PC Passport

DATABASE — Advanced
Exercise Booklet (Macintosh)

Welcome

Welcome to the Advanced Database Exercise Booklet. Here you'll find practical exercises that you can complete to help you learn the topics covered in the Student Workbook. In the workbook, you'll find references that tell you when to do each exercise.

Summary Tasks

This Exercise Booklet also contains Summary Tasks that should be completed at the end of each Learning Outcome. An instruction in the Student Workbook will tell you when you should complete these tasks.

Contents

Database Exercise Booklet — Advanced

Learning Outcome 1

Exercise 1.1

Complete the following questions:

1. What is a database?

2. What are records?

3. What is a field?

4. Describe the purpose of the four modes in FileMaker® Pro.

5. What three ways can you use to move from one mode to another?

6. How can you get help in FileMaker® Pro?

Exercise 1.2

Complete the following questions:

1. What is a Template?

2. List three of the templates available in the Education section.

3. What button would give you details of all available templates?

4. Give two reasons why you might want to separate the first name and last name fields when creating a database.

5. What do you need to create between two tables to enable them to share information?

6. What is the difference between a one-to-one relationship and a one-to-many relationship?

7. List four fields you might want to have in a database to store details of your book collection.

Exercise 1.3a

Creating a database structure

1. In FileMaker® Pro, choose **File** menu > **New Database**.

2. Click **Create a new file using a template**, then select the Home category from the drop down list.

Click Create a new file using a template.

Select Home from the drop-down list.

3. Click on **Movie Library** and then click the **Template Info** button.

Click on 'Movie Library'. Read the information displayed.

4. Click **New Database** at the top of the window, and then select **Movie Library** from the **Home** category again. Click **OK**.

5. Select where you want your file to be saved, and then click the **Save** button to save your Movie Library file.

6. The movie library template will be displayed ready for you to enter your data or amend as required.
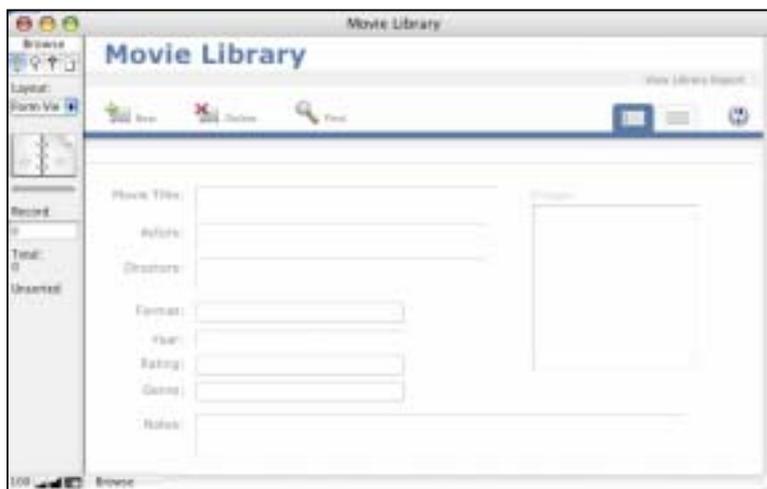
7. Close the file.

Exercise 1.3b

Create a Database without using a Template

1. In FileMaker® Pro, choose **File** menu > **New Database**.

2. Click **Create a new empty file**, then click **OK**.

Click Create a new empty file.
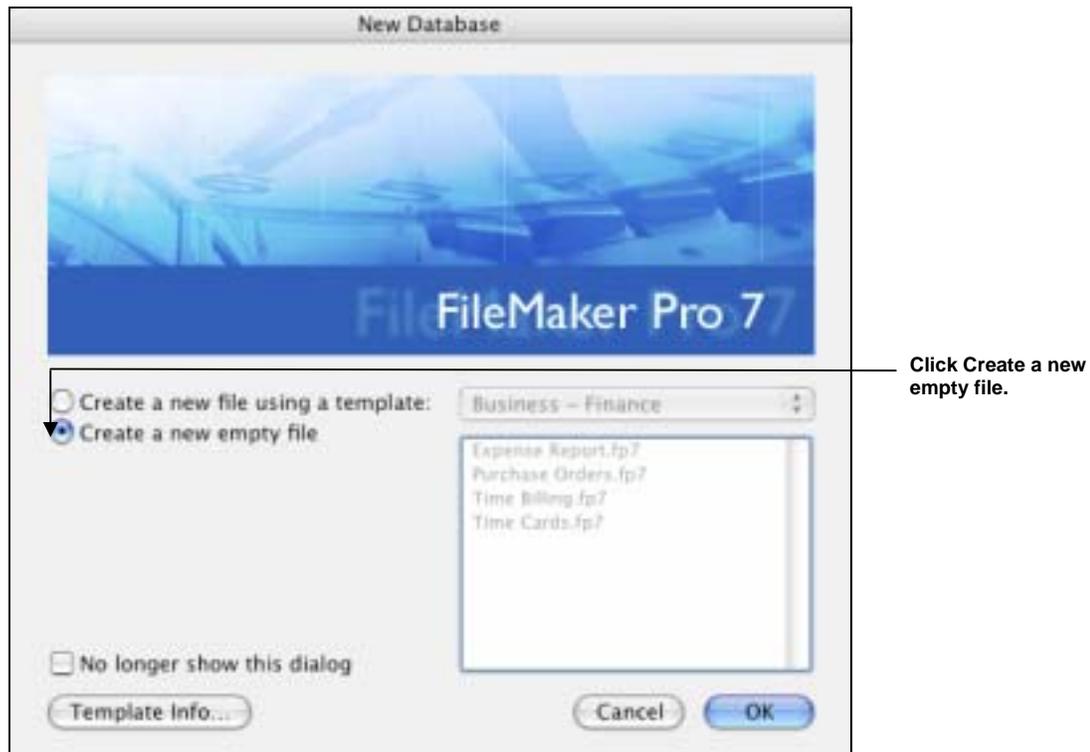
3. In the dialog box that appears, type **My First Database** (choose a different folder, if required), then click **Save**.

    FileMaker® Pro creates the file on your disk. The database will open ready for you to create your tables and fields.

4. Close your file.

Exercise 1.4a

Creating a database

1. Choose **File** menu > **New Database**.

2. If you see the New Database dialog box, choose **Create a new empty file**, then click **OK**. If not, go to step 3.

3. Go to the **Working Files** folder and select it as the location for this file.

4. For File Name, type **MyFile01**.

5. Click **Save**.

The **Define Database** dialog box appears. By default, FileMaker® Pro creates a table for you, with the same name as your file. You can change this name later if you want to.

Creating fields to store information.

1. To create the first field, type **First Name** in the **Field Name** box.

2. Notice that the field type is **Text**.

Name a field.   Specify the field type.

3. Click **Create**.

4. Type **Last Name** in the **Field Name** box.

5. Click **Create**.

6. Type **Fee Paid** in the **Field Name** box, select **Number** from the **Type** list, then click **Create**.

7. Type **Date Paid** in the **Field Name** box, select **Date** from the **Type** list, then click **Create**.

8. Click **OK**.

You see the empty fields in a new, blank record. **Field labels** identify the fields. Your file is ready for data entry.

FileMaker® Pro automatically saves your changes as you work. This means that you do not need to worry about having to stop and perform a save as you enter data or when you quit your database. However, unlike other packages where you save manually, you cannot simply close down your file and revert back to the last saved version. Therefore, care should be taken when editing or deleting records. It is also important that you make regular backups, which is explained later on.

Exercise 1.4b

Enter data into the database

Now you can begin to enter members' data.

Create the first record

1. If you don't see field boxes, press **Tab** to begin data entry.

2. Type **Jane** in the **First Name** field.

3. Press **Tab** to move to the next field.

4. Type **Doe** in the **Last Name** field.

5. Press **Tab** to move to the next field.

6. Type **25** in the **Fee Paid** field.

You will learn how to format number fields to display as currency in the next lesson.

7. Type **11/11/2004** in **Date Paid**. The completed record should look like this:

Create another record

1. Choose **Records** menu > **New Record**.

2. As you did for Jane Doe's record, enter the following data:

First Name	Last Name	Amount Paid	Date Paid
John	Smith	75	2/2/2004
Mary	Jenkins	75	3/3/2004
Peter	Davies	75	3/4/2004
Anne	Watson	75	4/4/2004

Your database now contains five records. Click the book icon to see each record.

Modify data in a record

Suppose you realise that Jane Doe paid £75, not £25. You can easily correct the entry.

1. Go to Jane Doe's record.

2. Select the amount in **Fee Paid**.
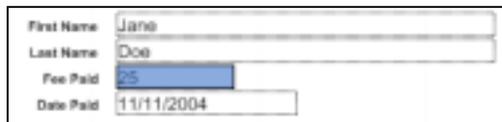
3. Type **75**.

4. Click an empty area outside a field to save the change.

5. When you are finished with this lesson, close each open file by choosing **File** menu > **Close**.

Exercise 1.5

Customising what you see

You will change a simple layout in this exercise to make it look like the Fee Information layout in the sample file.

1. Open **MyFile1.5.fp7**.

2. Choose **View** menu > **Layout Mode**.

3. Choose **Fee Information** from the **Layout** pop-up menu.

   You see a plain layout. You will modify this layout in different ways

4. In **Layout** mode, click the **First Name** field to select it.

5. Drag the handle at the lower-right corner of the field to the left until the field is smaller, yet large enough to display the longest first name you expect in your file.

6. Choose **View** menu > **Browse Mode**.

7. Click **Save** to save changes to this layout, if prompted. FileMaker® Pro can save layout changes automatically, or prompt you to save changes before leaving Layout mode. To save layout changes automatically, select the **Save layout changes automatically** checkbox in the **Save changes to this layout** dialog box.
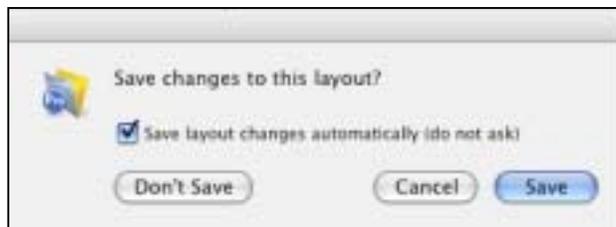
8. In **Browse** mode, flip through the records.

   If the field doesn't display all names completely, return to Layout mode and make the field larger.

9. Repeat this process for **Last Name**.

10. Click inside the **Last Name** field and drag it beside the **First Name** field.

11. Drag the **Last Name** field label above the **Last Name** field.

12. Drag the **First Name** field label above the **First Name field**.

13. Choose **View** menu > **Browse Mode** to see your results.

Add a field

1. Choose **View** menu > **Layout Mode** if necessary.

2. Using the **Field** tool, drag the field to the layout, and place it below the **First Name** field.

Field Tool.

Drag the new field.
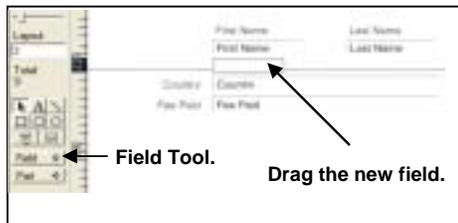
3. In the **Specify Field** dialog box, select the **City** field. Click the **Create field label** box.

Click here to create a field label.
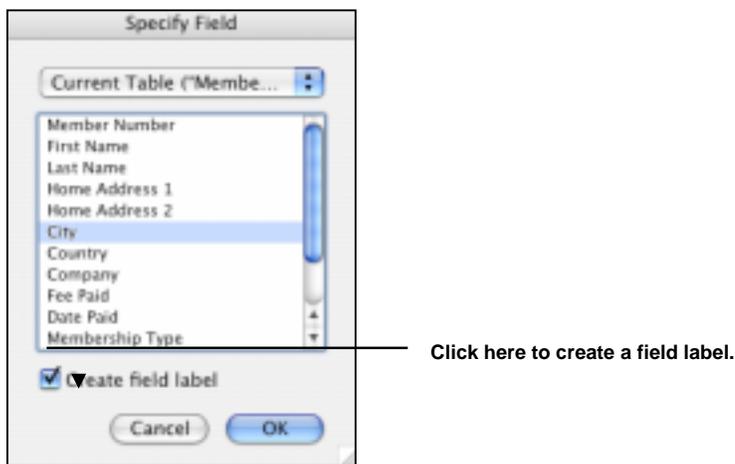
4. Click **OK**.

5. Choose **View** menu > **Browse Mode** to see your field.

You see a city entered in each record. City data was entered previously, and the field holds the data.

Display a number as currency

You can display a number as currency, even though only the number is typed into the field.

1. In **Layout Mode**, Select the **Fee Paid** field.

2. Choose **Format** menu > **Number**.

3. Select options as shown here in the **Number Format** dialog box.

4. Click **OK**.

5. Choose **View** menu > **Browse Mode** to see the formatted data.

Add colour to a layout part

You will change the colour of the top of the layout to match the colours of other layouts in the file.

1. In **Layout Mode**, choose **Fee Information** from the **Layout** pop-up menu.

2. Select the **Header** tab to make that part of the layout active. [Header]

   The Header label will become darker in colour when selected.

3. Choose the **Fill colour palette**.

   Fill colour palette. →

4. Choose **Other Colour** from the Fill colour palette. The header part uses a custom colour.

5. Select the **Sliders** icon and choose **RGB Sliders** from the Colours dialog box pop-up menu.

   Sliders icon.

   Select RGB Sliders.
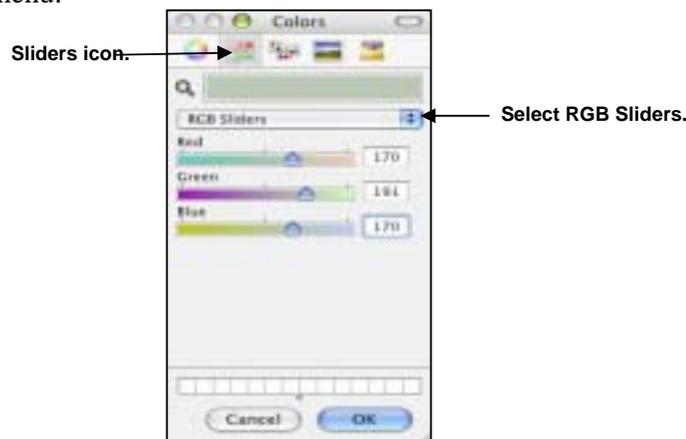
6. Enter these values in the Colour dialog box:

Colour	Value
Red	170
Green	191
Blue	170

7. Click **OK**.

The header is now coloured.

Add text

You will add the name of the organization to the top of the layout, then format the text.

1. Choose **View** menu > **Layout Mode**.

2. Select the **Text** tool.

Text tool.
Select tool.
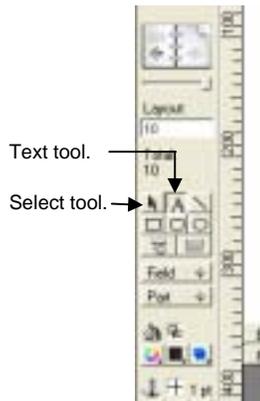
3. Click in the Header section where you want to begin the line of text.

4. Type **The Corporate Travellers Club**.

5. Click the selection tool to end the text entry.

Change text size and colour

1. Click the **Corporate Travellers Club** text to select the text block.

2. Choose **Format** menu > **Text**.

3. Choose **Times** from the **Font** list.

4. Choose **Custom** from the **Size** list, and type **28**.

5. Click **OK**.

6. For **Color**, choose **white** or another colour.

7. Click **OK**.

Add a graphic to the layout

Add a logo beside the club name.

1. Choose **View** menu > **Layout Mode**.

2. Click beside the **Corporate Travellers Club** text, where you want to place the club logo. You will see no change onscreen yet.

3. Choose **Insert** menu > **Picture**.

4. Open the **Working Files** folder.

5. Make sure all file types are showing, and select **logo.gif**.

6. Click **Open**.

7. Drag the logo to move it if necessary.

8. Choose **View** menu > **Browse** Mode to see the finished layout.

9. When you are finished with this lesson, close each open file by choosing **File** menu > **Close**.

Exercise 1.6

Creating a columnar list

You will create a columnar list to display the first name, last name, company and membership type of club members.

1. Open **MyFile1.6.fp7**.

2. Choose **View** menu > **Layout Mode**.

3. Choose **Layouts** menu > **New Layout/Report**.

4. For **Layout** Name, type **List of Members**.

5. Select **Columnar list/report** for the new layout type and click **Next**.

    Select the **Columnar list/report** layout again, then click **Next**.

6. Double-click each of the following fields in the order you want it to appear in the list:
    ♦ **Last Name**
    ♦ **First Name**
    ♦ **Company**
    ♦ **Membership Type**

    These fields move to the **Layout** fields list.

7. Click **Next**.

8. Click **Next** again to accept the default sort order.

9. Select **Standard** from the list of layout themes, and click **Next**.

10. Click **Next** on each of the two remaining panels to accept the defaults.

11. Click **Finish**.

    The data in all records for the fields Last Name, First Name, Company, and Membership Type appears in the List of Members layout. The completed layout is displayed in **Preview** mode, which shows items as they will appear when printed.

Exercise 1.7

Creating a label layout

In this section, you will use the **New Layout/Report** assistant to:

♦   Create a label layout.

♦   Select fields to include on the labels.

Create the label

1.   Open **MyFile1.6** if it is not already open.

2.   Choose **View** menu > **Layout Mode**.

3.   Choose **Layouts** menu > **New Layout/Report**.

4.   For **Layout Name**, type **Labels**.

5.   Select **Labels** for the new layout type.

6.   Click **Next**.

7.   Choose **Avery 5160** from the Use label measurements for list.

8.   Click **Next**.

   Now you're ready to specify the label contents.

**Choose the fields that will appear on the labels**

1.   Double-click **First Name** in the list.

   First Name moves to the Label Contents area. The insertion point flashes.

2.   After **First Name**, type a space.

3.   Double-click **Last Name** in the list.

4. After **Last Name**, press **Return**. This moves the cursor to the next line.

5. Double-click **Home Address 1** in the list, then press **Return**.

6. Double-click **Home Address 2** in the list, then press **Return**.

7. Double-click **City** in the list.

8. Type a comma, then a space.

9. Double-click **Country** in the list.

10. Now you have set up the merge fields. Your label contents should look like this:
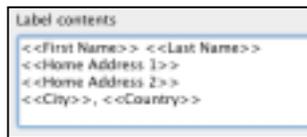
11. Click **Next**.

12. Click **View** in **Layout** mode.

13. Click **Finish**.

14. When you finish viewing your label layout, choose **View** menu > **Preview Mode**.

Your labels should look like those in the sample file.

Exercise 1.8

Creating a form letter

In this exercise you will create a blank layout, create a text box to contain your text and add merge fields for the recipient's name and address.

Create a one-page blank layout

1. Choose **View** menu > **Layout Mode**.

2. Choose **Layouts** menu > **New Layout/Report**.

3. For **Layout Name**, type **Welcome Letter**.

4. Select **Blank layout** for the new layout type.

5. Click **Finish**.

6. On the layout, click the **Header** tab, then press **Delete**.

7. Click the **Footer** tab, then press **Delete**.

   This letter will not use a header or footer.

8. Drag the Body tab down to about 11 inches.

   When you release the mouse button, you will see the page boundary.

   If you don't see the page boundary, drag the Body tab down further.

Body tab and Page boundary.

9. Now drag the Body tab up to just above the page boundary.

   The page boundary line will disappear. Dragging the body tab above the page boundary limits your form letter to a single page.

10. Use the scroll bar at the bottom of the screen to scroll a few inches to the right. You see a heavy dotted line along the right side. This is the right-side page boundary. Your letter will be within these boundaries.

11. Scroll back all the way to the left.

12. Scroll up to the top of the layout.

Create the text block

You will create a text block with a 2 inch margin on all sides.

1. Click the text tool.

The text tool is selected.
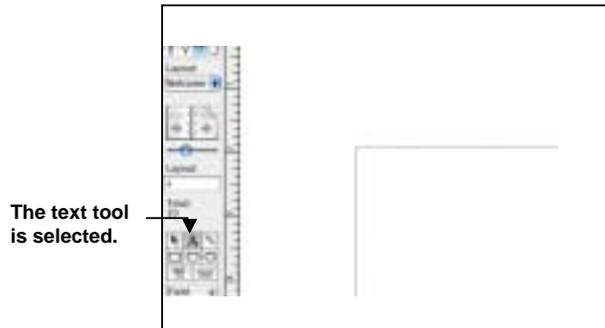
2. Drag a rectangle starting about 2 inches from the top left side of the layout, and ending about 2 inches from the bottom right side, as indicated by the page boundary lines.

   When you release the mouse, the insertion point flashes in the top left of the text box. You will type the letter inside this box.

Add the address

1. Choose **Insert** menu > **Merge Field**.

2. Select **First Name** in the list and click **OK**.

3. Type a space.

4. Choose **Insert** menu > **Merge Field**.

5. Select **Last Name** in the list and click **OK**.

6. Press **Return**.

7. Add merge fields for the **street address**, **city**, and **country**, with appropriate spaces, new lines, and punctuation.

Type the letter

1. Press **Return** twice to create two line spaces at the end of the address.

2. Start the salutation line: type **Dear** and a space.

3. Insert merge fields for the first and last name, separated by a space.

   In your own letters, you can use more fields (for example, a title field) for a more elegant salutation.

4. Type a comma and two line spaces.

5. Type the letter:

   The Corporate Travellers Club welcomes you and your company to our organisation.

   We look forward to doing business with you and hope you have many pleasant trips with us!

Customise the letter with the company name

1. Click after the word company in the first paragraph.

2. Type a comma and a space.

3. Insert a merge field for the company name.

4. Type another comma.

Add the closing

1. Click at the end of the text and enter two line spaces.

2. Type **Sincerely**, and then enter four line spaces.

3. Type **John Jones**.

4. Enter a line space, then type President.

   Your layout should look like the letter in the sample file.

5. Choose **View** menu > **Browse Mode** to see your letter.

It should look like the letter in the sample file without the letterhead.

See lesson **1.5** to learn how to add a logo.

When you are finished with this lesson, close each open file by choosing **File** menu > **Close**.

Exercise 1.9

1. How do you delete a header section from a layout?

2. What does Validation do?

3. Why is it a good idea to select an item from a list rather than key in the required data?

Summary Tasks for Learning Outcome 1

Put all you have learned together by performing the Summary Task. However if your tutor feels you are ready you may wish to move to the assessment for Outcome 1.

Task 1

1. Create a new Database called Employees. Save it into your Working Folder.

2. Create the following fields, adding the comments as you go:

Employee Ref	Text	Unique code for each employee
First Name	Text	First name of employee
Surname	Text	Surname of employee
Telephone	Text	Employee's Home Phone No.
Salary	Number	Employees current salary
Holiday	Number	Holiday entitlement
Date	Date	Date of joining

3. Move the Date field above the Salary field.

4. Enter the following information:

101	Mary	Williams	01236 456456	21/01/00	35000	30
132	Joe	Swanson	0141 223 4567	17/06/01	28000	30
136	Jerry	Alan	01698 765234	12/07/05	45000	28
137	Eve	Burt	01555 345745	21/08/05	18000	25

Task 2

1. Add the text "Staff Details" to the header.
2. Change the colour, size and font of your header text.
3. Re-arrange the fields as shown here.

4. Set the salary to be displayed as currency.

5. Add the graphic CompanyLogo to the header section. Resize if necessary.

6. Add background colour to the body of your layout and colour the fields and field names to contrast.

Task 3

Exercise 1:

1. Create a New Layout called Salary List.

2. The layout should be a Columnar list containing the following fields:
   First Name, Surname, Salary

3. Choose an appropriate Layout theme and accept all other defaults.

Exercise 2:

1. Create a new layout called Employee Labels.

2. Set up a layout to display Avery 5160 labels containing the First name and Surname on one line and Telephone on the next line.

Exercise 3:

1. Create a new layout called Salary Increase Letter.

2. Choose a Blank layout for the layout type.

3. Your layout should not have a header or a footer.

4. Type in the letter displayed on the next page, using Merge Fields where appropriate:

> Today's Date
>
> Dear <<First name>> <<Surname>>
>
> I am pleased to inform you that your current salary of <<Salary>> will be increasing by 10% from the start of next month.
>
> The Management

Check out your letter in Browse mode. Make any amendments required.

Keep a copy of your work so you can perform other summary tasks on it in this exercise book.

Learning Outcome 2

Exercise 2.1

Open Exercise File1.fp7

1. Find the names of all the employees who work for DEF Ltd and who live in the USA.

   _____

2. Who works for XYZ and lives in either Finland, Germany or Denmark?

   _____

3. How many of DEF's employees don't live in the UK?

   _____

4. Change to the List of Members layout and sort the Found Set by Membership Type and then by Last Name.

5. How many people paid their membership fee between July and December 2004?

   _____

Exercise 2.2

1. What is the purpose of a wildcard character when searching a database file?

   _____

2. What is a calculated field?

   _____

3. Explain the difference between an Operator and an Operand in a calculated field.

   _____

   _____

4. Give three examples of an arithmetic operator.

   _____

5. Find the full name of the employee whose surname is either Johnston, Johnstone or Johnson. Use a wild card (*) to help you.

   _____

Exercise 2.3

Define a value list.

1. Open **MyFile2.3.fp7**.

2. Choose **Data Entry** from the **Layout** pop-up menu if it is not already selected.

3. Choose **File** menu > **Define** > **Value Lists**.

4. Click **New**.

5. Name the new value list by typing **Membership Types**.

6. Click in the large box and enter the values for this list, **New** and **Continuing**, by typing each value on its own line.
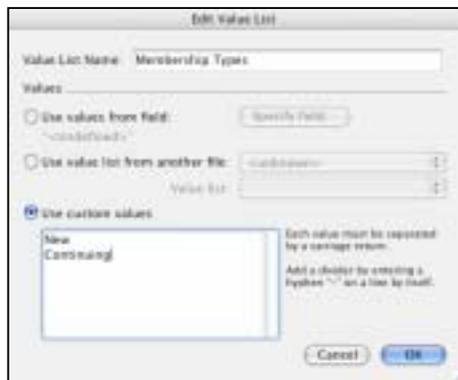
7. Click **OK** to close the **Edit Value List** dialog box.

8. Click **OK** to finish.

Assign a value list to a field and display it as radio buttons

1. Choose **View** menu > **Layout Mode**.

2. Select the **Membership Type** field.

3. Choose **Format** menu > **Field Format**.

4. For **Format field as**, choose **Radio Button Set**.

5. For **Display values from**, choose **Membership Types**.

Select Radio Button Set.
Select the Membership Types value.

6. Click **OK**. Your radio buttons should be visible in Layout mode.

Membership Type field
formatted as radio buttons.

7. In **Browse** mode, test your value list and buttons by clicking them

Exercise 2.4

Create a calculation field

There are several different ways of formulating a calculation, each of which can yield the correct result. The following method uses an **If** statement to compare the data entered in the Membership Type field with one of the membership types. The calculation returns one of two results.

1. Open **MyFile2.3.fp7**.

2. Choose **File** menu > **Define** > **Database**.

3. In the **Define Database** dialog box, click the **Fields** tab if it is not already selected.

4. For **Field Name**, type **Renewal Fee**.

5. For **Type**, select **Calculation** to make this a calculation field.

**Select Calculation.**

6. Click **Create**.

The **Specify Calculation** dialog box appears.

7. Select **Locical functions** from the **View** drop-down list.

8. Scroll through the list of formulas on the right side of the **Specify Calculation** dialog box until you locate **If (test ; resultOne ; resultTwo).** Double-click this formula so that it appears in the dialog box at the bottom of the window.

Select Logical functions.

Find and double-click If(test;resultOne;resultTwo).

Formula will appear in this dialog box.
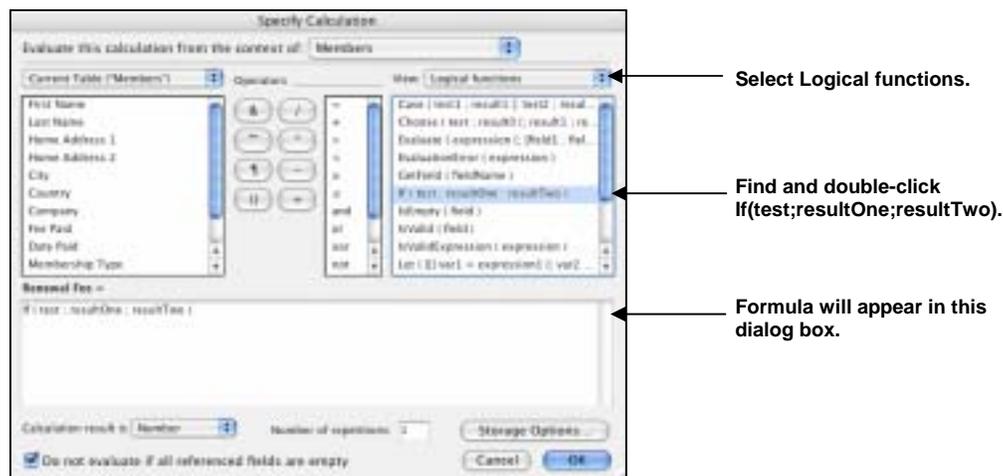
This formula has three parts: a test; a result if the test evaluates as true (resultOne); and a result if the test evaluates as false (resultTwo). You will replace the placeholders **test**, **resultOne**, and **resultTwo** with the actual components of the calculation.

9. Select the placeholder **test** and type **Membership Type = "Continuing"** exactly as it appears here.

10. Select the placeholder **resultOne**, and type **100**.

11. Select the placeholder **resultTwo**, and type **200**.

12. Make sure the calculation result is set to **Number**.

The completed calculation.

Verify the type of data to be returned by the calculation.
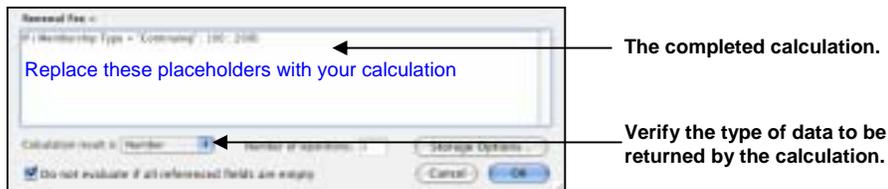
13. Click **OK**.

If you receive an error message, make sure that all spaces and punctuation are identical to the formula shown above.

14. Click **OK** to close the **Define Database** dialog box.

The Renewal Fee field appears at the bottom of the layout. Depending on the size of your screen, you may need to scroll down to see it.

Your calculation formula is now complete. When data is entered in the Membership Type field, FileMaker® Pro will compare it to the word we are testing for, 'Continuing.' The test is true if it matches this word, and the calculation will return your first result, 100. If it doesn't match, the test is false, and the second result is returned.

Test your calculation

To see if your calculation works, try changing the value in the Membership Type field to **Continuing**, and notice the result in the Renewal Fee field—it should change as the membership type changes.

Exercise 2.5

Create a field for serial numbers

1. Open **MyFile2.3.fp7**

2. Choose **File** menu > **Define** > **Database**.

3. In the **Define Database** dialog box, click the **Fields** tab if it is not already selected.

4. For **Field Name**, type **Member Number**.   Field Name: Member Number   Type: Number

5. Select **Number** as the field type.

6. Click **Create**.

7. Click **Options**.

8. Select **Serial number** on the **Auto-Enter** tab. You don't need to change the **Generate** choice, or the amounts for next value or increment by for this exercise.
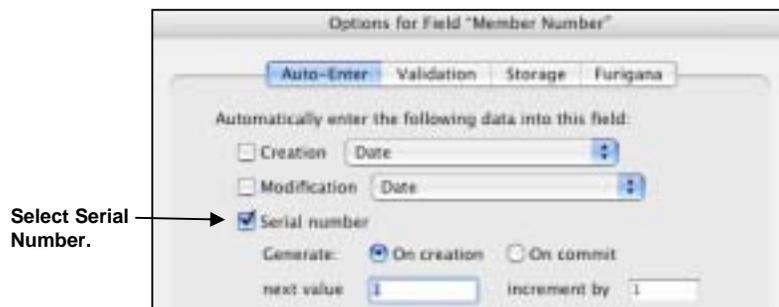
9. Click **OK**, then click **OK** again to close the dialog box.

   The new field appears at the bottom of the layout. (You might need to scroll down to see it.)

10. Test your new field entry option by choosing **Records** menu > **New Record**. Each time you create a new record, the value in the **Member Number** field increments by one.

When you are finished with this lesson, close each open file by choosing **File** menu > **Close**.

# Exercise 2.6

Create a **button**

1. Open **MyFile2.6.fp7**.

2. Choose **Data Entry** from the **Layout** pop-up menu if it is not already selected.

3. Select **View** menu > **Layout Mode** to switch to **Layout** mode.

4. Click the **Button** tool.

Button tool. →

5. Draw the button at the top of the layout.

Draw button here.

6. In the **Specify Button** dialog box, select the **Go to Layout** command from the list.

7. In the **Options** area, select the **List of Members** layout.

8. Select **Rounded button** for button style.

Specify the List of Members layout.

Select Rounded button.
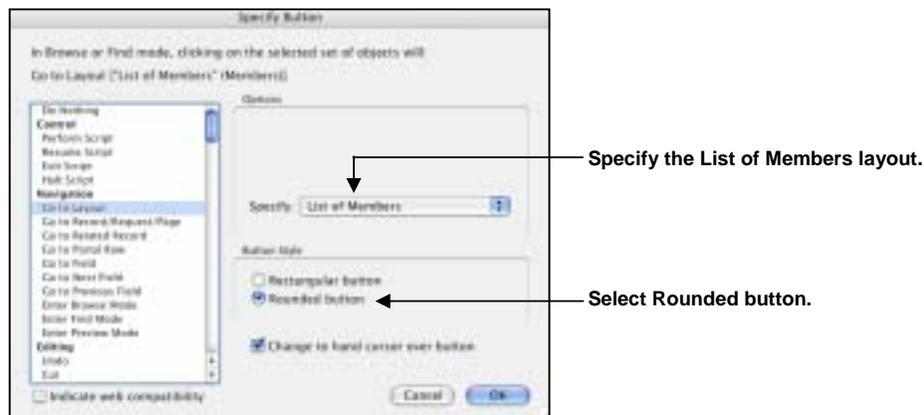
9. Click **OK**.

10. Notice that the insertion point is now in the centre of your button. Type **Go to List of Members** in your button to identify it.

11. Click outside the button.

If you need to move the button, select it and drag it to the desired location, as with any other layout element.

To test your button, go to **Browse** mode and click it. The button takes you to the **List of Members** layout.

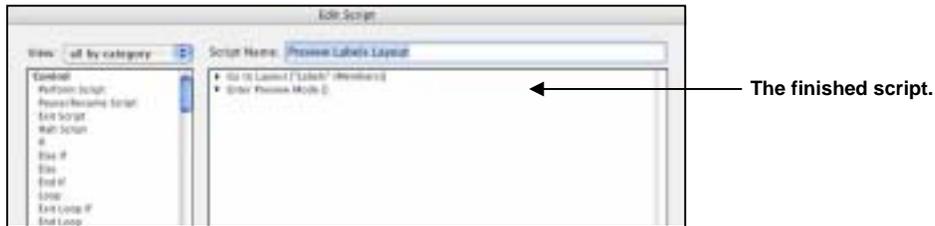**Create a script to preview the Labels Layout**

1. Open **My File2.6.fp7** if necessary.

2. Choose **Scripts** menu > **ScriptMaker**.

3. Click **New**.

4. In the **Script Name** text box, type **Preview Labels Layout**.

5. Select the **Go to Layout** script step and click the **Move** button. (You can also select and move script steps by double-clicking them.)

1. Type Preview Labels Layout.

2. Select Go to Layout.

3. Click Move.

6. In the **Specify** area, select the **Labels** layout from the list of available layouts.

Specify a target layout for the script step.
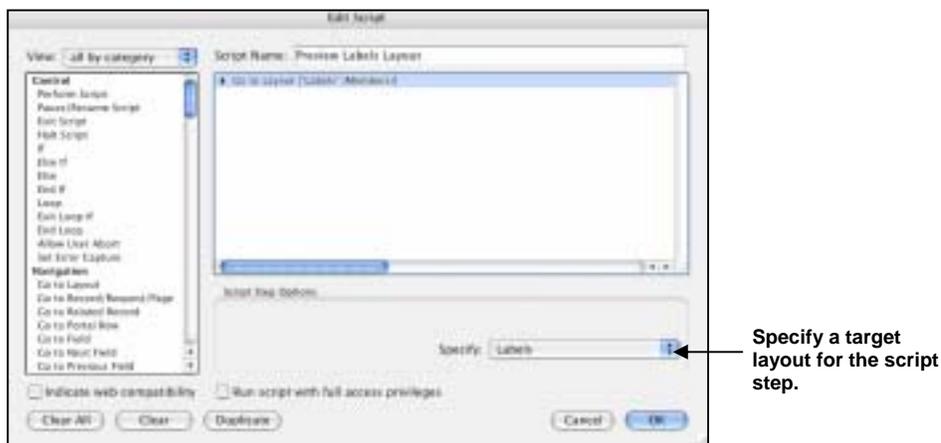
7. From the list on the left, scroll down and select the **Enter Preview Mode** script step, and move it over to your script.

The finished script.

8. Click **OK**, then click **OK** again to close the dialog box.

9. To run the script you have just created, choose **Scripts** menu > **Preview Labels Layout**. FileMaker® Pro displays the Labels layout and switches to **Preview** mode.

Assign a script to a button

To assign the script you just created to the button you created earlier:

1. In **MyFile2.6.fp7**, choose Data Entry from the **Layout** pop-up menu.

2. Choose **View** menu > **Layout Mode**.

3. Double-click the button you created earlier in this lesson.

4. In the **Specify Button** dialog box, select the **Perform Script** script step from the top of the list on the left.

5. In the Options area, for **Current Script** click **Specify**.

6. Select **Preview Labels Layout** from the list of available scripts, and click **OK**.

7. Leave the rest of the default button settings as they are and click **OK** to save this button.

Rename the button

1. Click the **Text** tool.

2. Click the button once. The text insertion point appears in the button.

3. Select the existing text and then type **Preview Labels Layout** to rename this button. It may be necessary to resize the button after renaming it.

Test the button

In **Browse** mode, test the button by clicking it. Clicking this button performs the script, which displays the **Labels** layout and switches to **Preview mode**.

When you are finished with this lesson, close each open file by choosing **File** menu > **Close**.

Summary Tasks for Learning Outcome 2

Task 1

Open your Employees Database.

1. Display the Employees layout.

2. Click on File > Define > Database.

3. Add a new Text field to your Database called Office Location.

4. Define a Value List called Locations for the Office Location field. Values should be: Office 1, Office 2, Office 3, Office 4, Office 5.

5. Display the value list as a Pop-up List.

6. Use the Format Painter to format the new field and it's label to match the rest of your layout.

7. Display the Salary List layout and add two new Calculation fields to your database: Pay Rise and New Salary. Use the Pay Rise field to display the 10% pay rise for each employee and the New Salary field to display the new salary for each employee.

8. Use the Format Painter to format the new fields and their labels to match the rest of your layout.

9. Format the new fields to display 2 decimal places and a £ sign.

10. In Layout View, go to Layout > Set tab order to check the order of your tabs.

Task 2

Open your Employees Database if necessary.

1. Display your Salary List layout in **Layout view**.

2. Add a rounded button to take you to **Find Mode**. Add the text **Go to Find**.

3. Display your Salary List layout in **Layout view** again if necessary.

4. Add a Script called **Letter** to take you to your Salary Increase Letter and display it in Print preview.

5. Assign your script to a button. Add the text **Display Letter**.

6. Format the buttons to suit the colour of your layout.

Learning Outcome 3

Exercise 3.1

1. What is a report?

   _____

   _____

2. What six things should you consider when designing a report for a client?

   _____

   _____

   _____

   _____

   _____

   _____

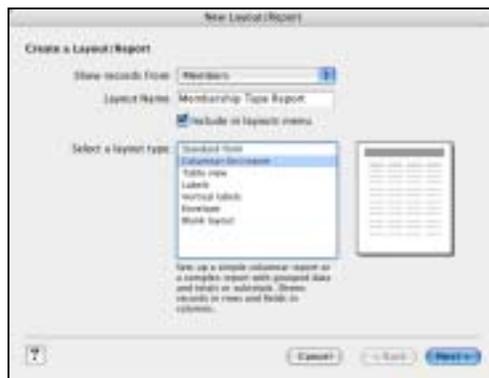3. What is the difference between a summary report and a subsummary report?

   _____

   _____

Exercise 3.2a

Creating a subsummary report

To create the **Membership Type** Report:

1. Open **MyFile3.2.fp7**.

2. In **Layout** mode, choose **Layouts** menu > **New Layout/Report**.

3. For **Layout Name** type **Membership Type Report**.

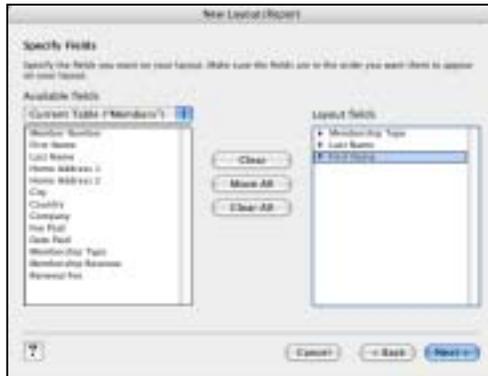4. Select **Columnar list/report** for the new layout type and click **Next**.

5. Select **Report with grouped data**, and click **Next**.

Select the fields used in this report

1. Select the first field to be used in this report, **Membership Type**, and move it to the **Layout fields list**.

2. Select and move the **Last Name** field.

3. Select and move the **First Name** field.

4. Click **Next**.

5. Move the **Membership Type** field to the **Report categories** list to organise the records by membership type.
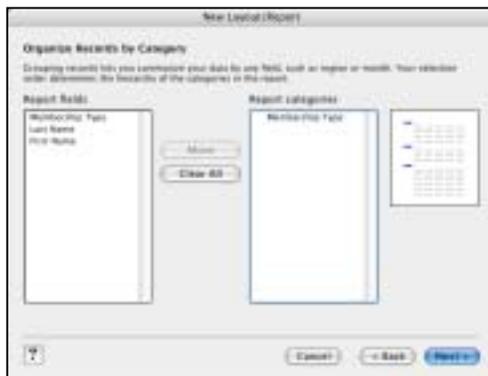
   Membership Type is referred to as a break field because you are using the contents of this field to break the records into categories for your report.

6. Click **Next**.

7. Move the **Last Name** field to the **Sort** order list as shown on the next page. This sorts the records in each group of membership types alphabetically by members' last names.

Notice that the break field Membership Type appears automatically at the top of the Sort order list to enable FileMaker® Pro to group records by this category.

8. Click **Next**.

Select a theme and create the header and footer

1. Select the **Standard** theme to set the text size, colour, and style of the finished report.

2. Click **Next**.

3. Go to the **Top centre** list in the **Header** area and select **Large Custom** Text from the drop-down list.

4. Type **Membership Type Report** for the header of the report and click **OK**.

5. Go to the **Bottom centre** list and select **Page Number** from the drop-down list to number the pages in the report's footer.

6. Click **Next**.

Create a script to run this report again

1. Click **Create a script**.

2. Leave **Script Name** as it appears. Click **Next**.

3. Click **View the report in Preview** mode if it is not already selected.

4. Click **Finish**.

Exercise 3.2b

Creating a report with grouped data and totals

In the previous exercise, you created a report that grouped data in categories based on common field values. In this exercise, you will create a similar report that also includes subtotals for each category and a grand total for the entire report.

To create the Membership Fee Report:

1. Open **MyFile3.2.fp7** if it is not already open.

2. In Layout mode, choose **Layouts** menu > **New Layout/Report**.

3. For **Layout Name**, type **Membership Fee Report**.

4. Select **Columnar list/report** for the new layout type and click **Next**.

5. Select **Report with grouped data** and then select **Include subtotals** and **Include grand totals**.

6. Click **Next**.

Select the fields used in this report

1. Select the first field to be used in this report, **Membership Type**, and move it to the **Layout** fields list.

2. Select and move the **Last Name** field.

3. Select and move the **First Name** field.

4. Select and move the **Fee Paid** field.

5. Click **Next**.

6. You want to organize the records by **Membership Type**. Move this field to the **Report categories** list.

7. Click **Next**.

8. Move the **Last Name** field to the **Sort** order list to sort the records in each group of membership types alphabetically by members' last names.

9. Click **Next**.

Specify subtotals and grand totals

A *summary field* is a type of field you can specify when you define fields. Summary fields allow calculations across all of the records in your found set. In general, when you need to total data across a number of records, you must use a summary field.

In the Membership Fee Report, you want to see subtotals for fees paid by each type of member, New and Continuing, and to see a grand total of both groups' fees at the end of the report. To accomplish this, you will need to specify subtotal and grand total summary fields in the **New Layout/Report Assistant**.

The summary field you will use is **Membership Revenue**, which has already been defined for you. Membership Revenue totals the fees entered in the **Fee Paid** field.

1. For **Summary field**, click **Specify** and select **Membership Revenue** from the list of available fields, then click **OK**.
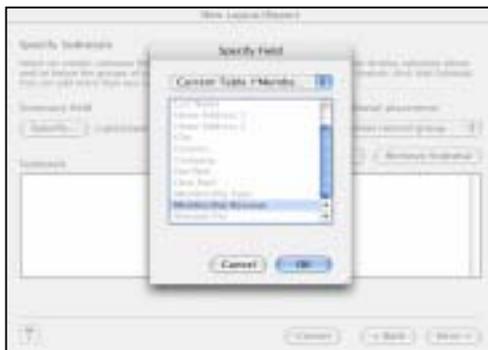
2. For **Category** to summarise by, use the default value of **Membership Type**.

3. For **Subtotal** placement, use the default value of **Below record group**.

4. Click **Add Subtotal** to add the **Membership Revenue** field as the subtotal. This tells FileMaker® Pro to create a subtotal of the membership fees that are paid beneath each membership category.
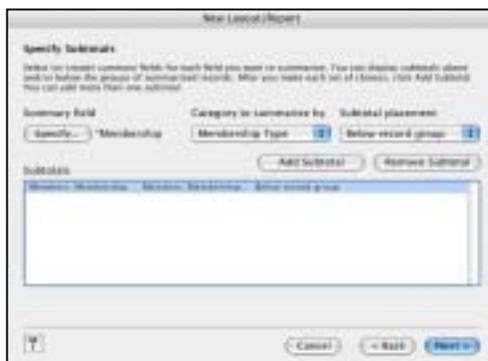
5. Click **Next**.

6. For **Summary field**, click **Specify** and select **Membership Revenue** from the list of available fields, then click **OK**.

7. This tells FileMaker® Pro to use the Membership Revenue field in the grand total.

8. Click **Add Grand Total** to add the **Membership Revenue** field as the grand total at the end of the report. This tells FileMaker® Pro to create a grand total of membership fees.
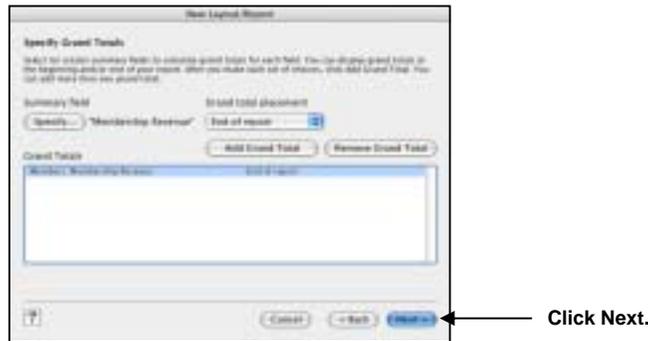
Click Next.

9. Click **Next**.

Select a theme and create the header and footer

1. Select the **Standard** theme to set the text size, colour, and style of the finished report.

2. Click **Next**.

3. Go to the **Top centre** list and select **Large Custom Text**.

4. Type **Membership Fee Report** for the header of the report and click **OK**.

5. Go to the **Bottom centre** list and select **Page Number** to number the pages in the report's footer.

6. Click **Next**.

Create a script to run this report again

1. Click **Create a script**.

2. Leave **Script Name** as it appears.

3. Click **Next**.

4. Click **View the report in Preview mode** if it is not already selected.

5. Click **Finish**.

6. When you are finished with this lesson, close each open file by choosing **File** menu > **Close**.
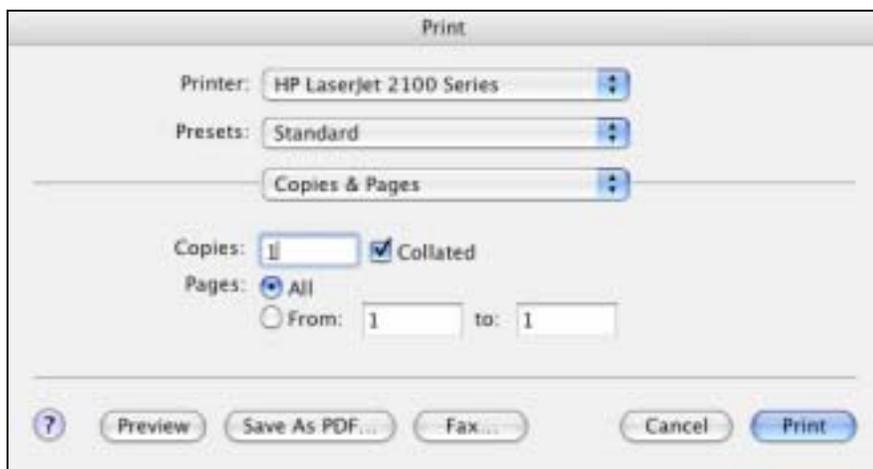
Exercise 3.2c

Previewing and Printing a Report

1. To preview a report before printing, select **View** menu > **Preview Mode**.

2. Set up your page preferences by clicking on **File** menu > **Page Setup**. Make sure your page size is set to A4, and that your Orientation is as required.
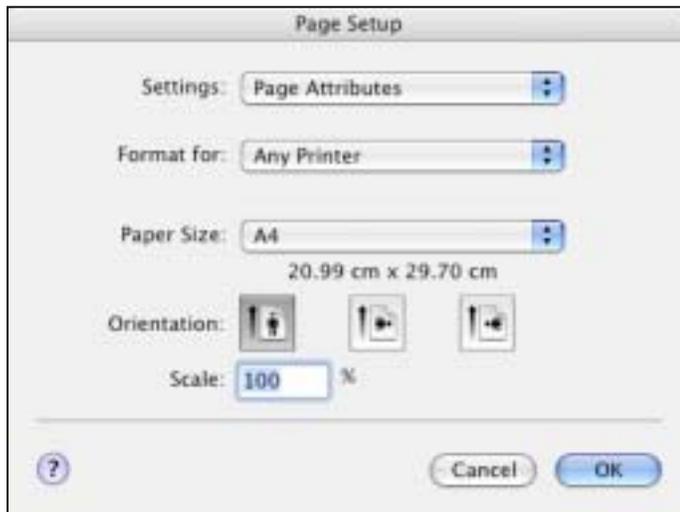
3. To print the report, go to the **File** menu, click **Print**. Select your printer and then choose if you want to print the whole report or selected pages, and how many copies you want.

Exercise 3.3

Define a relationship to another table

1. Open **MyFile3.3.fp7**.

2. Choose **File** menu > **Define** > **Database**.

3. Click the **Relationships** tab.

You see the *relationships graph*. The relationships graph shows all the tables in the current file.

When you work with tables in the relationships graph, you are using them to organise your view into your data. Each table occurrence in the relationships graph represents a separate view into your data. When you create a relationship between two tables, you make the data stored in either table accessible to the other table, according to the match fields and the criteria you establish for the relationship.

4. In the **Members** table, click the **Company** field and drag to the **Company** field in the **Companies** table.
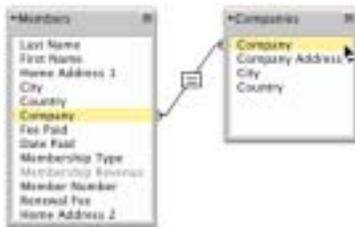
5. Release the mouse button. You see the relationship you have created.

6. Records are related when data in the Company field in one table matches the data in the Company field in the other table.

7. Click **OK**.

Display data from a related record

Once you've defined the relationship, you can modify a layout to display data using that relationship. Here, you want to display the company address.

1. In **MyFile10.fp7**, choose the **Corporate Account Information** layout from the **Layout** pop-up menu.

2. Choose **View** menu > **Layout Mode**.

3. Using the **Field** tool [Field ▼] drag a field onto the layout.

   You see a Specify Fields dialog box displaying the list of fields in this table.

4. Click **Current Table ("Members")** and choose the **Companies** table from the list.

You now see a list of the fields in the related table Companies. The colons (**::**) before each field name show that these are related fields, not fields defined in the Members table you are currently working in. These related fields will display data from the related table.

Choose the table from the table pop-up menu.

Make sure the Create field label option is selected.
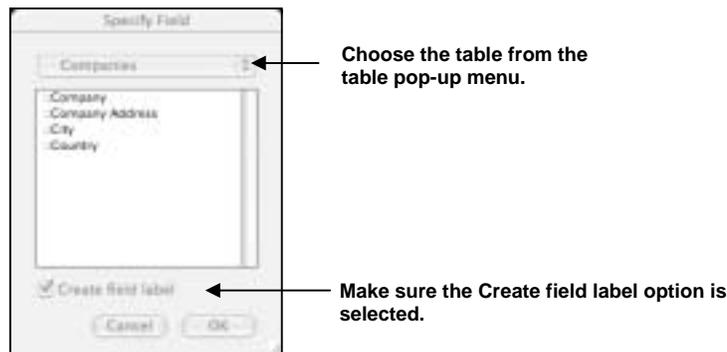
5. Click **::Company Address**, then click **OK**.

6. Repeat steps 3–5 for **City** and **Country**.

7. Move the fields if necessary, and make the fields large enough to display all the data they contain. The fields should look like this:
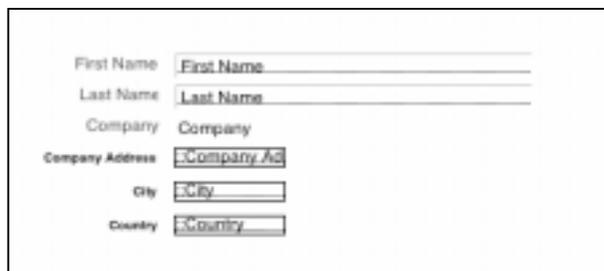
8. Choose **View** menu > **Browse Mode** and flip through the records to view company addresses from the Companies table in the Corporate Account Information layout that is based on the Members table.

View data from a list of related records

Suppose you want to show all club members for each company. You also want to add new members to the Members table without entering the company name for each.

Work with related records in the sample file

1. Open **Sample File3.3.fp7** if necessary.

2. Choose the **Companies** layout from the **Layout** pop-up menu.

3. Browse through the records.

You see a list of members at each company. They are all individuals in the Members table.

Add to the list

1. Go to the **ABC Company** record.

2. Add a new member by clicking the first empty line under **First Name**.
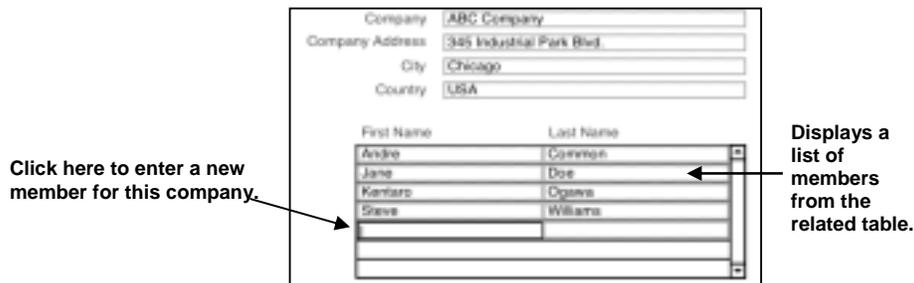
3. Type **Joe**, then press **Tab** and type **Williams** in the last name field.

View the new record in the related table

1. Go to the **Data Entry** layout, which is based on the **Members** table.

2. Go to the last record.

   You see Joe Williams' record, with the company information filled in. You automatically created this record when you typed Joe Williams into the list in the Companies table.

Add a new record and view it in the list

1. In the **Data Entry** layout, create a record for a new member who works at **ABC Company**.

2. Now return to **Companies** layout, and look at the **ABC Company** record.

   You see the new member in the list (scroll down if necessary).

About working with lists of related records

In **"View data from one related record"** previously, a relationship between the Members and Companies tables displays data (company addresses) from the Companies table. Here, the same relationship displays data (member names) from the Members table. Relationships are bidirectional.

There is more than one matching record in the related table because there is more than one member from each company. A portal in the Companies table displays all the members for each company.

When you added Joe Williams to the list of members who work at ABC Company, the relationship automatically created a record for Joe Williams in the Members table. ABC Company is automatically entered into the match field because the name was added to the portal of the ABC Company record.

A new member added to the Members table automatically appears at the end of the members list in the matching company record in the Companies table.

Display a list of related records

Create a portal to display matching records

1. Open **MyFile3.3.fp7** if necessary.

2. Choose the **Companies** layout from the **Layout** pop-up menu.

A relationship must always be defined before you can display data from related records. You will use the relationship to the Members table you defined earlier in this lesson. This relationship must be edited to allow the creation of related records.

3. Choose **File** menu > **Define** > **Database**, and click the **Relationships** tab, if it isn't already selected.

4. In the relationships graph, double-click the relational operator 🔲 to display the **Edit Relationship** dialog box.

5. In the **Members** table, select **Allow creation of records in this table via this relationship**. This lets you add a name to the Members list.

Select this checkbox →
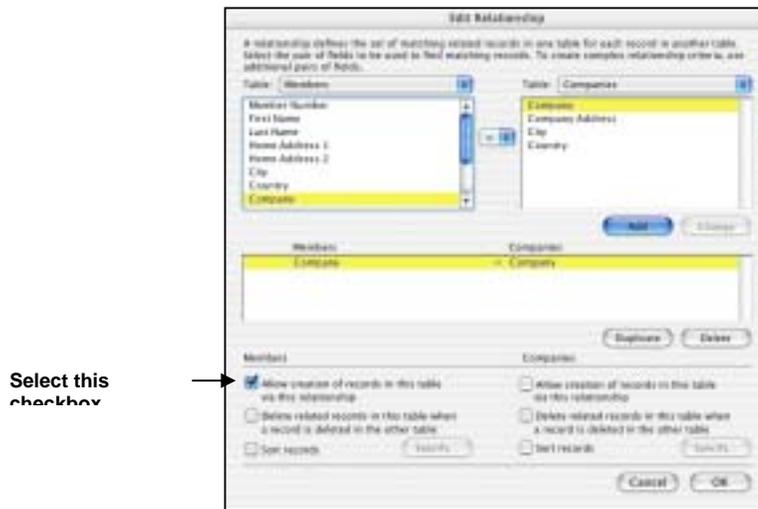
6. Click **OK**, and then click **OK** again to close the **Define Database** dialog box.

7. Choose **View** menu > **Layout Mode**.

8. Click the portal tool ▤ and draw a box to hold the list of names.

9. In **the Portal Setup** dialog box, show related records from the Members table.

10. Leave the initial row value at **1**. Change the Number of rows in the portal value to **7**.

Each row displays one matching member record.

11. Select **Show vertical scroll bar**.
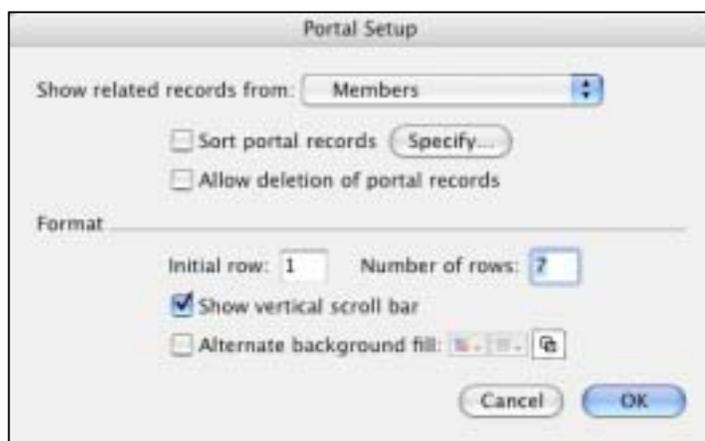
12. Click **OK**.

Add the fields in the portal

1. In the **Add Fields to Portal** dialog box, select the **First Name** field and move it to the **Included fields** list.

2. Select and move the **Last Name** field.

3. Click **OK**.

4. Use the text tool and create field labels for the **First Name** and **Last Name** field labels above their respective fields in the portal.

    The portal should look like this when you are done.
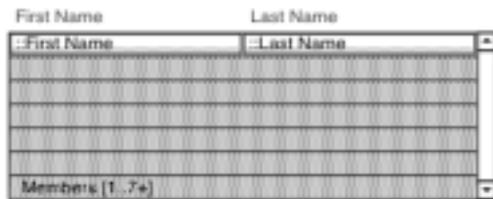
5. Choose **View** menu > **Browse Mode** to view your list of members.

   Test your new structure: type the name of a new member at ABC Company, then look to see if it appears in the Data Entry layout (It will be the last record.)

Summary Tasks for Learning Outcome 3

Task 1

Open your Employees Database

1. Go to the Employees layout and assign each employee an Office Location from your Value List.

2. Create a Columnar subsummary report called Employee Locations.

3. Set the report to display with grouped data, but no totals.

4. Select the fields Office Location, Employee Ref, First Name and Surname.

5. Organise the records by Office Location and sort by Employee Ref.

6. Add the header Staff Report by Location.

7. Add the page number and current date to the footer.

Task 2

**Open your Employees Database if required**

1. Add a new table called Locations to your database.

2. Add the fields as follows:

   Office Location, Street, Town, Post Code (All text fields).

3. Set up a relationship between your two tables.

4. Print the relationship.

5. Add the following records to your Locations table:

Office 1	The Bridges	Edinburgh	EH1
Office 2	Campbell Road	Glasgow	G12 3TG
Office 3	Paterson Street	Aberdeen	AB3 4PH
Office 4	Main Street	Dumfries	D22 6TW

6. Display your Employees layout and add the Town field to the right of the Office Location field. You might need to resize the Office Location field.

7. Use the Format Painter to apply formatting to match the rest of the layout.

8. Display your Locations layout and add a Portal to display the first name and surname of all employees who work in that office.
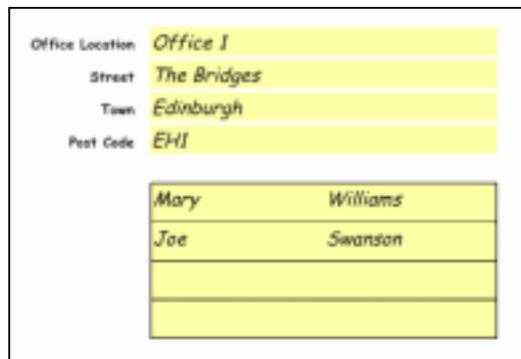
Task 3

1. Export the following fields for use in a mail merge:
    First Name, Surname, Salary, New Salary.

2. Open Microsoft Word and create a simple mail merge letter using the four exported fields
    informing the employees about their pay rise.

To: Mary Williams

Please note that as from the beginning of next month your salary of £35000 will increase
by 10%, giving you a new salary of £38500.

We hope this meets with your approval.

3. Create a backup copy of your database.

4. Perform a find to find all employees who live in the UK.

5. Export the records as a Tab Separated Text file. Use the following fields:

    Member Number, First name, Last Name, Company, Membership Type.

6.   Open Microsoft Word and insert the records. Set up appropriate tabs.

```
11     John      Lee        XYZ Inc.    New
15     William   Johnson    DEF Ltd.    Continuing
27     A. N.     Other      DEF Ltd.    Continuing
```

**You should (after consultation with your tutor) be able to do the Assessment for this
Unit.**