

FileMaker® Pro 8.5

Tutorial

© 2004–2006 FileMaker, Inc. All Rights Reserved.

FileMaker, Inc.
5201 Patrick Henry Drive
Santa Clara, California 95054

FileMaker is a trademark of FileMaker, Inc., registered in the U.S. and other countries, and ScriptMaker and the file folder logo are trademarks of FileMaker, Inc.

FileMaker documentation is copyrighted. You are not authorized to make additional copies or distribute this documentation without written permission from FileMaker. You may use this documentation solely with a valid licensed copy of FileMaker software.

All persons and companies listed in the examples are purely fictitious and any resemblance to existing persons and companies is purely coincidental.

Credits are listed in the Acknowledgements document provided with this software.

For more information, visit our web site at www.filemaker.com.

Edition: 01

Contents

Lesson 1

FileMaker Pro basics

How to use this tutorial	7
We begin with a demonstration	7
We explain how it works	7
You build the structures	7
Where to find the lesson files	7
If you need to start over	8
Database concepts	8
What is a database?	8
Why use a database?	8
How is a database organized?	8
How is field data displayed?	9
FileMaker Pro basics	9
About FileMaker Pro modes	9
For more information	9

Lesson 2

Browsing information

Open a database and move between records	11
View information in different ways	12
See a different layout	12
View your layouts as forms, lists, and tables	13
For more information	14

Lesson 3

Finding and sorting records

Find records based on criteria in a single field	15
Find records based on criteria in separate fields	16
Find records that match multiple criteria in the same field	16
Find records that match a range of criteria in the same field	17

Narrow your search	18
Sort your found set	18
For more information	19

Lesson 4

Creating a database and entering records

Create a simple database and define fields	21
Look at the sample file	21
About field definitions	22
Create a database	22
Enter data into the database	23
Create the first record	23
Create another record	23
Modify data in a record	23
For more information	23

Lesson 5

Customizing what you see

Customize your view in Layout mode	25
Look at the sample layouts	25
About layouts and tables	26
About customizing layouts	26
Customize a layout	26
Resize, move, and add a field	26
Select and resize a field	26
Move a field	27
Add a field	27
Display a number as currency	27
Add color to a layout part	28

Add custom text to a layout	29
Add text	29
Change text size and color	29
Add a graphic to the layout	29
For more information	30

Lesson 6

Creating lists, mailing labels, and form letters

Create a columnar list	31
Look at the sample list	31
Create a columnar list	31
Create mailing labels	32
Look at the sample labels	32
About label layouts	32
Create a label layout	33
Create a form letter	34
Look at the sample letter	34
About form letter layouts	34
Create a form letter	34
For more information	36

Lesson 7

Simplifying data entry

Enter data using value lists	37
Look at the sample value list	37
Define a value list	37
Assign a value list to a field and display it as radio buttons	38
Generate values with a calculation field	39
See how calculations speed data entry	39
Create a calculation field	39
Test your calculation	40

Automatically enter a serial number	41
Look at a serial number example	41
Create a field for serial numbers	41
For more information	41

Lesson 8

Automating tasks with buttons and scripts

Perform a task using a button	43
Look at a sample button	43
Create the button	43
Perform a series of tasks using a script	44
Run a script in the sample file	44
About scripts	44
Create a script to preview the Labels Layout	44
Assign a script to a button	45
For more information	46

Lesson 9

Creating and running reports

Generate a report with grouped data	47
Look at a sample report	47
About subsummary reports	48
Create a subsummary report	48
Generate a report with grouped data and totals	50
Look at a sample report	50
Create a report with grouped data and totals	51
Save and send a report as a PDF file	53
For more information	53

Lesson 10

Making databases relational

View data from one related record	55
See how relationships work in the sample files	55
About related tables	56
Display a related record in a file	56
View data from a list of related records	57
Work with related records in the sample file	57
About working with lists of related records	58
Display a list of related records	58
For more information	59

Lesson 11

Keeping your data safe

How to back up your database	61
When to back up	61
For more information	61

Lesson 1

FileMaker Pro basics

Welcome to the FileMaker® Pro tutorial. This tutorial shows you how you can manage your information in FileMaker Pro.

You will learn how to use FileMaker Pro software to:

- locate and sort information
- create and enter records in a simple database
- create mailing labels
- create calculations, buttons, and scripts
- create and run reports
- create relationships between FileMaker Pro database tables

It takes approximately four hours to complete this tutorial, which can be done in one session or several shorter sessions.

How to use this tutorial

These lessons are based on the membership database of a fictitious travel firm, The Corporate Travelers Club. Corporate travelers who are members of this club save their businesses money on travel costs, and the club's expenses are offset by an annual membership fee. FileMaker Pro is used to track the members' names, addresses, and membership status, as well as to generate labels and form letters to contact members.

It's best to complete these lessons sequentially, as the concepts introduced in early lessons are assumed to be understood in later lessons. However, because the lessons are self-contained, it's possible to skip lessons entirely, or to complete them later if desired.

This tutorial assumes that you are familiar with your computer's operating system. Opening files, locating folders, and other activities that require some knowledge of your computer's OS are a necessary part of completing this tutorial.

Files included with this tutorial are intended to illustrate the features of FileMaker Pro, and as such, might be unsuitable for use as templates for further development.

We begin with a demonstration

To show you the goal of each lesson up front, we guide you through a sample file that illustrates a feature or concept. This way, you will always know a lesson's objectives.

We explain how it works

As we introduce new techniques and concepts, we will explain how to use them in other situations.

You build the structures

Because using FileMaker Pro is the most effective way to learn the application, each lesson features a hands-on activity designed to guide you through menus, screens, and concepts step by step.

Where to find the lesson files

If the tutorial files were installed, they are in:

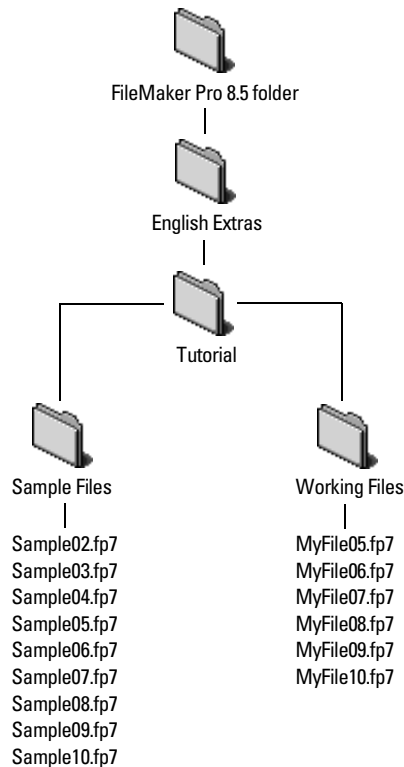
FileMaker Pro 8.5\English Extras\Tutorial

You can also download the tutorial files by choosing Help menu > Learning Center. In the Documentation area, click tutorial files.

The sample files illustrate the concepts explained in the lessons, and let you see how features work before you build them. Refer back to the sample file associated with each lesson if you need to.

The working files mimic the sample files, except the features being taught in particular lessons have been removed. You will add these missing items and structures as you complete each lesson.

Overview of the FileMaker Pro Tutorial folder structure



If you need to start over

If you make a mistake or need to start over, replace your existing Tutorial folder with a new copy. See “Where to find the lesson files” on page 7 for more information.

Database concepts

What is a database?

A *database* is a method of organizing and analyzing information. You’ve probably used several databases recently without realizing it. A date book, a parts list, and even your own address book are databases.

Why use a database?

Storing information in a database file has many benefits. A database doesn’t just hold information—it helps you organize and analyze the information in different ways. For example, databases allow you to group information for reports, sort information for mailing labels, count your inventory, or find a particular invoice.

Computerized databases offer many additional advantages over their paper-based counterparts: speed, reliability, precision, and the ability to automate many repetitive tasks.

How is a database organized?

A database file is organized into one or more *tables*. Tables store *records*. Each record is a collection of *fields*.

Imagine your address book is a FileMaker Pro database file. Each listing in your address book is one record in an Address Book table. Each record has information, such as name, address, city, and so on. Each of these pieces of information—name, address, and city—is stored in a separate field.

How is field data displayed?

FileMaker Pro displays fields on *layouts*. Each layout is based on a single table, and displays records from that table.

Imagine that your database has a Tasks table in addition to the Address Book table. A layout based on the Address Book table will display fields and records from the Address Book table. A layout based on the Tasks table will display fields and records from the Tasks table.

FileMaker Pro basics

Unlike most word processing or spreadsheet programs, FileMaker Pro saves your work automatically. Consequently, it's important to carefully consider your actions when making sweeping changes to your files, especially when deleting records. Once records are deleted, they are completely removed from your database.

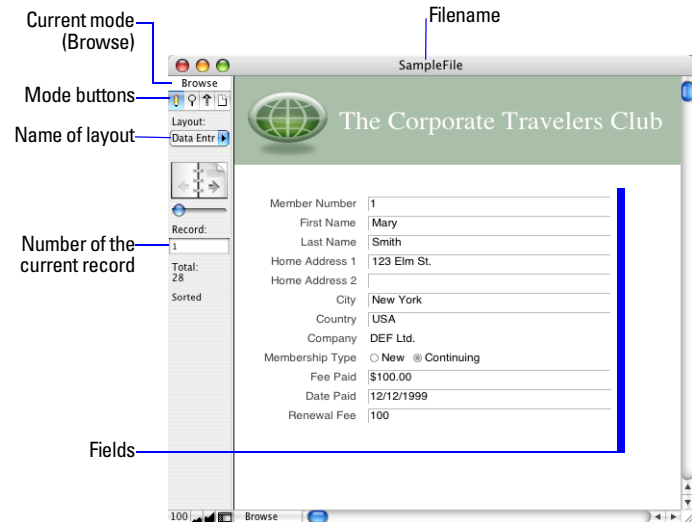
As you will learn in lesson 11, you should back up your files on a regular basis. Backups can save you many hours of unnecessary work and worry in the event that your files become lost or damaged, or records are inadvertently deleted.

About FileMaker Pro modes

When you work in FileMaker Pro, you work in one of four *modes*.

- Use *Browse mode* to enter data and view records.
- Use *Find mode* to locate a record or a group of records quickly.
- Use *Layout mode* to specify how information will appear on the screen or when you print it.
- Use *Preview mode* to see what the pages will look like when you print them.

Once you have opened a database, you can switch from one mode to another using either the View menu, mode buttons, or the mode pop-up menu at the bottom of the application window.



For more information

For more information on FileMaker Pro basic concepts, see chapter 1 of the *FileMaker Pro User's Guide*.

You can also find comprehensive information about procedures and concepts in FileMaker Pro Help. To access FileMaker Pro Help, choose Help menu > FileMaker Pro Help.

To access the FileMaker Learning Center on the web, where you can find resources such as ready-made solutions and the FileMaker Knowledge Base, choose Help menu > Learning Center.

Lesson 2

Browsing information

You view, enter, or change data in Browse mode. This is the simplest way to interact with your database.

In this lesson you will:

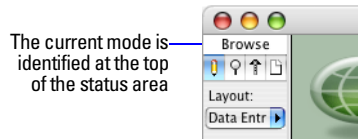
- open a database with data already in it
- move between records
- view information in different ways by switching layouts
- see the difference between *form view*, *list view*, and *table view*

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

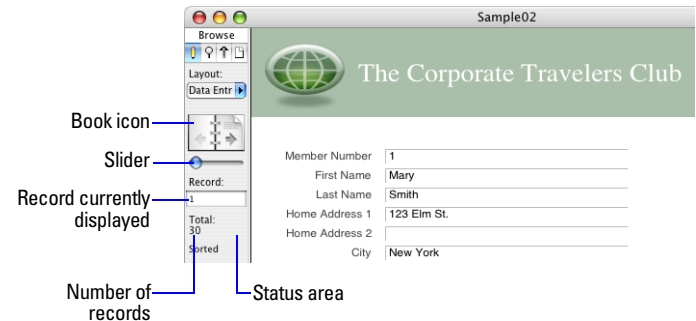
Open a database and move between records

To open the sample database for this lesson:

1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample02.fp7.
4. Notice that the database is in Browse mode. FileMaker Pro defaults to Browse mode when a database is opened.



In the status area, notice that there are 30 records and that the first record is displayed.



5. Click the right page of the book icon to move forward one record at a time, and click the left page to move back one record at a time.
6. Drag the slider to the right and release to move forward a number of records at one time. Drag the slider to the left and release to move backwards a number of records.

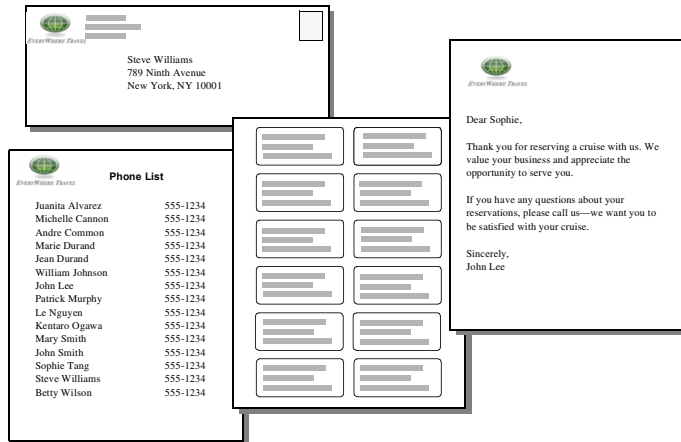
You can also click the current record number, type the record number you want, then press Enter (Windows) or Return (Mac OS).

Tip The Records menu also provides commands to move between records. Choose Records menu > Go to Record and choose either Next, Previous, or Specify.

View information in different ways

Even though you enter information only once in FileMaker Pro, you can use that information in many ways. *Layouts* let you view some or all of your fields.

Because it is not necessary to see all of your fields in each layout, layouts are a powerful tool for working with or printing just the information you need to accomplish a particular task.

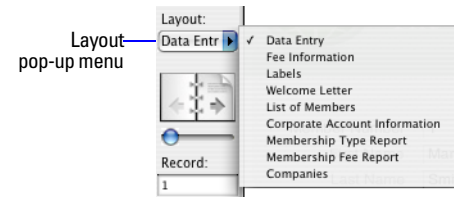


The same data can be arranged differently with multiple layouts

See a different layout

To see some layouts in action, use the Sample02.fp7 sample file you just opened.

1. Click the Layout pop-up menu, located above the book icon. A list appears showing the layouts available in this file.



2. Notice the check mark next to the Data Entry layout, your current layout. The Data Entry layout shows all of the fields in the Sample02.fp7 table.



The Data Entry layout displays all of the fields in the Sample02 table

3. Choose the List of Members layout from the Layout pop-up menu. This layout shows each record as one row in a columnar list. Notice that the List of Members layout contains only four of the fields that were present in the Data Entry layout. Because fewer fields are present on this layout, some data is simply not displayed, however, no data has been removed from the database.

First Name	Last Name	Company	Membership Type
Mary	Smith	DEF Ltd.	Continuing
Andre	Common	ABC Company	Continuing
Steve	Williams	ABC Company	New
Kentaro	Ogawa	ABC Company	Continuing
Marie	Durand	DEF Ltd.	Continuing
Michelle	Cannon	XYZ Inc.	Continuing
John	Smith	XYZ Inc.	New
Patrick	Murphy	XYZ Inc.	New
Jean	Durand	XYZ Inc.	New
Le	Nguyen	DEF Ltd.	New
John	Lee	XYZ Inc.	New
Sophie	Tang	DEF Ltd.	Continuing
Juanita	Alvarez	DEF Ltd.	Continuing
Betty	Wilson	XYZ Inc.	New

The List of Members layout displays only four of the fields present on the Data Entry layout

4. Go to the Layout pop-up menu and return to the Data Entry layout. No data has been lost.

View your layouts as forms, lists, and tables

You can view your layouts in three different ways: as a list, as a form, and as a table.

- Form view displays your current layout one record at a time.
- List view shows your current layout as a list, with one record appearing beneath another.
- Table view shows you many records at one time in a grid.

Generally, layouts can be toggled between form view, list view, and table view while the database is in Browse mode.

Form view

List view

Table view

The List of Members layout, viewed as a form, then as a list, and finally as a table

Switch between form view, list view, and table view in the same layout to see how they are different.

1. In Sample02.fp7, switch to the List of Members layout. You see many records, displayed as a list.

2. Choose View menu > View as Form.

You now see a single record, displayed in the same layout. Only the viewing option has changed.

3. Choose View menu > View as Table.

The View as Table feature allows you to view many records at once in a grid.

4. Choose View menu > View as List to return to the original view of the List of Members layout.

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

For more information

You have opened a database, browsed through records, switched layouts, and learned the differences between form view, list view, and table view. For more about browsing information in FileMaker Pro, see chapter 1 of the *FileMaker Pro User's Guide*.

Lesson 3

Finding and sorting records

Your database is a collection of records. Sometimes you'll work with all of the records in the database (to mail out an annual catalog for each customer, for example). Often, however, you'll work with a subset of your database—people who come from a particular city, for example, or records that fall within a particular range of dates.

In FileMaker Pro, this process of searching for records that match particular criteria is called *finding* records. Once you've found the records you want to work with, you can change their order by *sorting* them. Records can be sorted in ascending or descending order.

In this lesson, you will:

- find records matching criteria in a single field and multiple fields
- find records matching a range of data
- narrow your searches by omitting records
- sort records in ascending and descending order

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

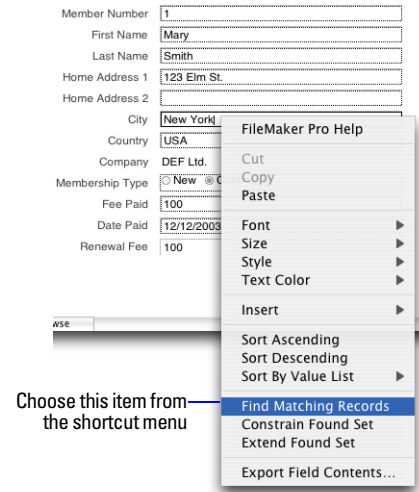
Find records based on criteria in a single field

In the membership database, find all of the members that are from New York City.

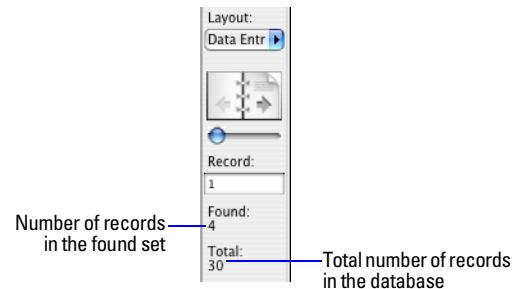
1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample03.fp7.
4. Notice that the database is in Browse mode.

The first record is for a member from New York City.

5. Right-click (Windows) or Control-click (Mac OS) the City field.
6. From the shortcut menu, choose Find Matching Records.



Your find request returns records for four members who live in New York. This is the *found set*.



7. Click the book icon or slider to view each of the four records in the found set.

Find records based on criteria in separate fields

You can find records that match multiple criteria, for example members who are both from the United States and are new members.

This type of search is commonly referred to as an *AND search*. To perform an AND search in FileMaker Pro, type each search criterion directly into the appropriate field in Find mode.

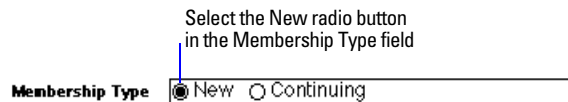
To find all members who live in the United States and are new members:

1. Choose View menu > Find Mode.

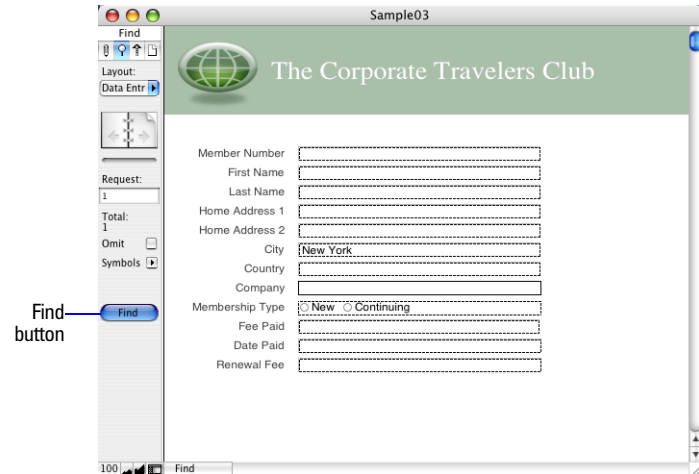
Use Find mode to perform more advanced searches. In Find mode, you create a find request using the fields in the layout you see. Type the criteria you want to search for directly into the fields on the request.

2. Type USA in the Country field.

3. Locate the Membership Type field, and select the New radio button.



4. Click the Find button in the status area.



Your find request returns a found set of two records for the two new members who live in the United States.

5. To find all of the records in your database, choose Records menu > Show All Records.

Note It is not necessary to choose Show All Records before performing a Find, as FileMaker Pro finds records from the entire database by default.

Find records that match multiple criteria in the same field

Sometimes you need to find records that match more than one criterion in a single field. For example, you may need to find all members located in either New York or London. This type of search is commonly referred to as an *OR search*, because your found set will consist of records that match any one of the find criteria.

To perform an OR search in FileMaker Pro, you will need to use multiple find requests.

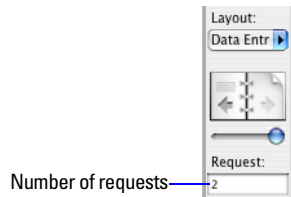
- Type the first search criterion into the appropriate field of the first find request.
- Create a second find request and enter the second search criterion in the same field.

When you click the Find button, FileMaker Pro will retrieve all of the records that match any of the criteria you've entered.

To find all members living in New York or London:

1. Choose View menu > Find Mode.
2. Type `New York` in the City field.
3. Choose Requests menu > Add New Request.

Notice that the status area shows that there are two requests.



4. Type `London` in the City field of this second request.
5. Click Find in the status area.

Your find request returns a found set of six records for six members who live in either New York or London.

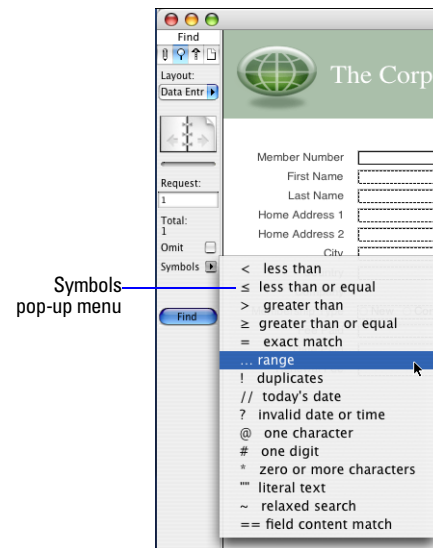
Find records that match a range of criteria in the same field

Sometimes, you might want to find records that match a range of criteria within a single field. For example, you might want to find all of the records that fall within a one-month period, or locate all of the sales invoices numbered between 500 and 1000.

To perform this type of search in FileMaker Pro, you use a special range symbol in your find request to specify the lower and upper limits of your find criteria.

To find the members who paid their membership fees between January 1, 2004 and June 30, 2004:

1. Choose View menu > Find Mode.
2. Type `1/1/2004` in the Date Paid field.
3. In the status area, click the Symbols pop-up menu. Select range from the list, or type an ellipsis (...).



Your find request should now have `1/1/2004...` in the Date Paid field.

4. Immediately after the ellipsis (...), type `6/30/2004`.

Date Paid

5. Click Find.

Your search returns six records, for six members who paid their fees within the first six months of the year 2004.

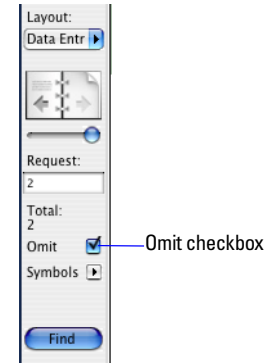
Narrow your search

Sometimes, you might need to find records that match certain criteria while at the same time excluding others (for example, finding all of the records that were added in a given year except for those added in February, or finding all customers who reside in New York state except for those in New York City). You can perform these types of finds by using a combination of multiple find requests and omitting certain records.

Because FileMaker Pro processes multiple find requests in the order they are created, it is possible to create very specific, layered searches in this manner. Omitting records in a search does not delete them from the database.

To find the records of members who paid their fees in the first six months of 2004, except for those who paid their fees in February:

1. Choose **View** menu > **Find Mode**.
2. Type `1/1/2004` in the Date Paid field.
3. In the status area, click the Symbols pop-up menu. Select range from the list, or type an ellipsis.
4. After the ellipsis, type `6/30/2004`.
5. Choose **Requests** menu > **Add New Request**. Notice that the status area shows that this is the second request.
6. Type `2/1/2004` in the Date Paid field.
7. In the status area, click the Symbols pop-up menu and select range from the list, or type an ellipsis.
8. After the ellipsis, type `2/29/2004` in the Date Paid field.
9. Click **Omit** in the status area to select it.



10. Click **Find**.

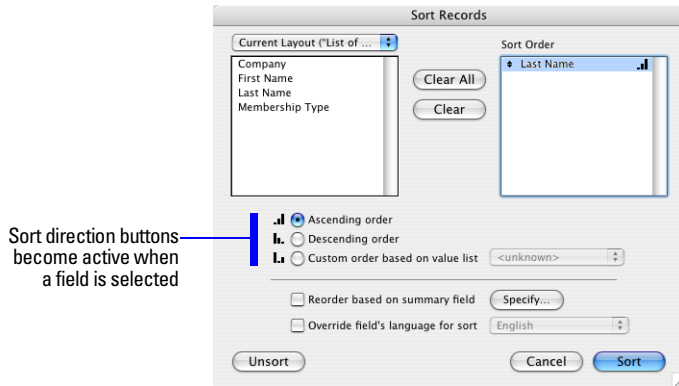
Your search returns five records for five members who paid their fees within the first six months of 2004, except the month of February.

Sort your found set

Once you have a found set of records to work with, you might want to sort those records. For example, you might want to display the records in alphabetical order, or sort them from newest to oldest.

To sort records in alphabetical order by the members' last names:

1. Go to the **Layout** pop-up menu and choose the **List of Members** layout. This layout will make it easier to see the results of the sorting.
2. Choose **Records** menu > **Sort Records**.
3. If any fields appear in the Sort Order column on the right side of the dialog box, click **Clear All**.
4. In the list of available fields, select **Last Name** and click **Move**.



Notice the sort direction symbol to the right of the Last Name field increases in size from left to right. This indicates that when the database is sorted by this field, the data will be in ascending order (from a to z).

5. Click Sort.

The names in the List of Members are now in alphabetical order by last name.

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

For more information

You have found records based on a variety of criteria, and narrowed your searches by using Omit. You have sorted the results of your searches. For more information on finding and sorting records in FileMaker Pro, see chapter 1 of the *FileMaker Pro User's Guide*.

Lesson 4

Creating a database and entering records

In the previous lessons, you saw how to use a simple database with existing data. Now you will create your own file and add records.

In this lesson you will:

- create a simple database
- define fields to hold different kinds of data
- create records
- enter data
- modify data

If you are not familiar with database basics, you should do the first two lessons in this tutorial before continuing.

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

Create a simple database and define fields

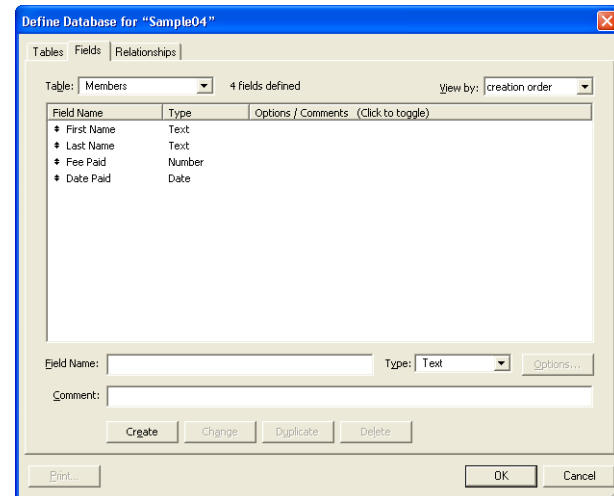
Look at the sample file

The sample file is the model for the file you’ll create. It shows you how fields are defined and that different field types hold different types of data.

1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample04.fp7.
4. Choose File menu > Define > Database.
5. In the Define Database dialog box, click the Fields tab if it is not already selected.

6. Choose Members from the Table pop-up menu if it is not already selected.

You see all of the fields in the Members table.



7. Notice the fields are of different types. The First Name and Last Name fields are of type Text. Fee Paid is of type Number, and Date Paid is of type Date.

8. Click OK.

9. Notice that the data in each field corresponds to the field type, such as numbers in the number field and a date in the date field.

About field definitions

You create a field for each category of information you want, such as First Name or City. To find, sort, calculate, and display data correctly, the field type should match the kind of data it contains (text, number, date, and so on). For example, you can't search for text values in a field of type Number.

You will learn about other field types in later lessons.

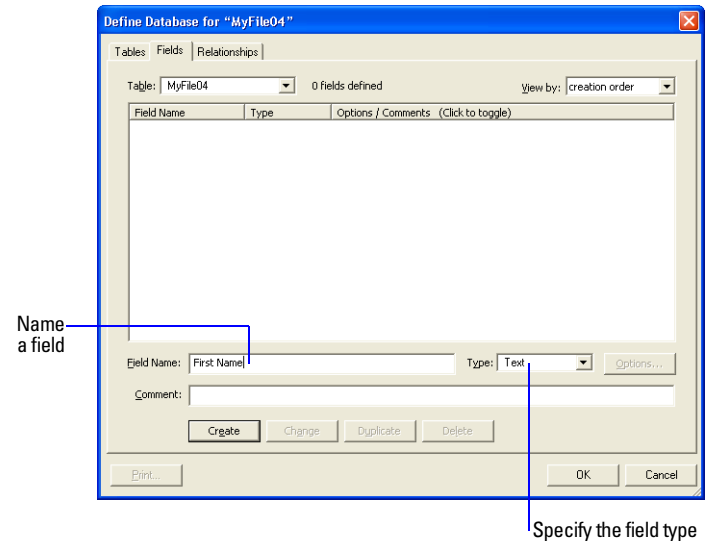
Create a database

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 MyFile04.
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.

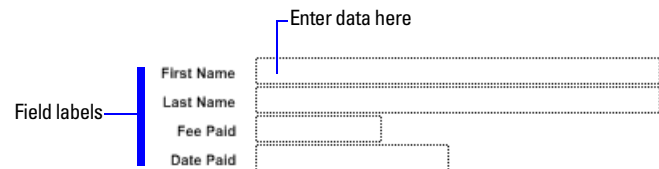
You will now create fields to store information.

6. To create the first field, type **First Name** in the Field Name box.
7. Notice that the field type is **Text**.



8. Click **Create**.
9. Type **Last Name** in the Field Name box.
10. Click **Create**.
11. Type **Fee Paid** in the Field Name box, select **Number** from the Type list, then click **Create**.
12. Type **Date Paid** in the Field Name box, select **Date** from the Type list, then click **Create**.
13. 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.

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. Type 25 in Fee Paid.

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

6. Type 11/11/2004 in Date Paid.

The completed record should look like this:

First Name	Jane
Last Name	Doe
Fee Paid	25
Date Paid	11/11/2004

Create another record

1. Choose Records menu > New Record.
2. As you did for Jane Doe's record, enter data for John Smith, who paid 75 dollars on 2/2/2004.

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

Modify data in a record

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

1. Go to Jane Doe's record.
2. Select the amount in Fee Paid.

First Name	Jane
Last Name	Doe
Fee Paid	25
Date Paid	11/11/2004

3. Type the new amount, 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.

For more information

You have created a simple database and defined fields, and added and modified records. For more information, see chapters 1 and 2 in the *FileMaker Pro User's Guide*. You can also use or build on the database template files included with FileMaker Pro. For more information on entering data in different field types and by different methods, including import, see lesson 7 in this tutorial and chapters 1 and 4 in the *FileMaker Pro User's Guide*.

Lesson 5

Customizing what you see

You can enhance the way your data looks by adding graphics and other effects.

In this lesson, you will:

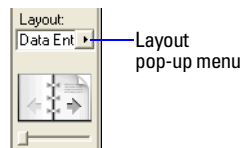
- learn how layouts determine what you see
- add, resize, and move fields
- display values in a number field as currency
- add text to a layout, and change its size and color
- add graphics
- see where to find other ways you can customize a layout

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

Customize your view in Layout mode

Look at the sample layouts

1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample05.fp7.
4. Choose **Data Entry** from the Layout pop-up menu if it is not already selected.

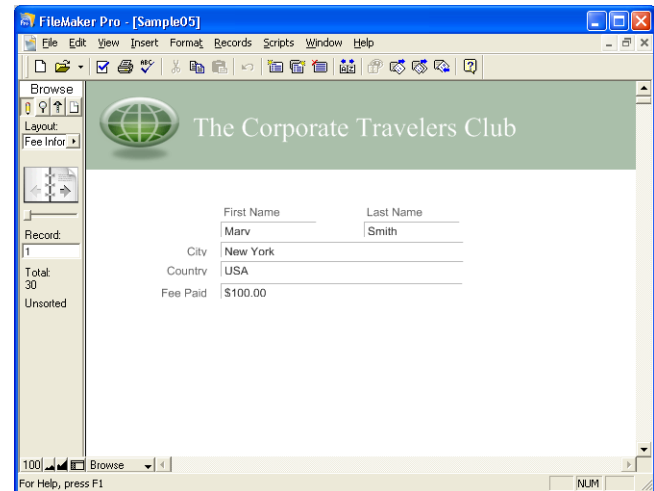


Notice that the layout is structured like a standard form, with field labels on the left and data on the right. Also, all fields in the Members table are present on the Data Entry layout.

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

6. Notice that although this is the same record in the same table, the data is displayed differently:

- First Name and Last Name are side by side
- You see only five fields:
 - First Name, Last Name, City, Country, and Fee Paid
- The amount in Fee Paid is prefaced with a currency symbol.



You will make these changes to MyFile05 later in this lesson.

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

You use *Layout mode* to customize the appearance of your data. Although the data is still in the file, you do not see it here. Instead, you see the names of the fields.

About layouts and tables

Each layout is based on a single table, and shows records from that table. If your file contains only one table, all layouts in your file will be based on that table. If your file contains more than one table, you must choose which table your layout will use at the time you create the layout, although you can change this later if necessary.

The table you choose as the basis for your layout is important because it determines which fields and records are available for use on that layout. Fields and records that are not stored in the current table can still be used, but must be accessed through relationships. For more information on relationships, see lesson 10, “Making databases relational.”

About customizing layouts

Design layouts in Layout mode. You can include any combination of fields, text, and graphics on a layout. You can change the font and color of fields and text. You can also change the formatting of Number or Date fields.

Changes you make in Layout mode affect only the way data appears. The data itself remains as it was entered.

Tip Leave the sample file open to refer to as you build these features in the working file.

Customize a layout

You will change a simple layout in this lesson’s working file to make it look like the Fee Information layout in the sample file.

1. Open the Tutorial folder on your hard drive.
2. Open the Working Files folder.
3. Open MyFile05.fp7.
4. Choose View menu > Layout Mode.

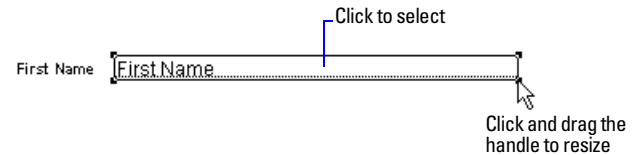
5. Choose Fee Information from the Layout pop-up menu.

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

Resize, move, and add a field

Select and resize a field

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



2. 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.

3. Choose View menu > Browse Mode.

4. 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.

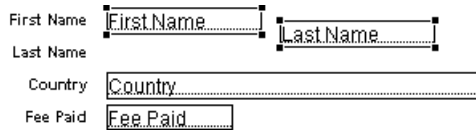
5. In Browse mode, flip through the records.

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

6. Repeat this process for Last Name.

Move a field

1. Choose View menu > Layout Mode.
 2. Click inside the Last Name field and drag it beside the First Name field.
- In the next steps, you'll align these fields.
3. Press Shift and click the First Name field to add it to your selection. Both the First Name and Last Name fields are selected.



4. Choose Arrange menu > Align > Top Edges.

The Last Name field moves until it aligns with the top of the First Name field.

5. Drag the Last Name field label above the Last Name field.
6. Drag the First Name field label above the First Name field.

Experiment with the Align commands to align the field labels with each other.

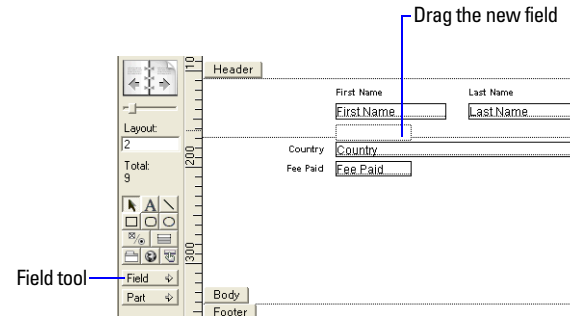
7. Choose View menu > Browse Mode to see your results.

Add a field

If a field has been defined in a table, you can display it on any layout based on that table. In this database, some defined fields are not on this layout. You will add one of these fields now.

Note You can also place fields from other tables on your layouts, as explained in Lesson 10.

1. Choose View menu > Layout Mode.
2. Using the Field tool, drag the field to the layout, and place it below the First Name field.



3. In the Specify Field dialog box, select the City field.

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. Choose Window menu > Sample05.

2. Choose View menu > Browse Mode.

3. In the Fee Information layout, look at Fee Paid and notice that the number displays as currency.

4. Click the number to see the data actually entered in the field.

Formatting affects only the way data is displayed. It does not change the data.

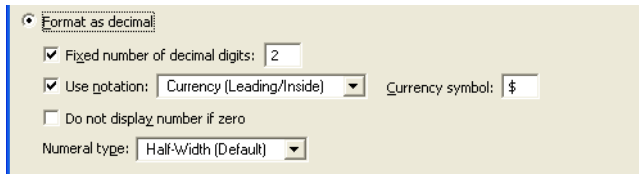
5. Choose Window menu > MyFile05.

6. Choose View menu > Layout Mode.

7. Select the Fee Paid field.

8. Choose Format menu > Number.

9. Select options as shown in the following Number Format dialog box.



10. Click OK.

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

Add color to a layout part

You will change the color of the top of the layout to match the colors of other layouts in the file.

1. Choose Window menu > Sample05.
 2. Choose View menu > Layout Mode and look at the header at the top of the layout.
- This is your model.
3. Open MyFile05.fp7 if it is not already open.
 4. Choose View menu > Layout Mode.
 5. Choose Fee Information from the Layout pop-up menu.
 6. Select the Header tab to make that part of the layout active.

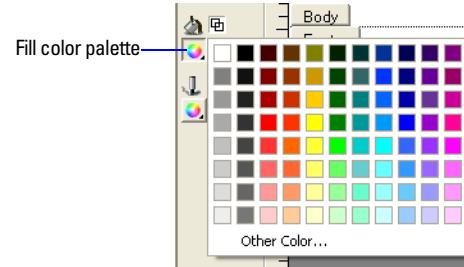
Windows: The Header label will become lighter in color when selected.



Mac OS: The Header label will become darker in color when selected.



7. Choose the fill color palette.



8. Choose Other Color from the fill color palette.

The header part uses a custom color.

9. Mac OS: Select the sliders icon and choose RGB Sliders from the Colors dialog box pop-up menu. (Windows users can skip this step.)

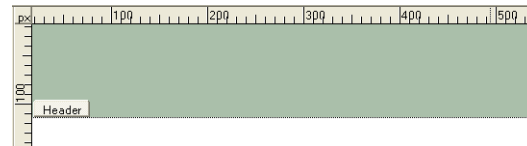
10. Enter these values in the Color dialog box:

Color	Value
Red	170
Green	191
Blue	170

11. Do one of the following:

- Windows: Click Add to Custom Colors, then OK.
- Mac OS: Click OK.

The header is now colored.

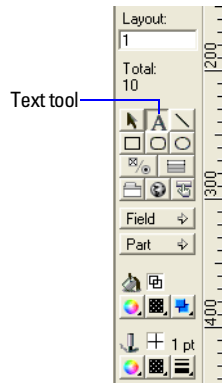



Add custom text to a layout

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

Add text

1. Choose Window menu > Sample05.
 2. Choose View menu > Layout Mode and look at the heading at the top of the layout.
- This is your model.
3. Open MyFile05.fp7 if it is not already open.
 4. Choose View menu > Layout Mode.
 5. Select the text tool.



6. Click the top of the layout where you want to begin the line of text.
7. Type The Corporate Travelers Club.
8. Click the selection tool  to end the text entry.

Change text size and color

1. Click the Corporate Travelers Club text to select the text block.

The Corporate Travelers Club

2. Choose Format menu > Text.
3. Choose Times from the Font list.
4. Choose Custom from the Size list, and type 28.
5. For Color, choose white or another color.
6. Click OK.

Add a graphic to the layout

Add a logo beside the club name.

1. Choose Window menu > Sample05.
 2. In the Fee Information layout, choose View menu > Layout Mode and notice where the logo appears on the layout.
 3. Open MyFile05.fp7 if it is not already open.
 4. Choose View menu > Layout Mode.
 5. Click beside the Corporate Travelers Club text, where you want to place the club logo.
- You will see no change onscreen yet.
6. Choose Insert menu > Picture.
 7. Open the Working Files folder.
 8. Make sure all file types are showing, and select logo.gif.
 9. Click Open.
 10. Drag the logo to move it if necessary.

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

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

For more information

You have learned how to enhance the appearance of your data by using graphics, custom text, field formatting, and creative positioning of objects on layouts.

There are many other ways to customize the appearance of fields and layouts.

For example, after you've created a layout, you can:

- add effects like embossing or patterns to objects
- use lines or boxes to highlight or separate information
- add scroll bars to individual fields
- change background or field color

When you create a new layout, you can apply color and style using a *theme*.

For more information on these enhancements, see FileMaker Pro Help. The database templates that come with FileMaker Pro also show ways to enhance layouts. For more information on how to use the templates, see *Customizing Starter Solutions* in the Electronic Documentation folder (inside the English Extras folder).

Lesson 6

Creating lists, mailing labels, and form letters

You can easily create layouts to view and print information in many different ways.

In this lesson, you will create:

- a list of your records
- mailing labels
- a form letter

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

Create a columnar list

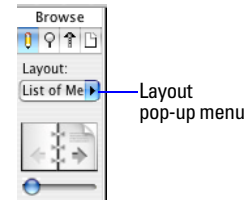
A columnar list shows many records simultaneously. Each row is one record. Each column holds one category of data, such as Last Name or Phone Number.

Look at the sample list

You can create a list of records that shows just the information you want to see.

1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample06.fp7.

4. Choose the List of Members layout from the Layout pop-up menu.



You see a columnar list showing some of your fields.

First Name	Last Name	Company	Membership Type
Mary	Smith	DEF Ltd.	Continuing
Andre	Common	ABC Company	Continuing
Steve	Williams	ABC Company	New
Kentaro	Ogawa	ABC Company	Continuing
Marie	Durand	DEF Ltd.	Continuing

5. Choose View menu > Layout Mode to view the layout that produces the columnar list you just looked at.

Each field on the layout appears once, but the list displays many records.

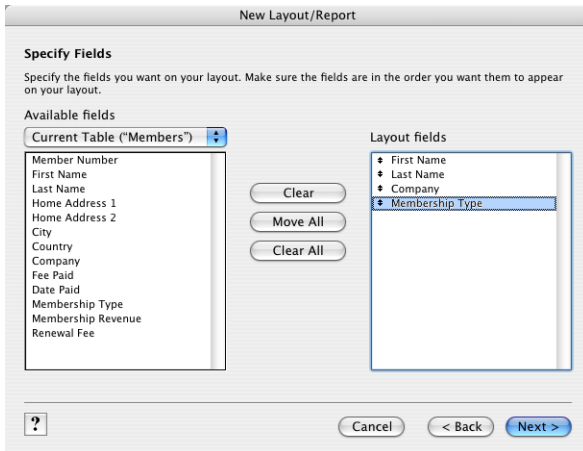
First Name	Last Name	Company	Membership Type
First Name	Last Name	Company	Membership Type

Create a columnar list

1. Open the Tutorial folder on your hard drive.
2. Open the Working Files folder.
3. Open MyFile06.fp7.
4. Choose View menu > Layout Mode.
5. Choose Layouts menu > New Layout/Report.

6. For Layout Name, type `List of Members`.
7. Select `Columnar list/report` for the new layout type and click `Next`.
8. Select the `Columnar list/report` layout again, then click `Next`.
9. 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.



10. Click `Next`.
11. Click `Next` again to accept the default sort order.
12. Select `Standard` from the list of layout themes, and click `Next`.
13. Click `Next` on each of the two remaining panels to accept the defaults.
14. 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.

Create mailing labels

Look at the sample labels

1. Choose `Window menu > Sample06`.
2. Choose `View menu > Browse Mode`.
3. Select `Labels` in the `Layout pop-up menu`.

You see the mailing label for the current record.

4. Choose `View menu > Preview Mode`.

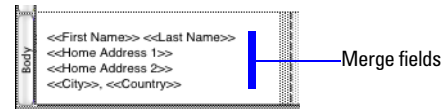
You see a page of labels as it will print.

5. Notice that not all records have the same number of lines of text.

Records with four-line addresses display all lines. In records needing only three lines, the extra line is automatically omitted so there is no blank line in the labels.

6. Choose `View menu > Layout Mode`.

You see the names of fields that will appear on the labels.



About label layouts

Label layouts use *merge fields*. Merge fields expand or contract to fit the data in the field, and take no space if the field is empty. Merge fields are for display and printing only. You can't enter data into merge fields.

Create 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

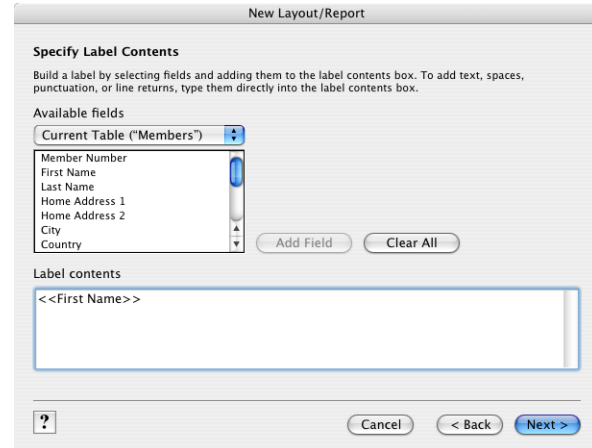
1. Choose Window menu > MyFile06.
2. Choose View menu > Layout Mode.
3. Choose Layouts menu > New Layout/Report.
4. For Layout Name, type Labels.
5. Select Labels for the new layout type.
6. Click Next.
7. Choose Avery 5160 from the Use label measurements for list.
8. Click Next.

Now you're ready to specify the label contents.

Choose the fields that will appear on the labels

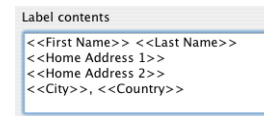
1. Double-click First Name in the list.

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 Enter (Windows) or Return (Mac OS).
This moves the cursor to the next line.
5. Double-click Home Address 1 in the list, then press Enter (Windows) or Return (Mac OS).
6. Double-click Home Address 2 in the list, then press Enter (Windows) or Return (Mac OS).
7. Double-click City in the list.
8. Type a comma, then a space.
9. Double-click Country in the list.

Now you have set up the merge fields. Your label contents should look like this:



10. Click Next.

11. Click View in Layout mode.
12. Click Finish.
13. When you finish viewing your label layout, choose View menu > Preview Mode.

Your labels should look like those in the sample file.

Create a form letter

Look at the sample letter

1. Choose Window menu > Sample06.
2. Choose View menu > Browse Mode.
3. Choose Welcome Letter from the Layout pop-up menu.
4. Flip through the records and look at the letter. You might need to scroll down to see all of it.
5. Notice the personalized address and salutation for each record.
6. Also notice that the wording in each letter is the same, except that the company name for each record appears in the first paragraph. The text flows around the company name, regardless of its length.

This letter is ready to print, for every record in the database.

About form letter layouts

The letter is simply a layout containing text, merge fields, and a graphic.

1. Choose View menu > Layout Mode.
2. Click anywhere on the text.

You see the handles in the corners of the entire text block. All of the text is in a single text block.

3. Notice that Company is a merge field in the body of the letter. The address and salutation also use merge fields.

Create a form letter

To create this letter, you will:

- create a blank layout
- create a text block to contain your letter
- add merge fields for the recipient's name and address
- type the letter
- customize the letter with the recipient's company name
- add the closing

Create a one-page blank layout

1. Choose Window menu > MyFile06.
2. Choose View menu > Layout Mode.
3. Choose Layouts menu > New Layout/Report.
4. For Layout Name, type Welcome Letter.
5. Select Blank layout for the new layout type.
6. Click Finish.
7. On the layout, click the Header tab, then press Backspace (Windows) or Delete (Mac OS).
8. Click the Footer tab, then press Backspace (Windows) or Delete (Mac OS).

This letter will not use a header or footer.

9. 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 farther.



10. 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.

11. 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.

12. Scroll back all the way to the left.

13. Scroll up to the top of the layout.

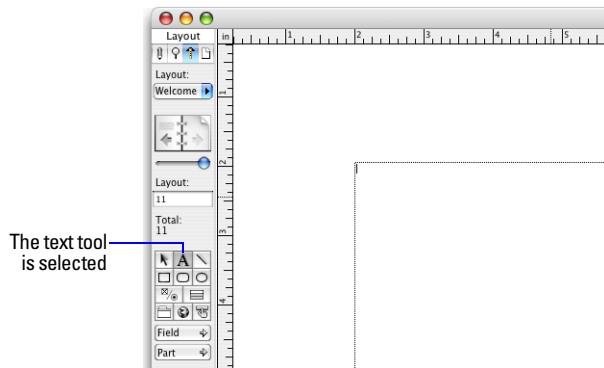
Create the text block

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

1. Click the text tool .

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. Move to the next line (enter a line space):

- Windows: Press the Enter key above the Shift key on the keyboard.
- Mac OS: 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 Enter (Windows) or Return (Mac OS) 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.

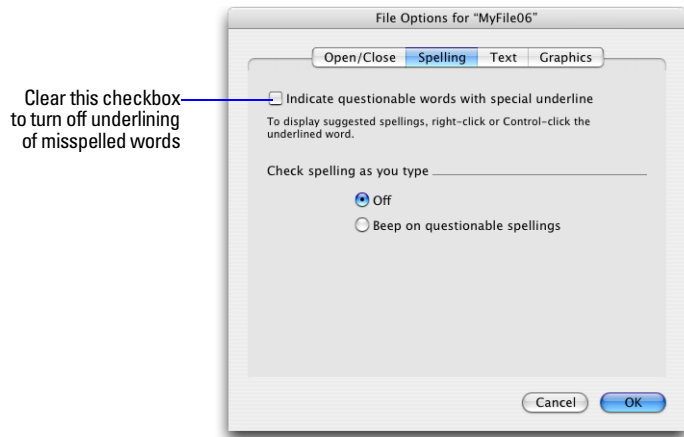
5. Type the letter:

The Corporate Travelers Club welcomes you and your company to our organization.

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

If you misspell a word, you'll see a red dotted line under it.

To turn off this special underlining in this file, choose **File** menu > **File Options**. In the **File Options** dialog box, click the **Spelling** tab. Clear **Indicate questionable words with special underline**.



For more information

In this lesson, you have created list, label, and form-letter layouts. You can create as many layouts as you like, to organize your information in any way you like. To learn how to create other layouts, see lesson 9 in this tutorial and chapter 2 in the *FileMaker Pro User's Guide*.

Customize 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 `With regards,` then enter four line spaces.
3. Type `John Jones` and a comma.
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 5 to learn how to add a logo.

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

Lesson 7

Simplifying data entry

You can simplify the way you enter data in FileMaker Pro and improve accuracy by using value lists, calculation fields, and data auto-entry.

In this lesson, you will:

- see how value lists can aid data entry
- write and test a calculation formula
- use a field's auto-entry options to automatically enter data

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

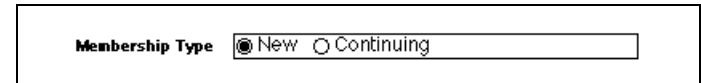
Enter data using value lists

Value lists let you choose the value you want from a scrolling list, a pop-up menu, checkboxes, or radio buttons. These lists can contain predefined values, or can be constructed dynamically based on the values in a particular field. They are an efficient way to enter frequently used values into your database.

Look at the sample value list

1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample07.fp7.
4. Choose **Data Entry** from the Layout pop-up menu if it is not already selected.
5. Locate the Membership Type field on the current record.

You see two radio buttons, one for New and one for Continuing. These correspond to the two choices in the Membership Types value list.

A screenshot of a FileMaker field. The field is labeled "Membership Type" and contains two radio buttons. The first radio button is selected and is labeled "New". The second radio button is unselected and is labeled "Continuing". The field is enclosed in a rectangular border.

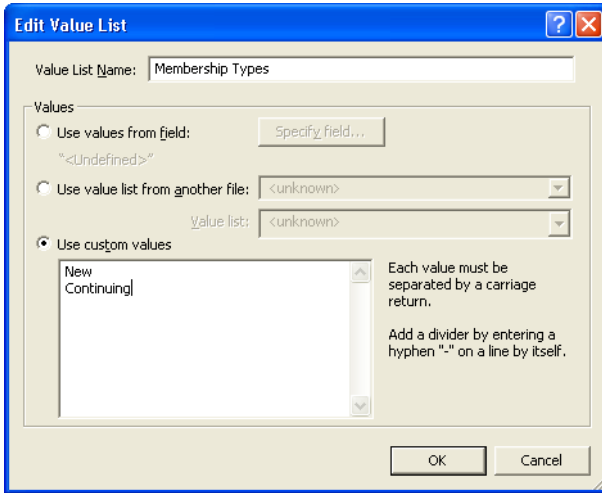
A value list with predefined values, displayed as radio buttons

6. Click one to enter the corresponding value in the field.

Define a value list

1. Open the Tutorial folder on your hard drive.
2. Open the Working Files folder.
3. Open MyFile07.fp7.
4. Choose **Data Entry** from the Layout pop-up menu if it is not already selected.
5. Choose **File menu > Define > Value Lists**.
6. Click **New**.
7. Name the new value list by typing **Membership Types**.

8. Click in the large box and enter the values for this list, New and Continuing, by typing each value on its own line.



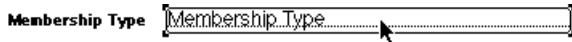
9. Click OK to close the Edit Value List dialog box.

10. Click OK to finish.

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

1. Choose View menu > Layout Mode.

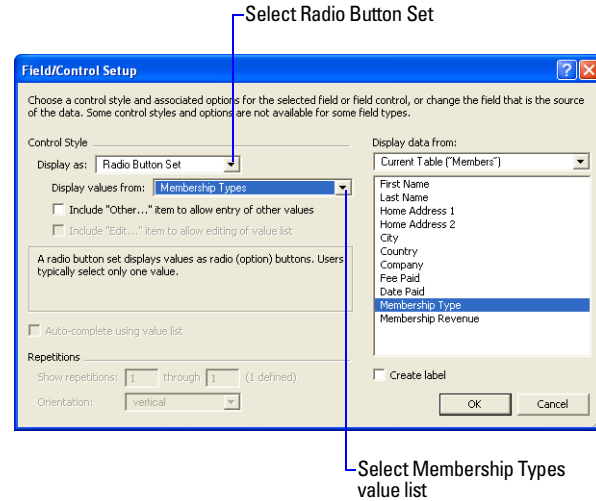
2. Select the Membership Type field.



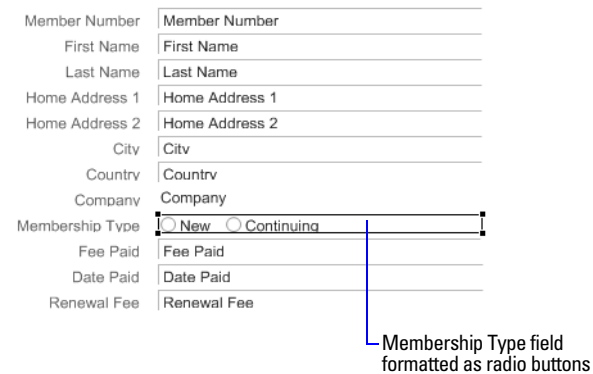
3. Choose Format menu > Field/Control > Setup.

4. For Display as, choose Radio Button Set.

5. For Display values from, choose Membership Types.



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



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

Generate values with a calculation field

When you want FileMaker Pro to perform a calculation for you, for example to determine the amount of tax owed or the proper fee to be paid, you use a *calculation field*. Calculation fields are one of the FileMaker Pro field types. FileMaker Pro can perform simple and complex calculations.

The calculation formula uses values from the current record or related records. The formula can use values from all field types. You can use calculations to return text values (for example, combining the contents of first name and last name fields into a full name field), dates, times, timestamps, and the contents of container fields.

See how calculations speed data entry

Members of the Corporate Travelers Club pay an annual fee. New members pay a fee of \$200, while continuing members pay \$100.

The following steps show the calculation you are going to build. The calculation returns a membership renewal fee based on membership type.

1. Choose **Window** menu > **Sample07**.
2. Choose **Data Entry** from the Layout pop-up menu if it is not already selected.
3. Create a new record by choosing **Records** menu > **New Record**. Notice there's no data in the Renewal Fee field.
4. In the Membership Type field, click **New**. The Renewal Fee field indicates 200.

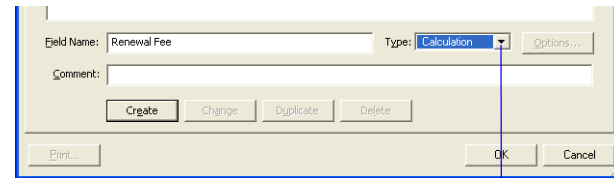
The Renewal Fee field is a calculation field.

5. In the Membership Type field, click **Continuing**. The value in Renewal Fee changes to 100.
6. Delete this record by choosing **Records** menu > **Delete Record**. Deleting this record is necessary to set up a later part of this lesson.
7. Click **Delete** in the confirmation dialog box.

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. Choose **MyFile07.fp7** from the **Window** menu.
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.



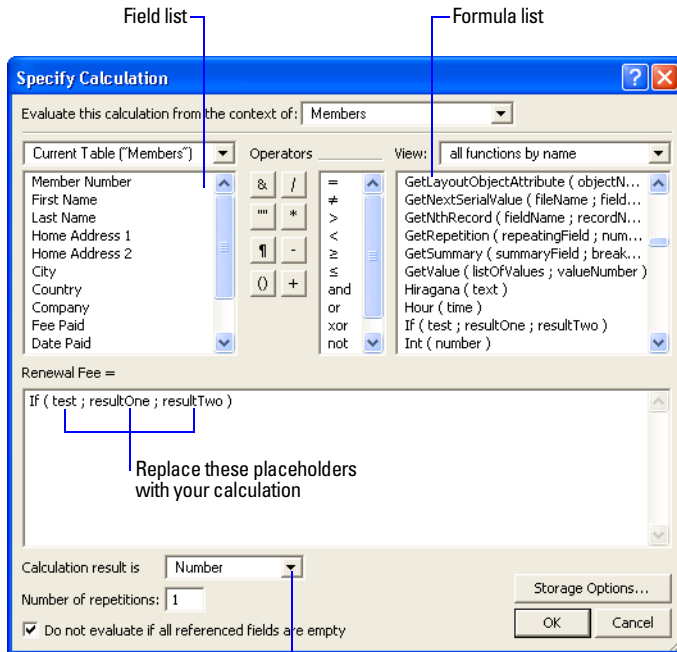
Select Calculation

6. Click **Create**.

The Specify Calculation dialog box appears.

7. Scroll through the list of formulas in the upper-right corner of the Specify Calculation dialog box until you locate `If (test ; resultOne ; resultTwo)`. Double-click this formula so that it appears in this dialog box.

This formula has three parts: a test, a result if the test evaluates as true (result one), and a result if the test evaluates as false (result two). You will replace the placeholders `test`, `resultOne`, and `resultTwo` with the actual components of the calculation.



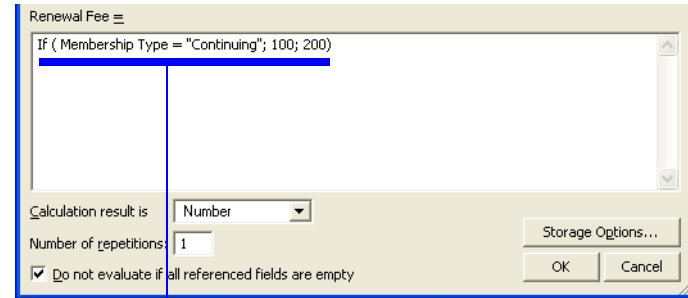
Verify the type of data to be returned by the calculation

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

9. Select the placeholder `resultOne`, and type `100`.

10. Select the placeholder `resultTwo`, and type `200`.

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



The completed calculation

12. Click **OK**.

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

13. 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.

Automatically enter a serial number

FileMaker Pro lets you automatically enter certain types of data—for example, incremental numbers—when you create a new record.

Look at a serial number example

1. Choose Window menu > Sample07.
2. Go to the last record in the database.
3. Locate the Member Number field, and note the current number of this record.
4. Create a new record by choosing Records menu > New Record.

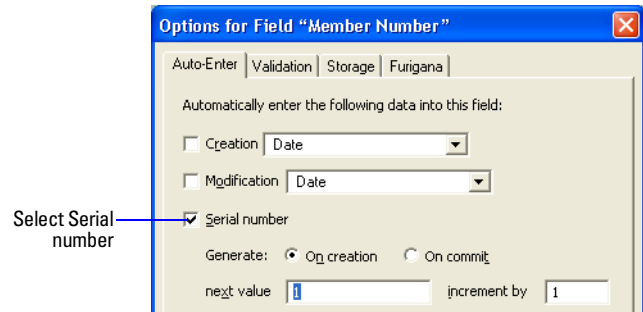
The value in the Member Number field of the new record is increased by one.

Note If you did the first activity in this chapter, you will notice that the value in Member Number is 32, even though there are now 31 records in the Sample07.fp7 database. FileMaker Pro continues to increment serial numbers even if intervening records have been deleted, such as record 31 in this case.

Create a field for serial numbers

1. Choose Window menu > MyFile07.
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.
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.

To learn how to change the position of the new field, see lesson 5.

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

For more information

You have learned how to simplify data entry by defining and formatting value lists, calculation fields, and auto-entered serial numbers. For more information on calculation fields and field auto-enter options, as well as defining and formatting value lists, see FileMaker Pro Help.

Lesson 8

Automating tasks with buttons and scripts

FileMaker Pro lets you automate many database tasks with buttons and scripts. These powerful features can save you a lot of time by performing a series of actions with a single click.

In this lesson you will:

- make and use a button to perform a task
- create and run a simple script to perform a multi-step task
- use a button to perform a script

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.


Perform a task using a button

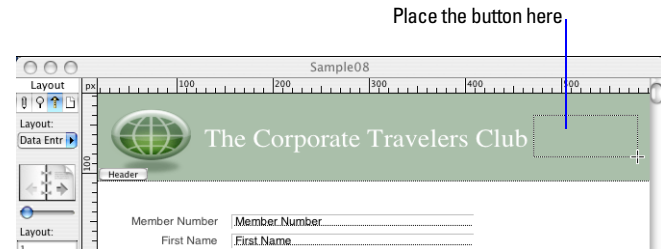
Look at a sample button

A *button* is an object on a layout that you can click to perform many FileMaker Pro commands. You can use a button to switch layouts in your database.

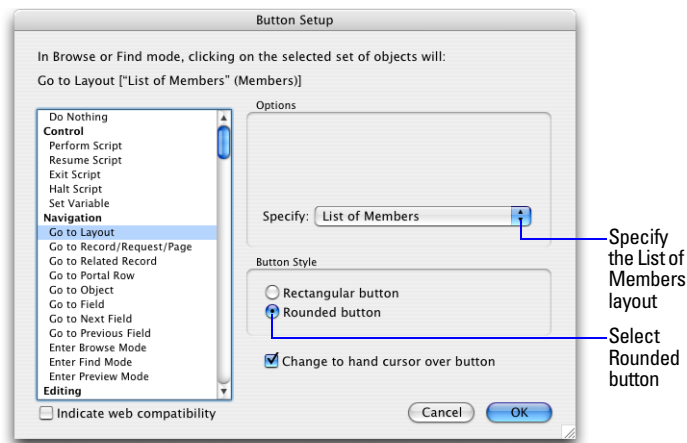
1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample08.fp7.
4. Locate the button labeled **Go to List of Members** at the top of Layout #1.
5. Click the button. You should now be viewing the List of Members layout (as indicated by the Layout pop-up menu).

Create the button

1. Open the Tutorial folder.
2. Open the Working Files folder.
3. Open MyFile08.fp7.
4. Choose **Data Entry** from the Layout pop-up menu if it is not already selected.
5. Select **View menu > Layout Mode** to switch to Layout mode.
6. Click the button tool .
7. Draw the button at the top of the layout.



8. In the Button Setup dialog box, select the **Go to Layout** command from the list.
9. In the Options area, select the **List of Members** layout.
10. Select **Rounded button** for button style.



11. Click OK.
12. Notice that the insertion point is now in the center of your button. Type `Go to List of Members` in your button to identify it.
13. 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.

Perform a series of tasks using a script

As you have just seen, you can use a button to perform a single command. To make FileMaker Pro perform a sequence of commands, use a script.

Run a script in the sample file

1. Choose Window menu > Sample08.
2. Choose Scripts menu > Preview Labels Layout.

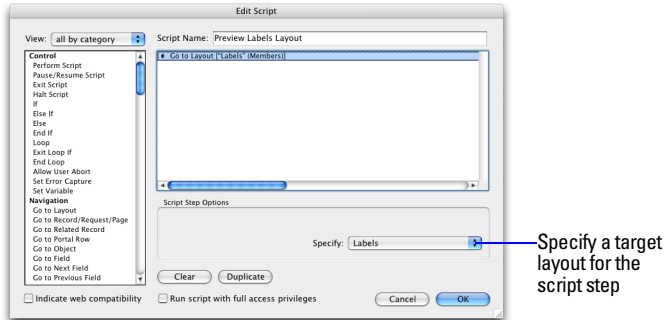
You should now see the Labels layout, in Preview mode. This script lets you preview labels before you print.

About scripts

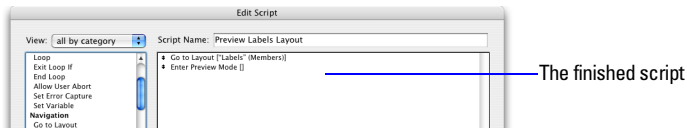
A *script* lets you construct a series of instructions for FileMaker Pro to perform. Like buttons, scripts allow you to automate most of the FileMaker Pro menu commands, as well as activate some commands not found in the FileMaker Pro menu structure. Simple scripts can perform a single task, while complex scripts might combine elements (such as user feedback and control) with programming techniques (such as branching and looping) to make powerful, dynamic instruction sets.

Create a script to preview the Labels Layout

1. Choose Window menu > MyFile08.
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.)
6. In the Script Step Options area, select the Labels layout from the list of available layouts.

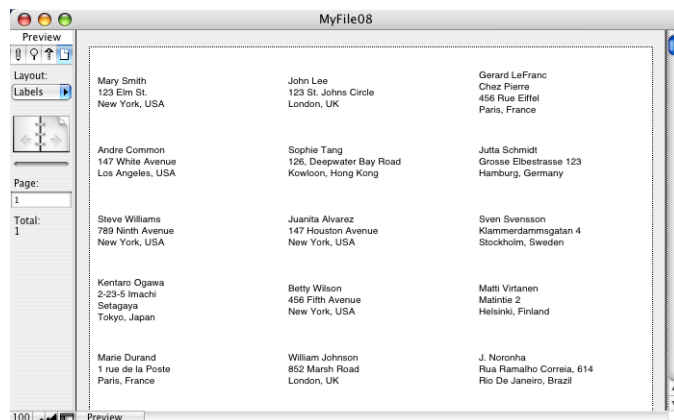


7. From the list on the left, scroll down and select the Enter Preview Mode script step, and move it over to your script.



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

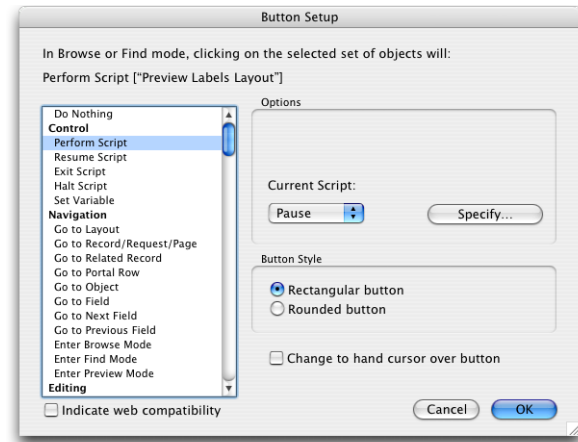
While buttons are generally more convenient for users, scripts are a more powerful feature, allowing you to combine many menu commands into a single executable action. Using a button to run a script gives you the best of both features.

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


1. In MyFile08.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 Button Setup dialog box, select the Perform Script script step from the top of the list on the left.

In the Options area, for Current Script click Specify. Select Preview Labels Layout from the list of available scripts, and click OK. Leave the rest of the default button settings as they are and click OK.

If you have not already created this script, follow the steps described in “Create a script to preview the Labels Layout” on page 44.



Rename the button

1. Click the text tool .
2. Click the button once. The text insertion point appears in the button.
3. Type `Preview Labels Layout` to rename this button. It may be necessary to resize this button after renaming it.

Test the button

1. 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.

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

For more information

In this lesson, you have created buttons and scripts, and used these two features together. For more information on creating buttons and scripts, see FileMaker Pro Help.

Lesson 9

Creating and running reports

The process of retrieving and organizing data from a database is called *reporting*. *Summary reports* present just the totals of your data; they do not break information into smaller groups. *Subsummary reports*, also referred to as *reports with grouped data*, categorize information by a particular field or fields, allowing you to group information hierarchically. This subsummarized information can then be subtotaled, averaged, or counted.

In this lesson you will:

- generate a report with grouped data
- generate a report with grouped data and totals
- save a report as a PDF file and send it as an email attachment

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

Generate a report with grouped data

Look at a sample report

This example shows a report that groups the members by membership type. The report has been saved to a script.

1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample09.fp7.
4. Choose Scripts menu > Membership Type Report to generate the membership type report.
5. Examine the resulting report.

First, notice that you are in Preview mode. Preview mode is necessary to view summarized data on the screen. Second, notice how the members are grouped by the membership type, and further alphabetized by last name within each category.

This report groups data by the Membership Type field, also referred to as the break field

Membership Type Report	
Last Name	First Name
Continuing	
Alvarez	Juanita
Cannon	Michelle
Common	Andre
Durand	Marie
Jensen	Jens
Johnson	William
LeFranc	Gerard
Mehmet	Ahmet
Noronha	J.
Ogawa	Kentaro
Other	A. N.
Smith	Mary
Tang	Sophie
Vargas	Julia
Verhaag	Annelies
New	
Dupont	Jacques
Durand	Jean
Ferrini	Costanza
Garcia	Juan
Larsen	Bengt
Lee	John
Murphy	Patrick
Nguyen	Le
Papanicolaou	Vassilis
Schmidt	Jutta
Smith	John
Svensson	Sven
Virtanen	Matti
Williams	Steve
Wilson	Betty

6. Click the Continue button in the status area to complete the script and return to the Data Entry layout.

About subsummary reports

A report with grouped data requires a number of elements to work properly.

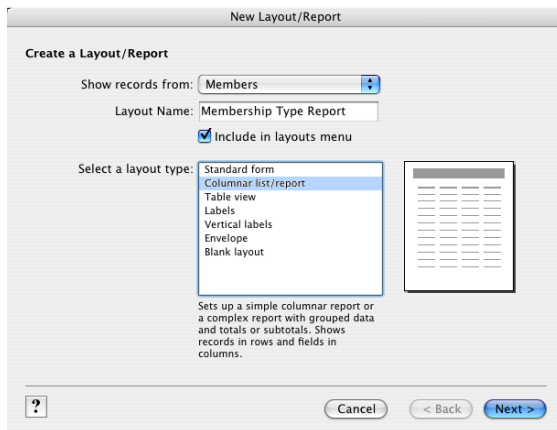
Subsummary reports include:

- a subsummary part in the report layout for each level of detail you want to break out. The New Layout/Report assistant creates these for you.
- a field or fields to group records by. These fields are referred to as *break fields*.
- records sorted by these break fields, in the order the subsummary parts appear on your report layout.

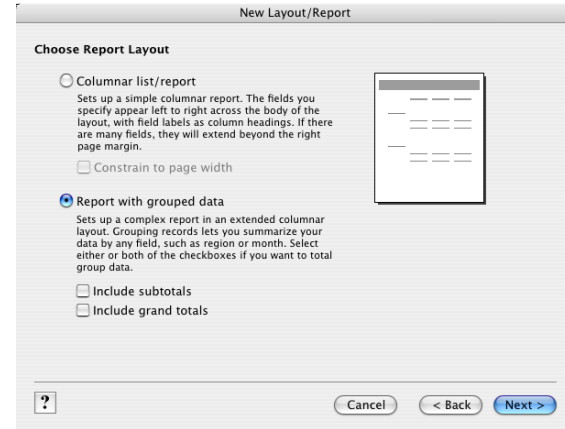
Create a subsummary report

To create the Membership Type Report:

1. Open the Tutorial folder on your hard drive.
2. Open the Working Files folder.
3. Open MyFile09.fp7.
4. In Layout mode, choose Layouts menu > New Layout/Report.
5. For Layout Name type Membership Type Report.
6. Select Columnar list/report for the new layout type and click Next.

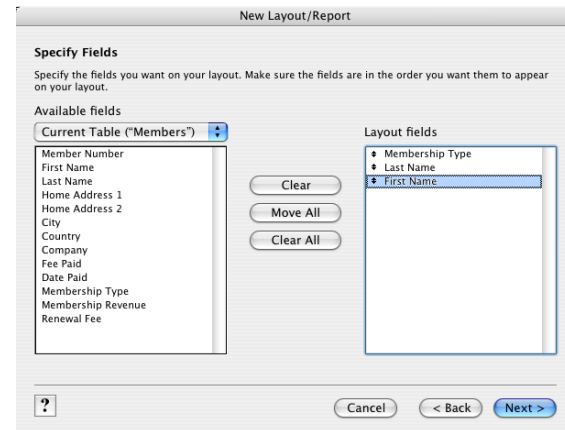


7. Select Report with grouped data, and click Next.



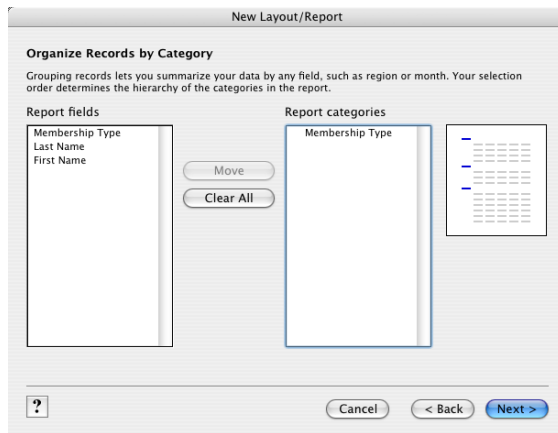
Select the fields used in this report

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 organize the records by membership type.

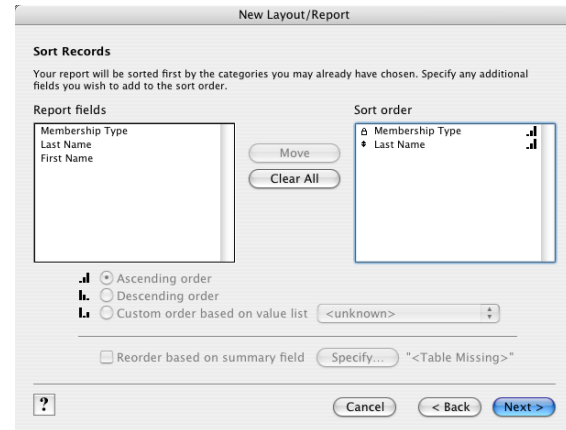


Membership Type is referred to as a break field because you are using the contents of this field to break the records into categories for your report.

6. Click Next.

7. Move the Last Name field to the Sort order list.

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, color, and style of the finished report.

2. Click Next.

3. Go to the Top center list in the Header area and select Large Custom Text.

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

5. Go to the Bottom center 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. Click Next.
3. Click View the report in Preview mode if it is not already selected.
4. Click Finish.

Your finished report should look like the report pictured on page 47.

Generate 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.

Look at a sample report

This subsummary report:

- groups the members by membership type
- subtotals the fees collected for each membership type
- provides a grand total of these fees

1. To view the finished sample report, choose Window menu > Sample09.
2. Choose Scripts menu > Membership Fee Report to generate the membership fee report.
3. Examine the resulting report.

As in the previous example, the members are grouped by membership type. Additionally, the fees collected for each membership type are subtotaled beneath those members' names, and a grand total of all fees appears at the bottom of the report.

Membership Fee Report			
	Last Name	First Name	Fee Paid
Continuing	Alvarez	Juanita	100
	Cannon	Michelle	100
	Common	Andre	100
	Durand	Marie	100
	Jensen	Jens	100
	Johnson	William	100
	LeFranc	Gerard	100
	Mehmet	Ahmet	100
	Noronha	J.	100
	Ogawa	Kentaro	100
	Other	A. N.	100
	Smith	Mary	100
	Tang	Sophie	100
	Vargas	Julia	100
	Verhaag	Annelies	100
Continuing			1500
New	Dupont	Jacques	200
	Durand	Jean	200
	Ferrini	Costanza	200
	Garcia	Juan	200
	Larsen	Bengt	200
	Lee	John	200
	Murphy	Patrick	200
	Nguyen	Le	200
	Papanicolaou	Vassilis	200
	Schmidt	Jutta	200
	Smith	John	200
	Svensson	Sven	200
	Virtanen	Matti	200
	Williams	Steve	200
	Wilson	Betty	200
New			3000
			4500

4. Click the Continue button to complete the script and return to the Data Entry layout.

A report with grouped data and totals requires the same elements as a report with grouped data: a subsummary part in the report layout for each category, a field or fields to group records by, and a sort of the database by these fields.

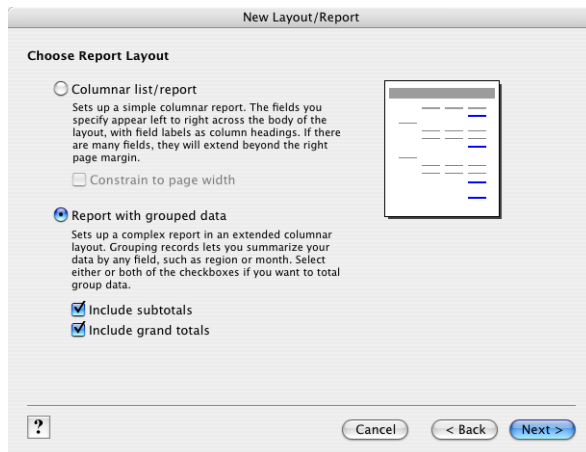
Two additional elements are also required:

- a grand summary layout part
- summary field(s) to display totals, averages, or counts

Create a report with grouped data and totals

To create the Membership Fee Report:

1. Choose Window menu > MyFile09.
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

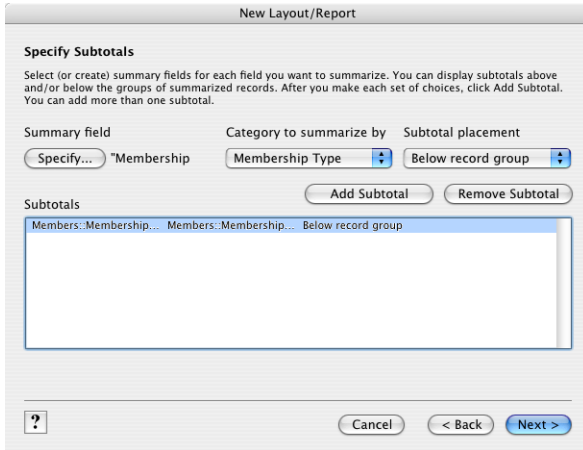
A *summary field* is a type of field you can specify when you define fields. Summary fields allow calculations across all of the records in your found set. In general, when you need to total data across a number of records, you must use a summary field.

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.

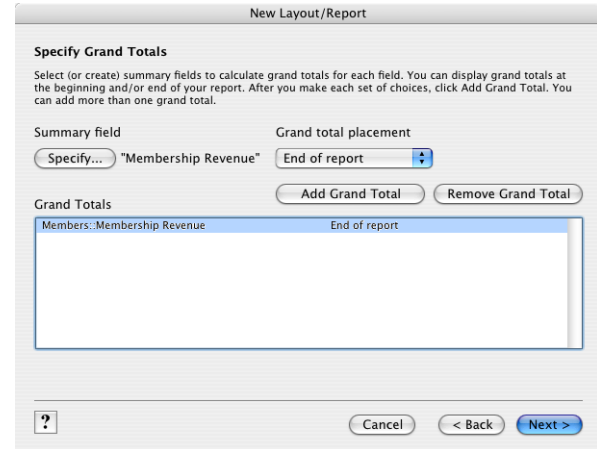
The summary field you will use is Membership Revenue, which has already been defined for you. Membership Revenue totals the fees entered in the Fee Paid field.

1. For Summary field, click Specify and select Membership Revenue from the list of available fields, then click OK.
2. For Category to summarize 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. This tells FileMaker Pro to use the Membership Revenue field in the grand total.
7. 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.



8. Click Next.

Select a theme and create the header and footer

1. Select the Standard theme to set the text size, color, and style of the finished report.
2. Click Next.
3. Go to the Top center 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 center 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. Click Next.
3. Click View the report in Preview mode if it is not already selected.
4. Click Finish.

Your finished report should look like the report pictured on page 50.

Save and send a report as a PDF file

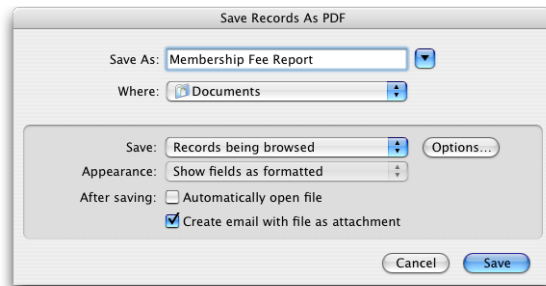
After you run a report, you can save it as a PDF file and send it as an email attachment.

To send the Membership Fee Report as a PDF file:

1. Choose Scripts menu > Membership Fee Report.

This runs the script you created in the previous exercise and displays the report in Preview mode.

2. Choose File menu > Save/Send Records As > PDF.



3. Specify where you want to save the PDF file.
4. For File Name (Windows) or Save As (Mac OS), type Membership Fee Report.
5. For Save, choose Records being browsed.
6. Select Create email with file as attachment.
7. Click Save.

FileMaker Pro creates the PDF file and passes it to your email program. The PDF file appears as an attachment in an email message that you can then address and send.

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

For more information

In this lesson, you generated reports with grouped data, and reports with grouped data and totals. You also saved a report as a PDF file and sent it as an email attachment. For more information on creating reports, see FileMaker Pro Help.

Lesson 10

Making databases relational

Relational databases let you easily view related data and streamline data entry. You can enter data once, then view and use that data in related tables or files.

In this lesson, you will:

- see how relational databases work
- define a relationship
- display data from one related record
- display a list of related records

The sample file in this lesson uses two tables:

- a *Members* table with records for individual Corporate Travelers Club members
- a *Companies* table for companies where these members work. Each company has many members.

Important Copy the Tutorial folder to your hard drive or verify that it is installed before beginning this lesson. See “Where to find the lesson files” on page 7 for more information.

View data from one related record

See how relationships work in the sample files

1. Open the Tutorial folder on your hard drive.
2. Open the Sample Files folder.
3. Open Sample10.fp7.

4. Choose the Companies layout from Layout pop-up menu, and browse through the records.

The Companies layout is based on the Companies table, and shows records from that table. The Companies table has three records, one record for each of the three companies that has members in the Corporate Travelers Club. Each company record also contains a *portal* that displays the club members from that company.

5. Choose the Corporate Account Information layout from the Layout pop-up menu.

Corporate Account Information is based on the Members table, and shows the company information for each of the 30 members in the database.

6. In Corporate Account Information, create a new record for Jane Doe.
7. For Company, click the Company field and choose ABC Company.

First Name	Jane
Last Name	Doe
Company	ABC Company

8. Notice that the address for ABC Company automatically appears.

First Name	Jane
Last Name	Doe
Company	ABC Company
Company Address	345 Industrial Park Blvd.
City	Chicago
Country	USA

About related tables

The Companies table and Members table are related tables.

When you enter a company name in a record in the Members table, FileMaker Pro identifies the record for that company in the Companies table. FileMaker Pro then displays the address from this matching company record in the Members table.

How does this happen? The Members table has a *relationship* to the Companies table. The relationship is based on matching data in the Company field in both tables. The Company field is the *match field*. The Members file displays the company address using *related fields*.

You will learn both parts of this process: how to define the relationship and how to display data using the relationship.

Display a related record in a file

Define a relationship to another table

1. Open the Tutorial folder on your hard drive.
2. Open the Working Files folder.
3. Open MyFile10.fp7.

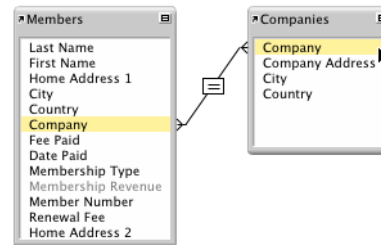
MyFile10.fp7 has the same tables as the sample file, but without the relational structure. You will build the structures now.

4. Choose File menu > Define > Database.
5. Click the Relationships tab.

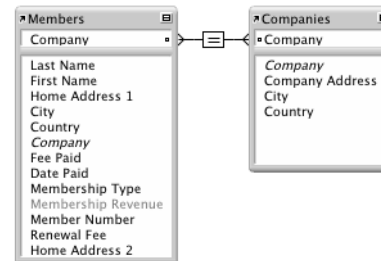
You see the *relationships graph*. The relationships graph shows all the tables in the current file.

When you work with tables in the relationships graph, you are using them to organize 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.

6. In the Members table, click the Company field and drag a line to the Company field in the Companies table.



7. Release the mouse button. You see the relationship you have created.



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

8. 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.

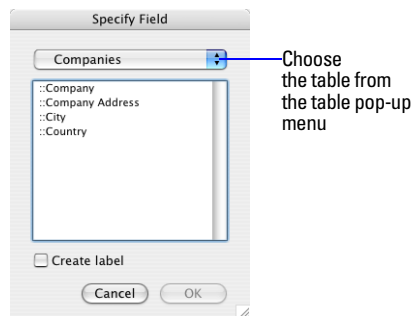
1. In MyFile10, choose the Corporate Account Information layout from the Layout pop-up menu.
2. Choose View menu > Layout Mode.

3. Using the Field tool , drag a field onto the layout.

You see the Specify Field 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.



5. Click ::Company Address.

6. Select Create label, then click OK.

7. Repeat steps 3-6 for ::City and ::Country.

8. Move the fields if necessary, and make the fields large enough to display all the data they contain. The fields should look like this:

First Name	<input type="text" value="First Name"/>
Last Name	<input type="text" value="Last Name"/>
Company	<input type="text" value="Company"/>
Company Address	<input type="text" value="::Company Address"/>
City	<input type="text" value="::City"/>
Country	<input type="text" value="::Country"/>

9. 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

View a list of related records

1. Choose Window menu > Sample10.
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.

Company	<input type="text" value="ABC Company"/>
Company Address	<input type="text" value="345 Industrial Park Blvd."/>
City	<input type="text" value="Chicago"/>
Country	<input type="text" value="USA"/>

First Name	Last Name
Andre	Common
Jane	Doe
Kentaro	Ogawa
Steve	Williams
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Click here to enter a new member for this company

Displays a list of members from the related table

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” on page 55, 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

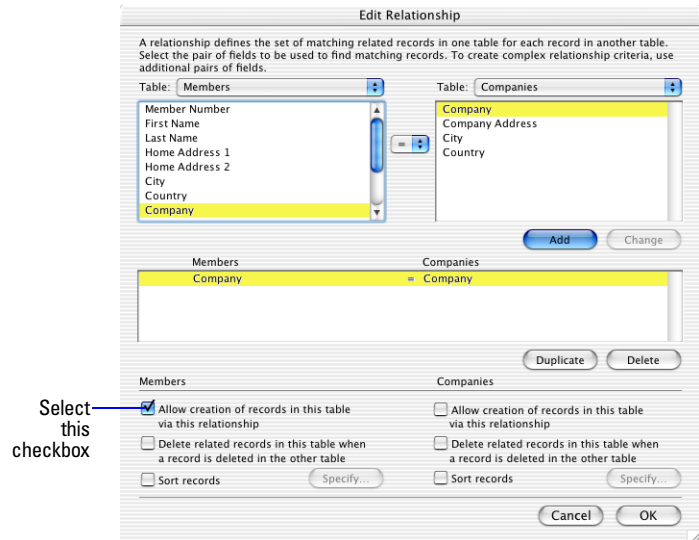
Create a portal to display matching records


1. Choose Window menu > MyFile10.
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.




6. Click OK, 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 value to 7.

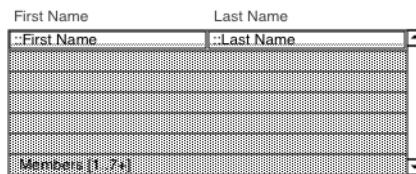
Each row displays one matching member record.

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.
6. 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.)
7. When you are finished with this lesson, Exit or Quit FileMaker Pro to close all open files.

For more information

You have seen how to use and create simple relationships.

This tutorial covers just the basics; there are many important points to consider when building a relational database system. Be sure to read chapter 3 in the *FileMaker Pro User's Guide* and the relational information in FileMaker Pro Help before using relationships in your own files.

Lesson 11

Keeping your data safe

Power failures, disk problems, and other unexpected computer problems can happen to anyone at any time. To help prevent data loss, regularly back up all important documents on your computer, including your databases.

In this lesson you will learn:

- how and when to back up your database
- where to learn about other ways to protect your files

How to back up your database

There are many ways to back up a file. This is one way.

1. Determine the size of the database:

Windows: Right-click the icon for the file, then choose Properties.

Mac OS: Click the icon for the file, then choose File menu > Get Info.

2. Identify a disk or volume that has enough available space for a copy of the database.

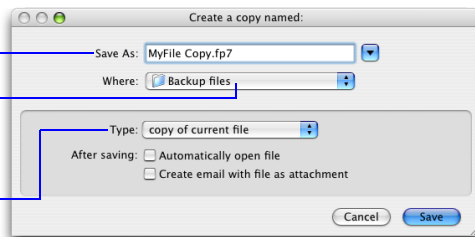
3. Open the database you want to back up.

4. Choose File menu > Save a Copy As.

Accept the default filename for your copy, or change the name

Select the disk and folder where you want to save your copy

Save a copy of current file



5. Click Save.

Important Next time, back up to a *different* disk or volume. Never back up over the only or most recent copy of your file. You should have several different backups at all times.

When to back up

You should back up:

- as often as necessary to be sure you can restore all of your data in an emergency.
- before you make a major or irreversible change like deleting records, deleting a field, or replacing data using the Import or Replace features.

Remember, it takes far less time to back up a file than it does to recreate a lost or damaged file!

For more information

This lesson has shown you one way to protect a database. For other ways to prevent and overcome difficulties with your files, see FileMaker Pro Help.

