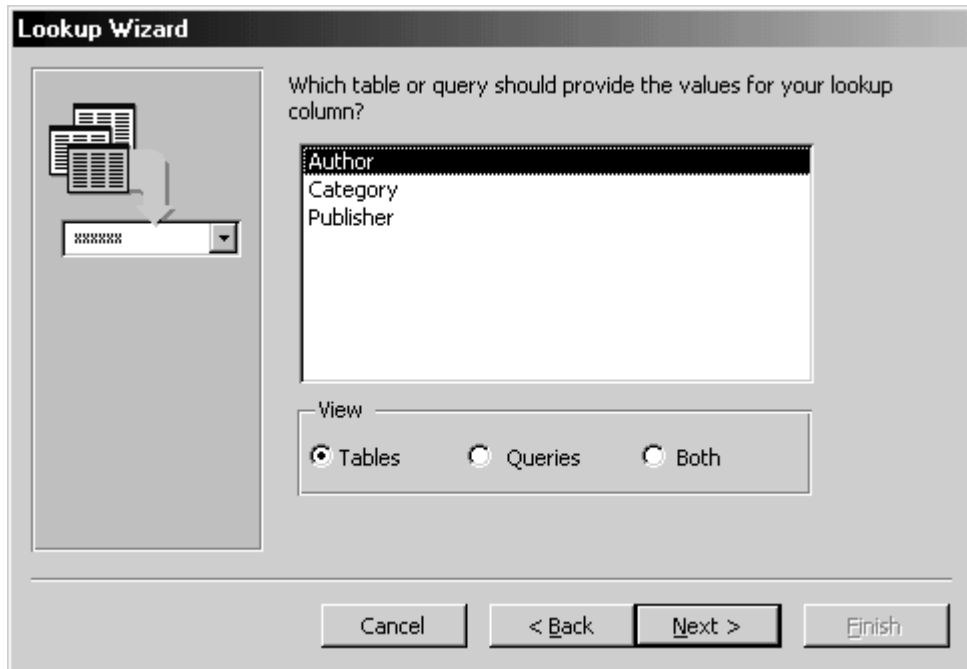


Figure 8 Selecting the table to be associated with the column

Click the Next button. The third screen of the Lookup Wizard appears (see Figure 9). In this you have to choose the fields that will become columns in the lookup column. You want the Author name to appear in the lookup column. So select both Author\_ID and Name fields.

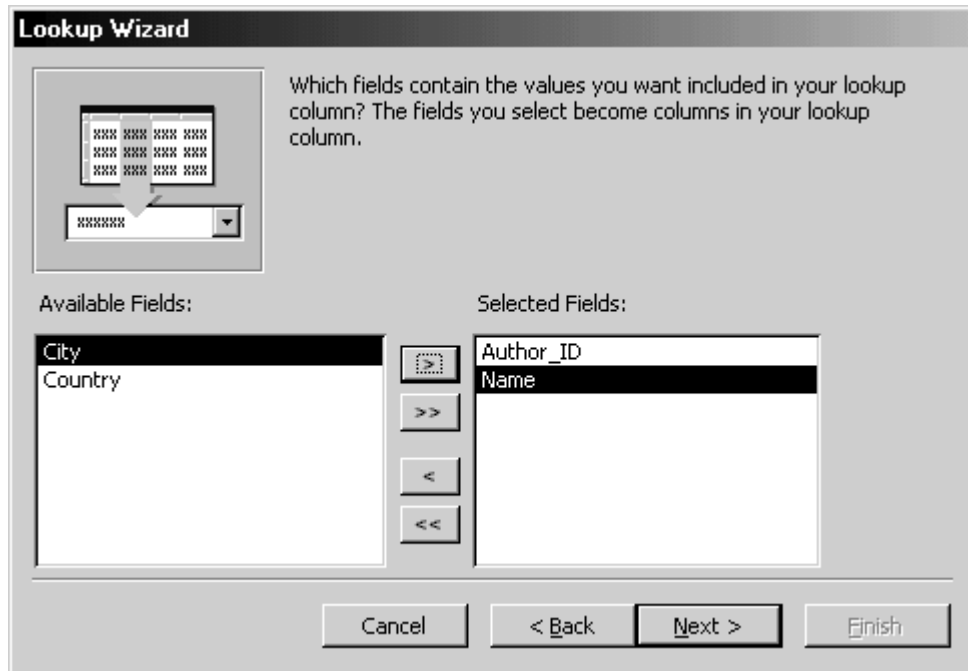


Figure 9 Selecting the fields for the lookup column

Click the Next button. The fourth screen of the Lookup Wizard appears. Click on the 'Hide key column' check box. This will hide the Author\_ID column and will display only the author name. Click the Next button.

The final screen of the Lookup Wizard appears asking for the name you want to provide for the lookup column. Type in a name for the lookup column and click the Finish button. Similarly create a lookup column for the Publisher\_ID and Category\_ID and complete the table by adding the other two fields—Year and Price. Save the table.

## D.6 CREATING FORMS, ENTERING AND UPDATING DATA USING FORMS

Access stores data in tables. The best way to work with the data is using forms. A form can be used to enter data, view data and modify data. In this section we will see how to create forms by creating forms for the Catalog table.

Start Access and open the database Pegasus.mdb. The Database window appears. Click on the Forms button on the left side. The Forms view appears as shown in Figure 10.

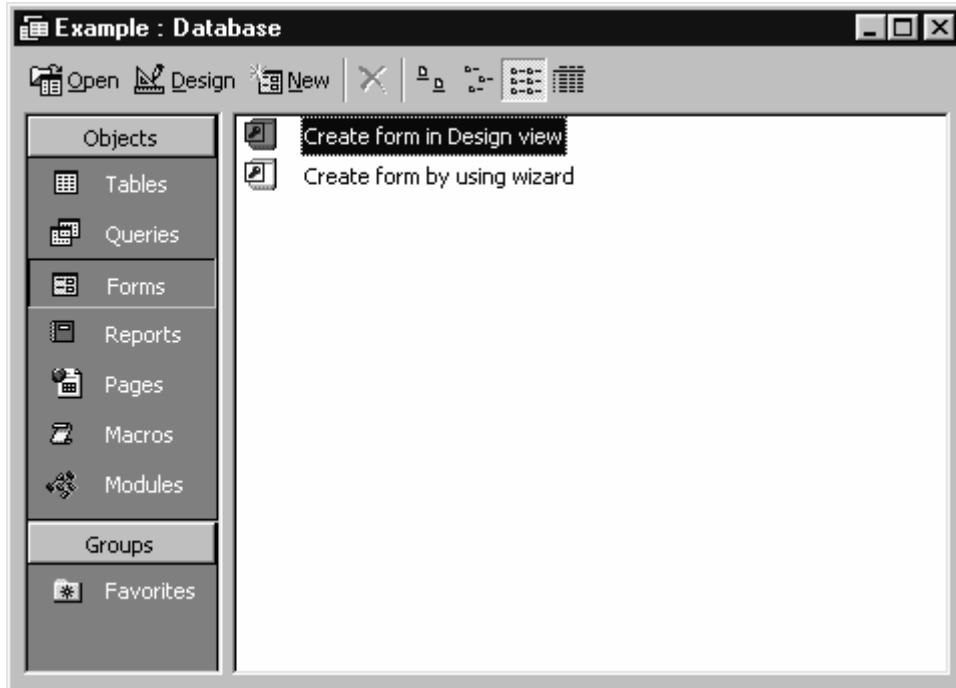


Figure 10 Database window showing Forms

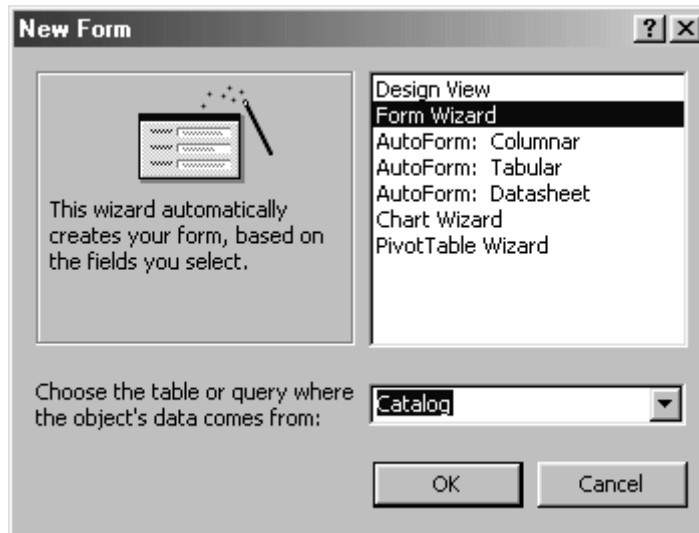


Figure 11 New Form Dialog box

Click on the New button on the Database window toolbar. The New Form dialog box appears. Choose Form Wizard from the list of options to create the form. Choose the Catalog table from the list of tables. The dialog box will look like Figure 11.

Click the OK button. The Form Wizard appears. Choose the columns that you want in the form. We will choose all the fields. Click on the double greater than arrow (>>) button. All the fields from the Available fields list are moved to the Selected fields list (see Figure 12).

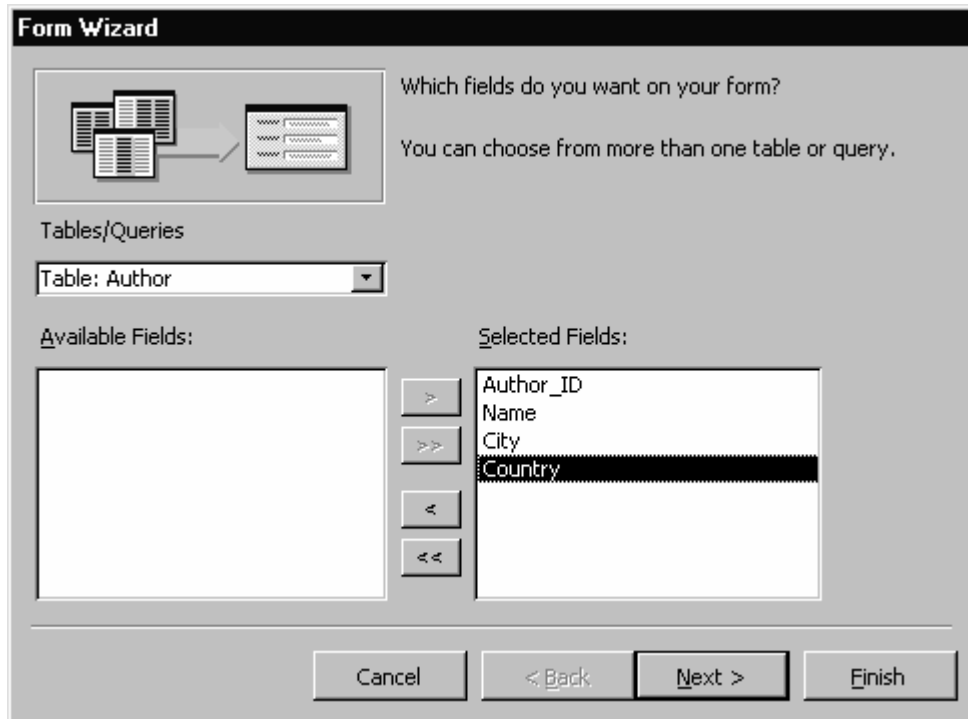


Figure 12 Form Wizard—Fields selection screen

Click the Next button. The second screen of the Form Wizard where you can specify the layout appears. Click the columnar (if not selected already). Click the Next button. The third screen of the Form Wizard where you can specify the style of the form appears. Choose the 'Industrial' style. You can see the preview of the different styles by choosing the different options. Click the Next button. The final screen of the Form Wizard appears. Here you can change the name of the form. Click the 'Open the form to view or enter information' radio button. Click the Finish button. The Author Form appears as shown in Figure 13.

Now you can enter data into the Author table using the Author form. Type in the information that you want to enter into the table into the form fields. Once you have finished the first record press Tab. You can also click on the Next Record button on the navigation bar. The next blank record appears. Type in the details of the next author and continue until you have finished the data entry. Now change the view to Datasheet view by clicking on the drop-down arrow by the side of the View button on the Form View toolbar. The Datasheet will look like Figure 14.

## D.7 EXERCISES

Create forms for the Publisher, Category and Catalog tables. Complete the data entry for the Publisher, Category and Catalog tables. While entering the data for the Catalog table for the Author\_ID, Publisher\_ID and Category\_ID fields, you can choose the values by clicking on the down-arrow and choosing the desired value from the list.

Figure 13 Author Form

	Author_ID	Name	City	Country
+	AD	Alan M. Davis	Colorado	USA
+	AH	Arthur Hailey	Bahamas	Bahamas
+	AL	Alexis Leon	Cochin	India
+	AR	Arundhati Roy	New Delhi	India
+	CC	Clive Cussler	Arizona	USA
+	DT	Don Tapscott	New York	USA
+	EM	Ed Marquand	Seattle	USA
+	ES	Erich Segal	Harvard	USA
+	EY	Edward Yourdon	California	USA
+	FB	Frederick P. Brooks	North Carolina	USA
+	FE	Florence Isaacs	New York	USA
+	JA	Jeffrey Archer	Cambridge	UK
+	JG	John Grisham	Virginia	USA
+	JH	Joseph Heller	New York	USA
+	JM	John Mole	London	UK
+	LJ	Laurie Beth Jones	Texas	USA
+	ML	Mathews Leon	Cochin	India
+	OV	O.V.Vijayan	Palghat	India
+	PK	Peter Krass	Connecticut	USA
+	PS	Philip Toshio Sudo	Hawaii	USA
+	RB	Richard Bach	Washington	USA

Figure 14 Datasheet View of the Author Table

### D.8 NAVIGATING BETWEEN RECORDS IN A FORM

Whenever Microsoft Access displays a series of data—whether it is in the Datasheet or in the Form—a navigation bar appears on the bottom edge of the form. The navigation bar shows which record is currently being displayed and how many records are there in the table. It also includes navigation buttons that allow you to move quickly among records. You can move forward or backward one record at a time by clicking on the Next Record or Previous Record buttons respectively. You can also move to the first record or to the last record. You can also add a new record from the navigation bar as shown in Figure 15.

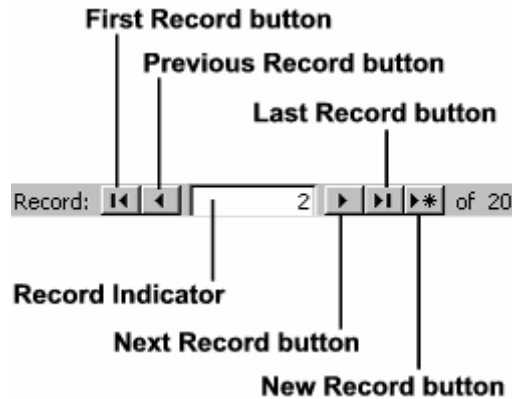


Figure 15 Navigation Bar

- The First Record button takes you immediately to the first record.
- The Previous Record button moves you back one record at a time.
- The record indicator displays the number of the current record and allows you to enter a record number and move to that record immediately.
- The Next Record button moves you forward one record at a time.
- The Last Record button take you immediately to the last record.
- The New Record button generates a new blank record.
- Press 'Ctrl+Home' to go to the first record.
- Press PgUp and PgDn keys to move to the next and previous records respectively.
- Press 'Ctrl+End' to go to the last record.

## D.9 FINDING, EDITING AND DELETING DATA IN A FORM

You can find the information that you need without any difficulty in Access. In fact that is one of the main advantages of using a database management system to store your data. Once you have found the record modifying the data is very easy. If you want you can delete the records that you don't want in the table. In this section we will find a record matching a certain specification, modify it, add a record and delete another one.

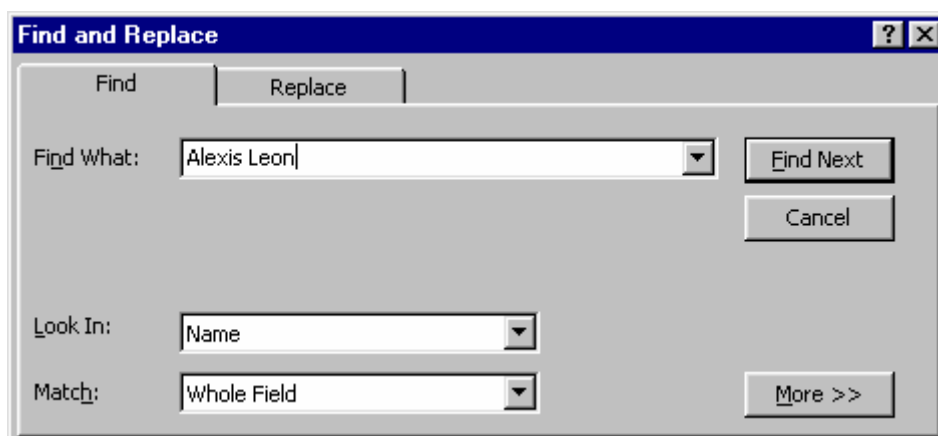


Figure 16 Find and Replace dialog box

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Start Access and open the database Pegasus.mdb. Click on the Forms button on the Database window to bring up the forms that we have created. Double-click on the Author form. The Author form opens with the first record. On the Author form, click in the Name field. On the Form View toolbar, click on the Find button (the button with the figure of a binoculars). The Find and Replace dialog box appears with the Find tab active. In the Find What box type Alexis Leon. In the Look In list, select Name, if it is not already displayed. In the Match list, select Whole Field, if it is not already displayed. The Find and replace dialog box will look similar to Figure 16.

Click on the title bar of the Find and Replace dialog box and drag it to a place where you can see both the form and the Find and Replace dialog box. Click the Find Next button. The record of the Author table where the author name is Alexis Leon appears in the Author form (see Figure 17).



Figure 17 Finding a Record

Click Find Next again. A message box appears informing you that there are no other matches. Click OK. In the Find What box type **Mathews**. In the Look In list, select **Name**, if it is not already displayed. In the Match list, select **Any Part of Field**. Click on the Find Next button. The record with author name '**Mathews Leon**' appears. Click Cancel on the Find and Replace dialog box. It disappears.

You can use wildcard characters to search for records. Wild card characters are special symbols that represent unknown characters in word or term. The question mark (?) represents any single unknown

character and an asterisk (\*) represents one or more unknown characters in a word or term. For example, when you type the word 'A\*' in the Find What textbox for searching the titles, Access brings up all authors whose names start with the letter A. You can modify the data in the form; you can also replace data using the Find and Replace feature. Double-click the Author form name on the Database window. The Author form opens. Search and find the record of the author **Mathews Leon** using the Find and Replace dialog box. The record appears in the form.

You want to change the city of the author to **Kochi** (the new name of Cochin). Use the Tab key to go to the City field. Type **Kochi** and press the tab key. The display changes to **Kochi**. The new city is saved in the table. You can replace any information that meets your criteria using the Find and Replace feature. We will replace, all the occurrences of **Cochin** to **Kochi** in the Catalog table.

Click the First Record button to go to the first record. Click in the City field and then click on the Find button on the Form View toolbar. The Find and Replace dialog box appears. Click on the Replace tab to make it active. Type **Cochin** in the Find What text box. Type **Kochi** in the Replace With text box. Select **City** in the Look in field, if it is not there. Select **Whole Field** in the Match field, if it is not there. The Replace tab will look as in Figure 18.

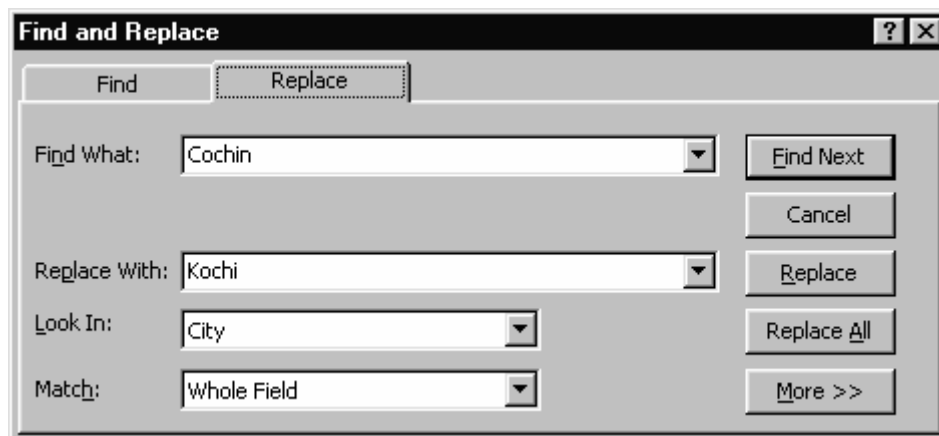


Figure 18 Replacing Data

Click the Replace All button. A message warning you that the action cannot be reversed appears. Click Yes. All occurrences of **Cochin** in the City field throughout the Author table will be replaced with the new name—Kochi. Click Cancel button in the Find and Replace dialog box to close it. You can delete the record using the database forms. For example, we will delete the author named **Richard Bach**. Find the record of the book titled **Richard Bach** using the Find and Replace dialog box. Click the Delete Record button (the one with an X sign) on the Form View toolbar. A message (see Figure 19) asking you to confirm the delete will appear.

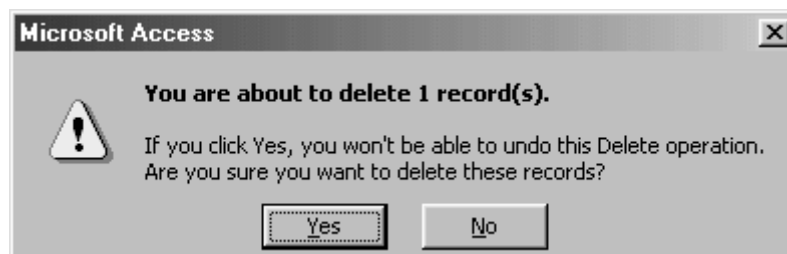


Figure 19 Confirmation message before deletion

Click Yes. The record is deleted. The record indicator on the navigation bar reflects the change in the number of records in the table.

### D.10 CREATING AND PRINTING REPORTS

You can create reports of the data in your tables using the powerful features provided by Access. Once created, these reports are automatically saved and opened in print preview mode.

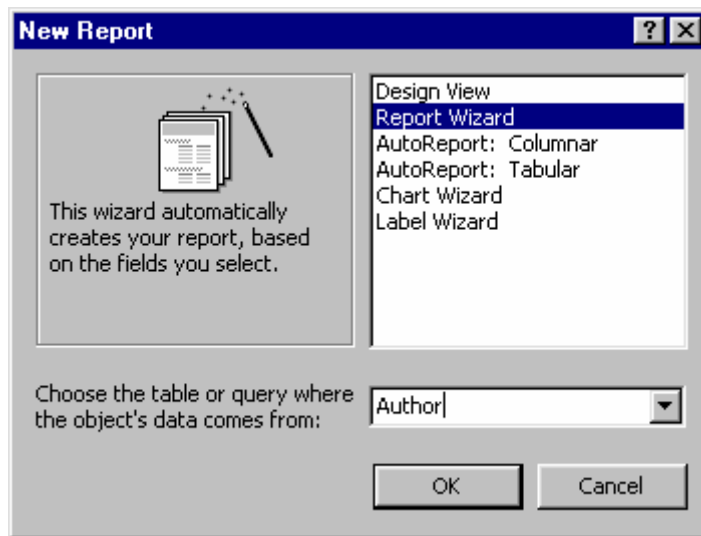


Figure 20 New Report Dialog Box

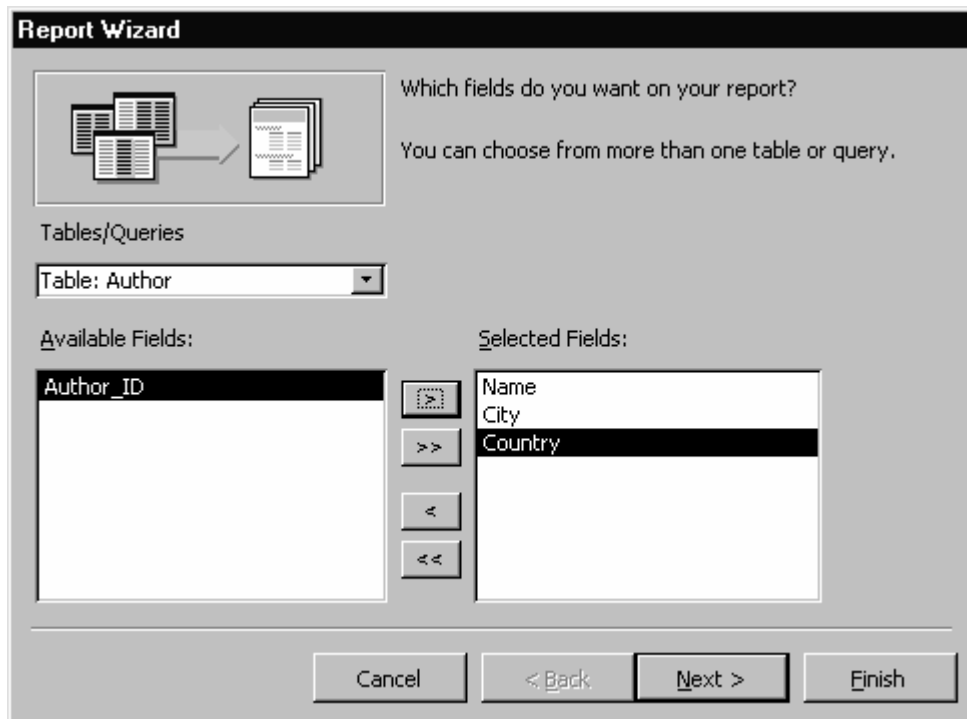


Figure 21 Report Wizard—Choosing Columns

Reports were originally designed with printing in mind, so the layout you see is dependent upon the default printer settings of your computer. Once created you can open and print a report whenever you want. When you open a report, it appears at full magnification so that you can clearly see the information it contains. The mouse pointer becomes a magnifying glass with a minus (-) sign when it passes over any part of the report page. The degree of magnification is displayed in the Zoom box in the Print Preview toolbar. We will see how to create and print a report of the Author table. For keeping the report simple, we will only include the following fields: Name, City and Country.

To create the report, open the database Pegasus.mdb. Click on the Reports button on the left side of the database window. Click on the New button on the database window toolbar. The New Report dialog box appears. Choose the Report Wizard and the Author table for report creation. Your New Report dialog box will look similar to Figure 20.

Click OK. The first screen of the Report Wizard appears. You can select the fields to be included in the report in this screen. Choose the fields Title, Author, Publisher, Year and Price. The screen will look similar to Figure 21.

Click the Next button. The second screen of the Report Wizard appears. You can add any grouping levels that you want in this screen. Since you want a simple straightforward report, you don't want any grouping. So leave the screen as it is. Click the Next button. The third screen of the Report Wizard appears. You can select the fields on which you want the report to be sorted in this screen. Choose Name, so that the report will be sorted in the alphabetical order of author names (see Figure 22).

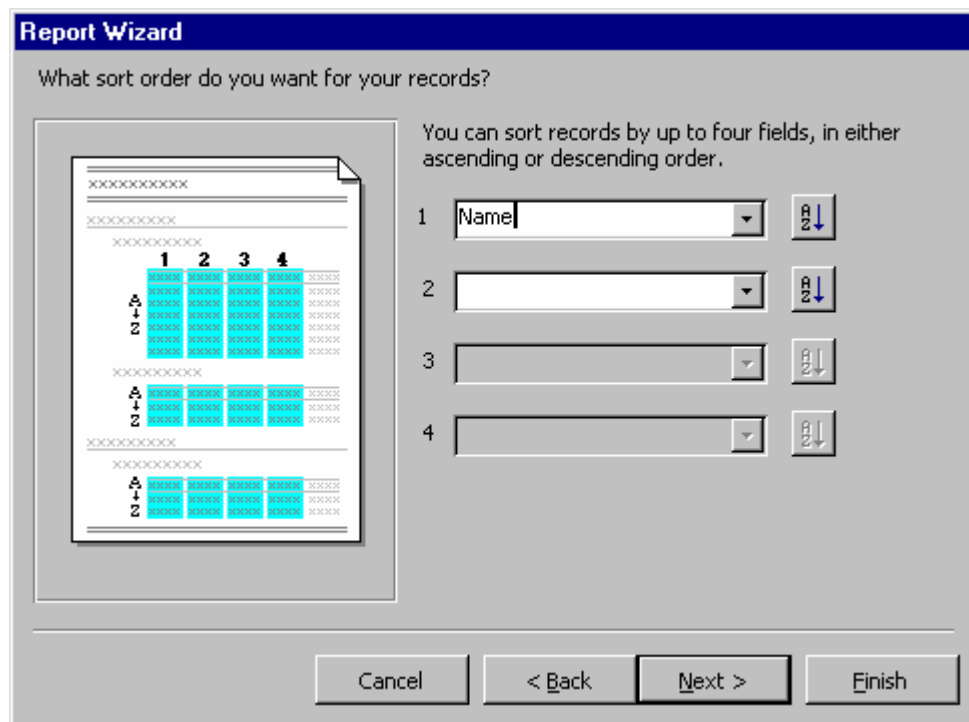


Figure 22 Report Wizard—Sorting Records

Click the Next button. The fourth screen of the Report Wizard appears. You can specify the layout of the report in this screen. Choose the Tabular layout option if it is not already selected. Click the Next button. The fifth screen of the Report Wizard appears. You can select the title style in this screen. Choose the Casual Style. Click the Next button. The final screen of the Report Wizard appears. You can specify the name of the report in this screen, i.e. if you want to change the default name.

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Click the Finish button. The report appears in 100% zoom. You can click on the Zoom button (the button with the figure of the magnifying glass) to reduce the zoom. Or you can choose the desired zoom level from the zoom box. Choose Fit from the Zoom box. The report will look similar to Figure 23.

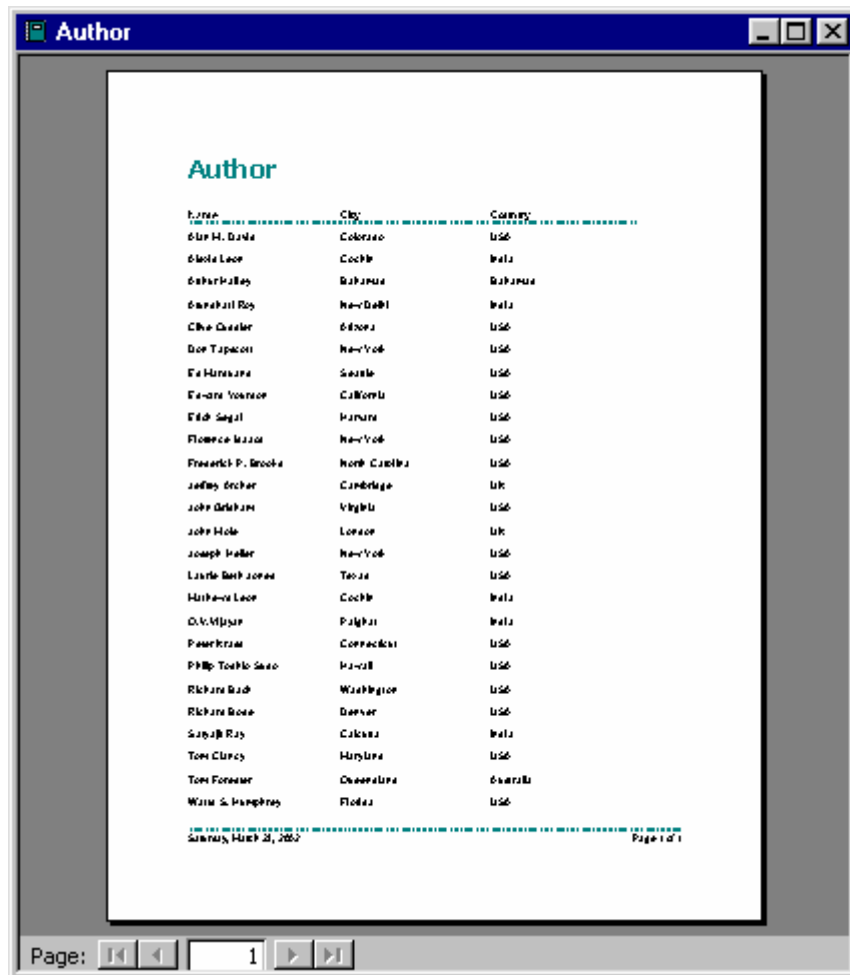


Figure 23 Previewing the Report

To print the report, click File >> Print. The Print dialog box appears as in Figure 24. You can specify whether you want to print the entire report or some specific pages. If you want to adjust the margins, then click on the Setup button and specify the margins in the Page Setup dialog box that appears.

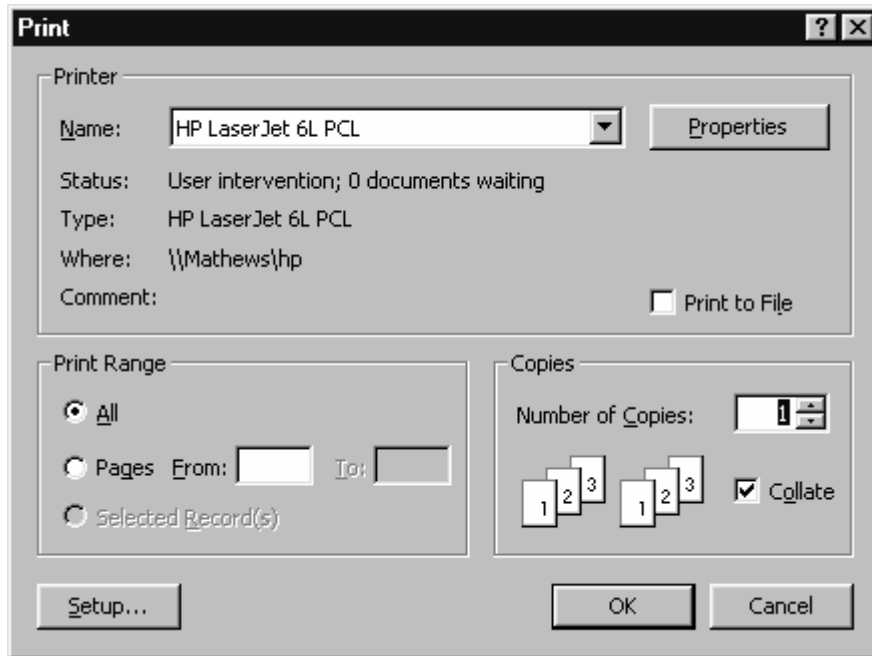


Figure 24 Print Dialog box

If you want to print the entire report using current setting on your default printer, you can simply click the Print button on the toolbar.

## D.11 EXERCISES

- Create all the remaining tables.
- Create forms for all the tables.
- Enter the data into the tables.
- Create reports for the different tables. Try sorting and grouping the data and try out the different styles.
- Use the Find and Replace feature of Access.
- Review Chapter 23 on QBE and try out the different queries in the tables you have just created.
- Key in SQL statements in the SQL window and try to run them.
- Explore more features of Access using the Access Help facility.

## D.12 SUMMARY

We have seen an overview of the Access database management system in this chapter. We have seen how to create databases, tables, forms and so on. We also saw how to enter, edit and delete data. Access is a very powerful RDBMS. This chapter is intended as a primer to Access. You can create full-fledged applications in Access. We hope that after mastering the basics that we have discussed in this chapter, you will explore further and learn more about Access and its features.