



LEVERAGE TUTORIAL

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Using this Document

This document is intended to be an introduction to the use of Leverage. It leads you through loading Leverage, starting it, creating a sample database, acquainting yourself with some of Leverage's features by looking at this database, defining your own database, customizing it, and defining a second, more complex database. It assumes you follow along with the directions, performing them as they are requested. I know it's more fun to just poke around in the program and see what happens, but if you do, I may tell you to do something that doesn't make sense because you're not where I think you are.

A complete run through requires about two and a half hours. If you have to stop and restart later, Leverage will try to remember what you were doing the last time you used it and return you to approximately the same place the next time you invoke it.

Typographical Conventions

Instructions asking you to do something are underlined, like this: don't panic.

Trademarks

Leverage is a trademark of Balcones Software. Newton is a trademark of Apple Computer, Inc. Other product names are trademarks of their respective manufacturers.

Introduction

Leverage is a straightforward implementation of a multifile database for Newton technology devices such as the Apple MessagePad. Leverage emphasizes the description of the

information you are interested in rather than the design of layouts and screens. Having described the information, you get reasonable screens automatically and these can be customized easily if necessary.

This tutorial is intended for users of Leverage version 3.0. If you are using version 1.5 or earlier some of the screens will look different. Leverage version 3.0 is intended for Newton devices running version 2.0 of the Newton operating system or later, such as the Apple MessagePad 2000 or 130 and the eMate 300 (and later models of the MessagePad 120). It will not run on earlier Newton devices such as the MessagePad 110. On these devices you should use Leverage version 1.5.

Limitations

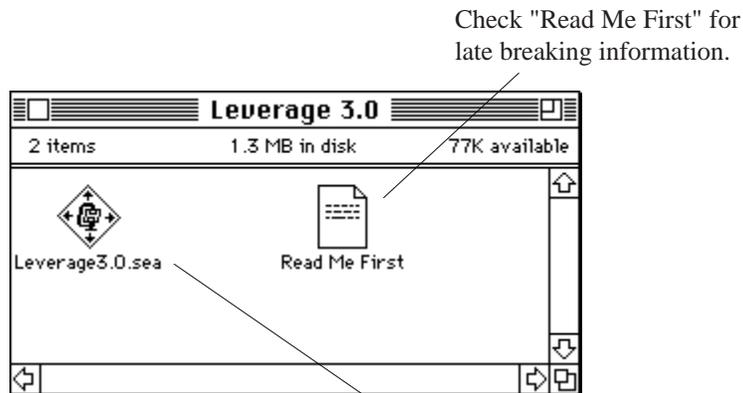
Leverage does not support:

- custom single record views (i.e., you can't "paint" a screen layout)
- horizontal scrolling in list view (although this can be simulated in a fairly straightforward way)
- links that display additional information to assist you in choosing from among the list of possibilities. For example, a link to the part number field in the inventory database can be set up, but it can't also display the description in the pop-up list to help you choose the right part number.
- structured fields (i.e., fields that contain fields, either via subrecords or arrays)

Some of these limitations may disappear in future versions of Leverage.

The Macintosh Distribution Diskette

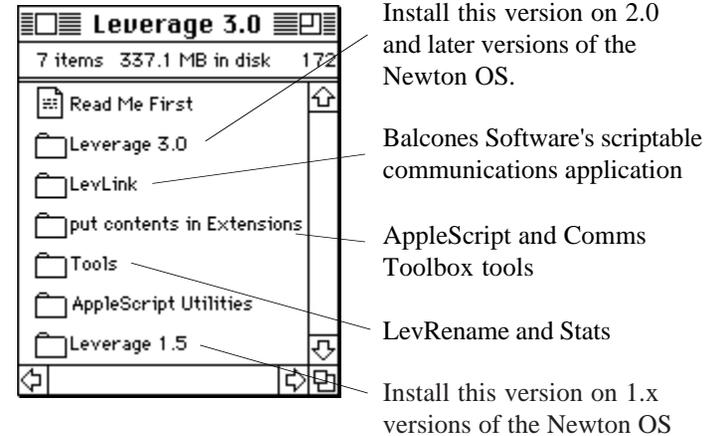
The Macintosh diskette contains a self-extracting archive which you must expand before you can access Leverage and its supporting files.



Double-click on the self-extracting archive to expand it onto your hard disk.

Macintosh Leverage diskette

Once the self-extracting archive has been expanded onto your hard drive you will have a Leverage folder containing Leverage and other files:



Leverage folder

Among the files are:

- Leverage.pkg,
- LevLink,
- LevRename.pkg,
- communication stationery,
- database samples,
- code samples.

Leverage.pkg is the Newton installable package that includes the Leverage application. There are two copies. One in the Leverage 3.0 folder and one in the Leverage 1.5 folder. Install the package from the Leverage 3.0 folder on Newton devices running version 2.0 or later of the Newton operating system. Install the package from the Leverage 1.5 folder on Newton devices running earlier versions of the Newton operating system such as 1.3.

LevLink is Balcones Software's simple, scriptable communications program for MacOS computers that can be used when importing, exporting, and synchronizing with Leverage.

LevRename.pkg is the Newton installable package that includes the Leverage Renamer application. This utility application is used to rename databases and tables. It is found in the "tools" folder.

The communications stationery folder is called "connection" and is found in both the "Leverage 1.5" and "Leverage 3.0" folders. It contains stationery documents that can be used with various communications packages to exchange data with a Macintosh.

The database samples folder is called "samples" and is found in both the "Leverage 1.5" and "Leverage 3.0" folders. It contains text files that, when imported into Leverage, will create Leverage databases. Some of these correspond to the example databases used throughout the tutorial and manual. Others are simply useful databases or databases that illustrate ways to use Leverage. You can use them as they are or change them to fit your needs.

The folder named "put contents in Extensions" contains the runtime for AppleScript (used by Leverage's FileMaker connectivity tools) and communications tools (used by LevLink). Actually the files in this folder can just be dragged into the System folder and the Finder will automatically put them into the Extensions folder. However, you may not need them. You may already have AppleScript (for example, if you are running System 7.5 or later) and parts of the Communications Toolbox tools are delivered with some packages. If you are the cautious type you might try dragging the files into the System folder one at a time to see if the Finder alerts you that you are trying to

replace a newer file (which you should not do — replacing an older one is probably OK).

The Windows Distribution Diskette

Unlike the MacOS diskette, the Windows diskette contains no system software and is not archived, so all you need to do is copy it to your hard drive. The directories on the Windows diskette are similar to the folders on the MacOS diskette, except that there is no LevLink directory and, of course, no "put contents in Extensions" directory.

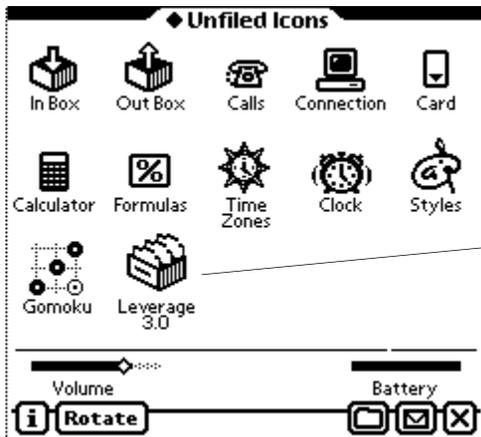
Installing Leverage

You can install Leverage on a card or in internal memory as you prefer. If you have a 2 megabyte MessagePad 120 or any of the more recent Newton devices such as the MessagePad 130 or 2000 or the eMate 300, it fits comfortably in internal memory with no need for a card unless your databases will be large.

Install Leverage according to the directions for the Newton Package Installer or the Newton Backup Utility. If you are installing it as an update or replacing a demo version, see the version 3.0 addendum for more details

Using Leverage

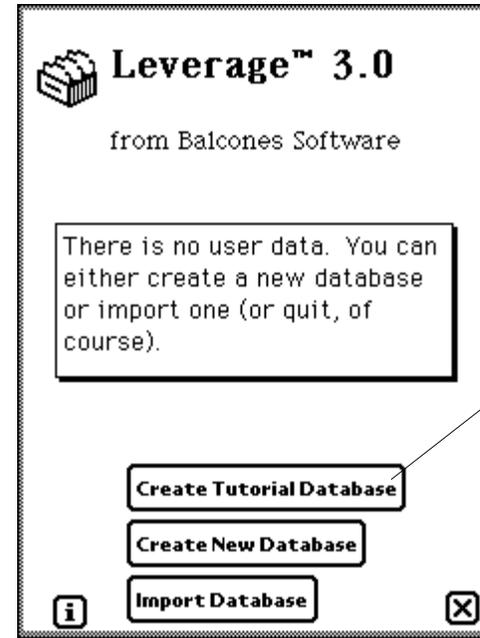
Once Leverage is installed its icon appears in the Extras drawer:



Tap on Leverage's file drawer icon to start Leverage.

Extras Drawer

Start up Leverage by tapping on its icon. Part of the way through start-up Leverage will close the Extras drawer. When it is finished starting you will be looking at the welcome screen:



Tap here to create the tutorial database from your Names file.

Welcome Screen

Since Leverage starts out in user mode (as opposed to expert mode) and there is no user data we have a choice of either defining a new database or importing one. To get things off to a quick start, we'll create a database patterned after the Names application. Leverage will not only create the database for us, but it will copy the data in our Names file into Leverage. Since the data should be familiar, we can concentrate on the techniques Leverage provides for viewing and manipulating the data.

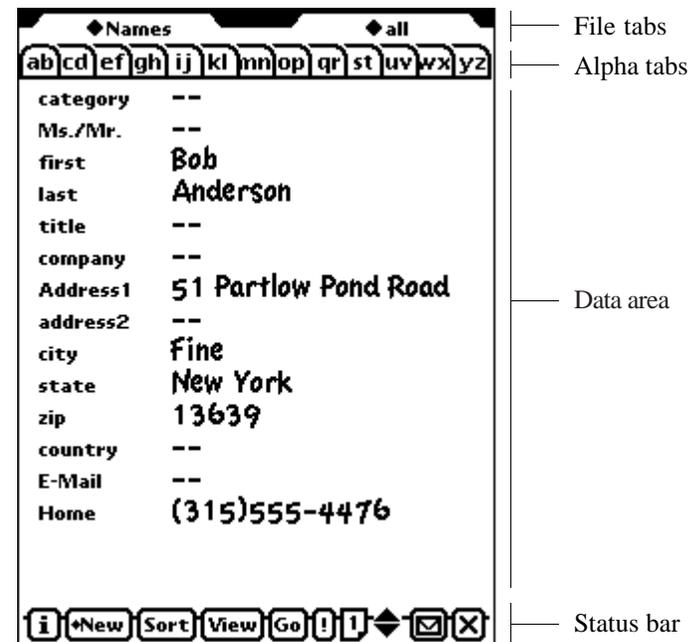
Creating the Tutorial Database

To create this database tap on the button in the middle of the welcome screen labelled “Create Tutorial Database”. Leverage will go to work creating the database and populating it with data from your Names file. When it is finished the welcome screen will disappear and Leverage will take you to the new database.

You will be looking at a single record in the newly created names database.

Leverage displays data in two ways: one record at a time (single record view, which you are seeing now) and a tabular list of records (list view, which you will see in a moment). Leverage can also use both methods simultaneously in split view, with a single record on the top and a list of related records below. For more information on split screen view see the version 3.0 addendum.

Single Record View



Single Record View

The main areas of the single record view are:

- the two file tabs at the top. The one on the left is the database file tab. It identifies which database is currently active. It is also used to move from one database to another, create new databases, modify database definitions, and delete databases. The tab on the right is the query file tab. It identifies what selection of records is currently active and is also used to choose and define new selection criteria or queries.
- the alpha tabs just below the file tabs. The alpha tabs are

used to move quickly from one part of a database to another based on the current sort field. For more information on the alpha tabs see the version 3.0 addendum.

One Note: please do not tap on the alpha tabs during the tutorial — particularly during the first part dealing with the Names database. If you find yourself unable to resist, there is an excellent chance your records may seem to vanish. They're still there. You're just looking for them in the wrong place. If this happens, either quit Leverage and start it back up or go to single record view (about which more in a moment) and tap the up or down arrow (or change sort fields, or use the Go button, or...) This, unfortunately rather surprising behavior is not a bug, but evidence of a peculiarity of the Names data. Now is not the time to go into the details.

- the data area in the middle of the screen that shows the current record from the active database. Field labels are on the left in bold and the actual data is on the right (similar to the way information is presented in the Names application when Show All Info is chosen).
- the status bar with several buttons that can be used to sort, print, create, and delete records (and a few other things as well).

The database file tab is used primarily to move from one database to another, the alpha tabs are not discussed in this tutorial, and the status bar, although useful in single record view, is more clearly explained in list view, so let's look at the data area.

Data Area

Category	--
Ms./Mr.	--
First	Bob
Last	Anderson
Title	--
Company	--
Address1	51 Partlow Pond Road
Address2	--
City	Fine
State	New York
Zip	13639
Country	--
E-Mail	--
Home	(315)555-4476

Field labels Data

Active field

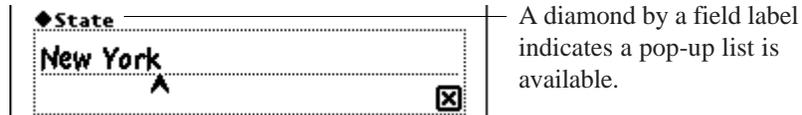
Close box

Data Area

This should be familiar to users of the Names application. The pieces of information (or fields) are identified by boldfaced labels running down the left side of the screen. The actual data is on the right of the screen to the right of the corresponding label, with one exception. The exception is the currently active field. It is represented by a box with the value inside and the label above the upper left corner. In the figure above the currently active field is the “First” (i.e., first name) field. An inactive field is made active by tapping on it or on its label. This closes the currently active field and opens the new one. You can also close the currently active field by tapping its close

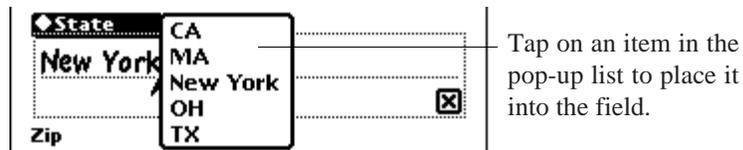
box in the lower right corner of the field's box.

If the label for the active field has a diamond to its left, you can tap on the label to select from a list of choices for the value of that field. (Except for date and date/time fields, as we shall see in a moment.)



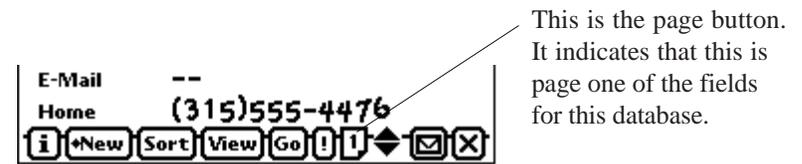
A Field with a Pop-up List

If the “State” field is open in the Names database, you can tap on the “◆State” label and see a pop-up list. (The actual states that will appear depends on what states you had in your Names file.) Once the list is displayed, tapping in it sets the field to the value selected. Tapping anywhere else dismisses the list without making any changes.



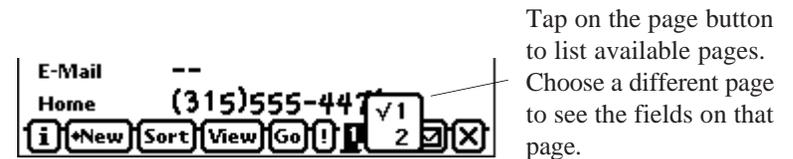
Choosing from a Pop-up List

The “Category” and “Ms./Mr.” fields also provide pop-up lists. Experiment with these fields, tapping on the diamonds to see what values are provided in the lists. (You’ll have to open the field first by tapping on it before the diamond will be visible.) Again, what values appear in the pop-up list depends on what values you had in your Names file.



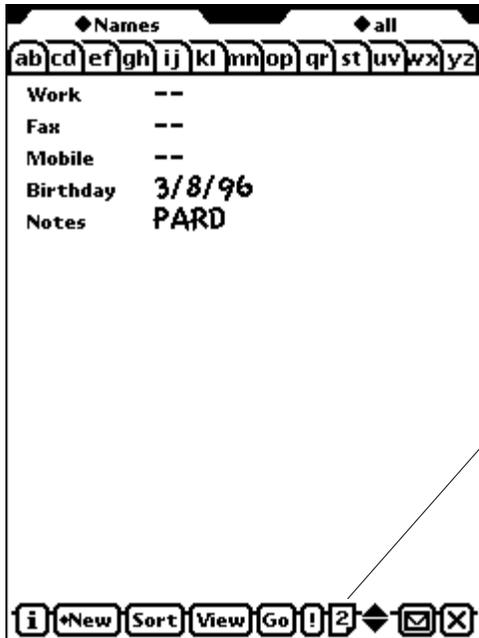
The Page Button

As shown in the figure above, this database has more fields than can be displayed on the screen at one time. Leverage indicates that this is so by placing a “1” in the page button on the lower right. When all the fields fit in a single screen the page button is blank. (This database fits on a single screen in portrait mode on a MessagePad 2000 or eMate 300. To see the page button in action you can change the orientation of the screen with the “Rotate” button in the Extras drawer.)



Moving to Another Page

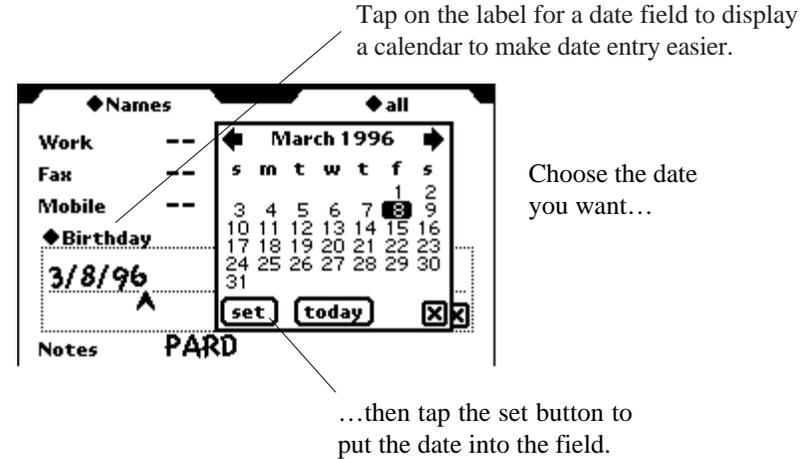
Move to the second page of fields by tapping on the page button and choosing “2” from the pop-up list that appears.



This is page 2.

Page 2

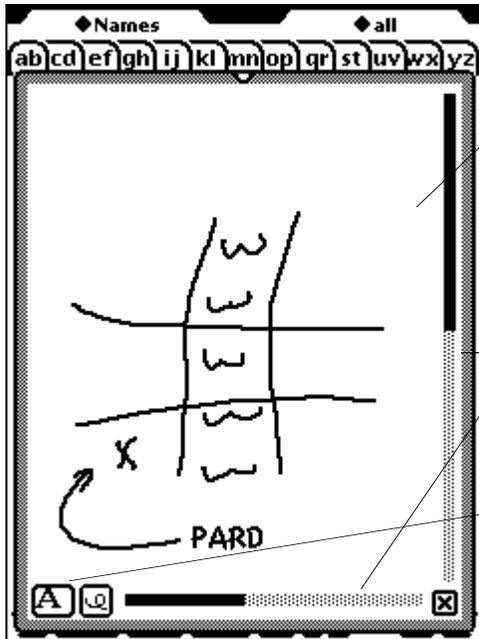
Page 2 includes a date field (Birthday) and a note field (Notes). Date fields are used to store dates, of course. Date fields have diamonds next to their labels, but tapping on the diamond produces a small calendar rather than a pop-up list.



Date Field with Calendar

Open the “Birthday” field and tap on its label to see how the calendar works.

The “Notes” field is an example of a field that allows entry and viewing of both graphics and text. Open the “Notes” field by tapping on it. This will automatically open a larger floating window that you can write and draw into just like the built-in Notes application.



Tap on the Notes field to open a large window for entering text and graphics.

Use the elevators to scroll through the note.

Control text and graphics recognition with the recognizer buttons.

Close the note window by tapping in its close box.

Note Field

Use the buttons in the lower left to control text and graphics recognition.

If there is more information than will fit in the window, you can use the scroll bars on the right and bottom to move through the contents. Either drag the darkened portion of the bar or tap in the lighter part of the bar to move. (You can't use the arrows at the bottom to scroll through the note. They are used to move from record to record.)

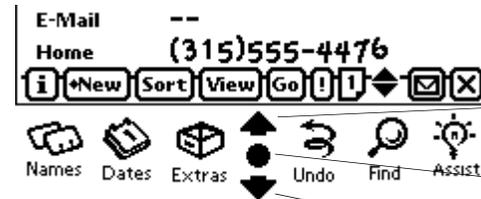
Close the large note window by tapping in its close box in its

lower right corner.

Leverage uses the current styles setting to determine what size text to display in note fields. (You can find and change the styles setting in the Extras drawer under Styles: )

Return to page one of the database (tap on the page button and choose "1").

Navigation



Use the up and down arrows to move from record to record.

Tap the up arrow to move to the previous record.

Overview button

Tap the down arrow to move to the next record.

Moving from record to record

Move from record to record in the database using the up and down arrows. On a MessagePad 120 or 130 they are permanently placed on the bottom of the screen as shown in the figure above. On a MessagePad 2000 they are on the button bar (and you have some control over its placement using the "Rotate" button in the Extras drawer). On an eMate 300 they are in the center of the top row of buttons and are labeled "scroll". Use the down arrow to move to the next record and the up arrow to move to the previous record. Tapping the up arrow from the first record in the database wraps to the last

record (the down arrow from the last record wraps to the first).

Wherever the up and down arrows are located on your Newton device, the dot next to them takes you to list view to see a tabular list of the records in the current database. This dot is called the overview button. Tap it now to go to list view.

List View

Each column corresponds to a field. The columns are labeled with the field names in the header row.

Each row corresponds to a record from the database.

Tap here to enter a company for Royce Walthrop.

In list view the arrows move forward and back a screenful at a time.

Tap the overview button to return to single record view.

List View

The overview button is a toggle: it switches back and forth between list view and single record view. Tapping it again will take you back to single record view. (Leverage will return to the record you were previously looking at.) If your preferences are set appropriately, you can also go from list view to single record view by tapping on the record (row) you wish to see. When you do this only the field (column) you tapped is highlighted and this will be the field that is active when single record view appears. Suppose you want to fill in the company for one of the records. To do so, tap in the Company column for the record you are interested in. If your preferences are set to “Edit in List View when possible” (this is the default setting), Leverage will open a small floating window to let you edit the company field.

The list edit slip lets you edit data in list view.

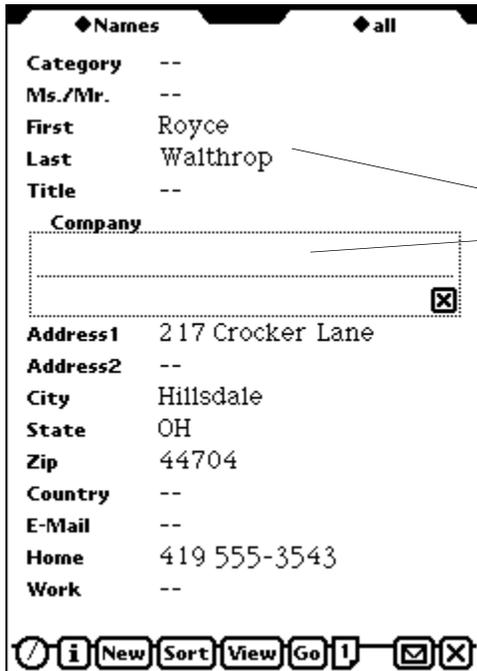
Tap on the single record view button to go to single record view for this record.

List Edit Slip

For more information on this small window see the version 3.0 addendum. For now, if it appears, tap on the single record view button in the lower left of the small window to go to single record view.

If your preferences were not set to edit in list view, Leverage took you directly to single record view for the record you tapped. (Whether the company field will be active when you get to single record view depends on yet another preference setting: it will be open provided you do not have “When

Editing Open” set to “No field”. However, this is the default setting, so, unless you’ve changed it, the company field will not be open. See Chapter 16 of the Reference Manual for more information on Leverage’s preference settings.)



Leverage has returned to single record view with the selected record active and the selected field ready for input.

Back to Single Record View

Make whatever changes you wish. When you’re done tap the overview button to return to list view. You can also switch between single record and list views using the “View” button. If you are in list view the last choice on the “View” button’s pop-up list will be “single”, meaning single record view. Choosing it will take you to single record view. If you are in single record view the last choice on the pop-up list will be

“list”, meaning list view. Choosing it will take you to list view.

Most fields can be changed directly in list view without going to single record view. For more information on editing in list view see Chapter 4 in the reference manual and see also the version 3.0 addendum.

In list view the arrow buttons move forward and backward in the list a screen at a time (and no wrapping from beginning to end occurs). If you have enough records in your Names database to fill the screen, tap the down arrow to move to the next screenful of records. A small message appears while Leverage is reading the data and reconstructing the screen to let you know it is working. You can tell you are at the end of the database when tapping on the down arrow doesn’t cause the “Please wait” message to appear. Similarly, if you tap the up arrow when you are already at the beginning of the database the message will not appear.

Rearranging List Views

You probably noticed that the arrangement of information in the list view doesn’t make ideal use of the screen area. Leverage does the best it can, but you have a better idea of how to arrange the columns than it does, because you know which columns are most important to you. Fortunately, it’s easy to rearrange the columns, change their widths, and even make them disappear to make more room for other information. We’ll see how to do this in just a moment.

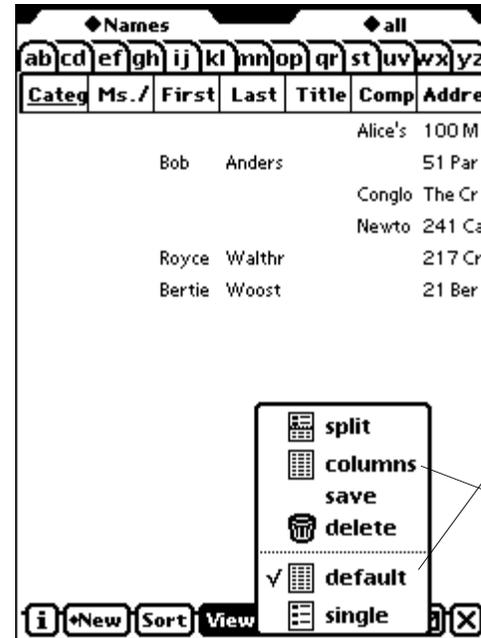
The default column arrangement is derived in the following way. Leverage first gives fields that it knows the width of just enough room to contain them (date fields and Boolean or true/

false fields). If you have specified the width of any fields Leverage gives them this amount (we'll see how you do this shortly). The remaining screen width is divided evenly among the remaining fields and the fields are presented in columns in the order in which they were defined when the database was created. There is a minimum width. Leverage will display few enough columns to keep the width above this minimum. That's why some of the fields don't appear in the default arrangement. This simpleminded approach is unlikely to show exactly the information we want to see, so let's make some changes.

Hiding and Displaying Columns

This database has more fields than will reasonably fit as columns in list view. The solution is to choose which fields to display, hiding the rest. Here we will show one way to accomplish this. For more information consult Chapter 5 in the reference manual.

Tap the View button at the bottom of the screen. A pop-up list appears. You will see that "default" is checked, indicating that the columns are arranged as Leverage guessed you might like to see them. Choose "columns" from the pop-up list so you can tell Leverage which columns to display.

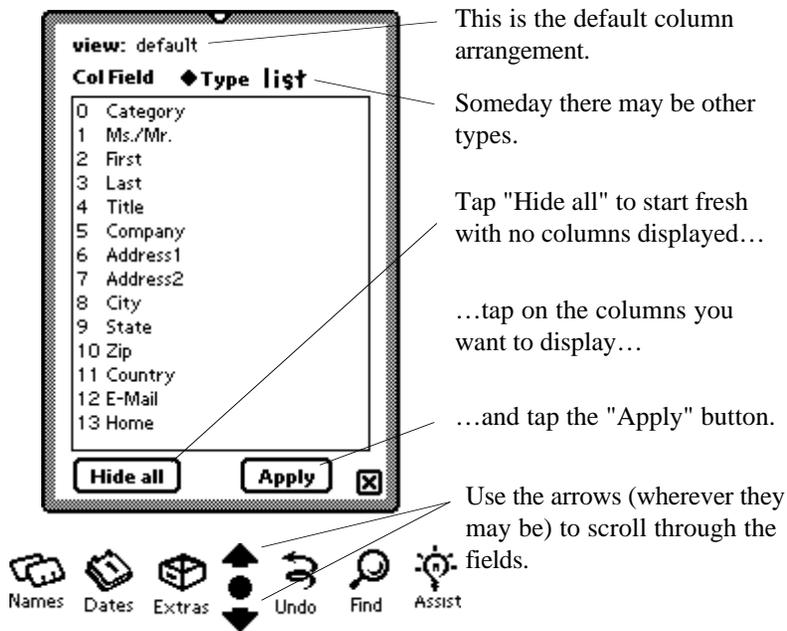


The current arrangement of columns is the default arrangement.

Tap here to choose which columns to display.

The View button

A dialog appears listing all the fields in the database with their column numbers.



This is the default column arrangement.

Someday there may be other types.

Tap "Hide all" to start fresh with no columns displayed...

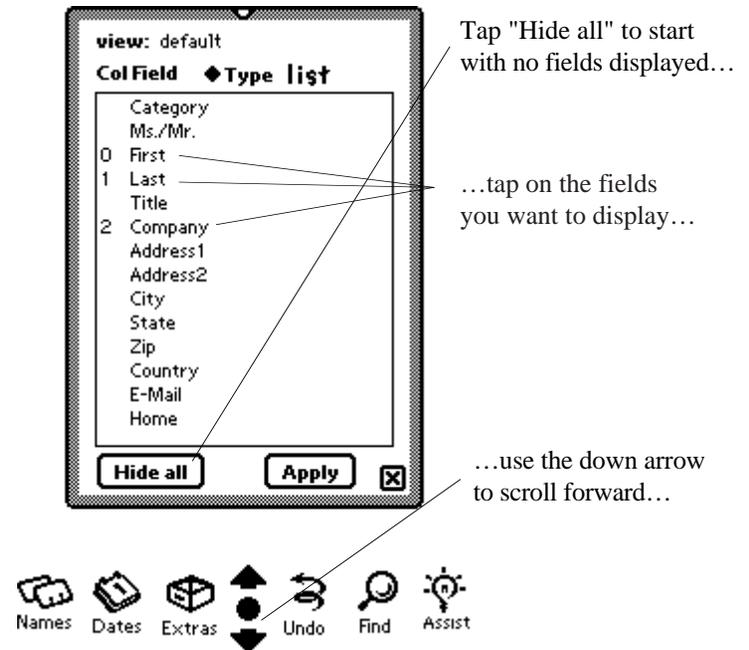
...tap on the columns you want to display...

...and tap the "Apply" button.

Use the arrows (wherever they may be) to scroll through the fields.

The Column table

Tap the "Hide all" button at the bottom of the dialog to start fresh with no columns displayed. Tap on "First", "Last", and "Company" to display these fields.



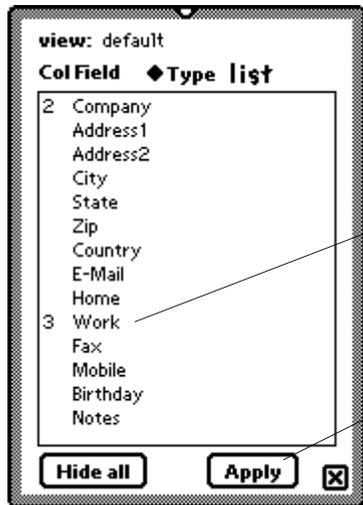
Tap "Hide all" to start with no fields displayed...

...tap on the fields you want to display...

...use the down arrow to scroll forward...

Displaying columns

Tap the down arrow to scroll down in the list of fields and tap on "Work" to display the work phone number.



...tap on "Work" to display it...

...and tap the "Apply" button.

More columns

Tap the "Apply" button to go to list view with the selected columns displayed.

Names		all	
First	Last	Company	Work
Bob	Anderson		
		Conglomerat	800 555-10
Linda	Thomas	Newton Cafe	
Royce	Walthrop		

List view

Changing Column Widths

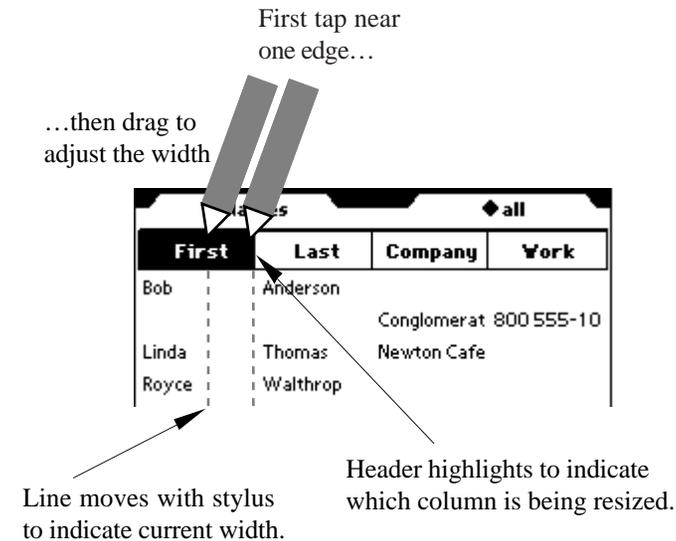
Leverage continues to divide the screen width among the visible columns, so that now the first and last name columns are somewhat wider than they need to be and we can't see all

of the work phone number column.

We will adjust the widths, making the first and last name columns narrower and the work phone column a little wider. Then the company name column gets whatever is left over. We say that the company name column's width floats. It is generally a good idea when adjusting column widths to let at least one column width float. This way it will get as much width as it can on whatever size "screen" is available. This is important when printing reports as well as when running on different sized Newton devices and switching between portrait and landscape display. If we made every field a particular width it would only take that much space even if we had more available (because we were printing a report, for example) so that we wouldn't see as much information as we could. It could also cause some of the fields not to be displayed if we were using a Newton with a smaller screen.

NOTE: You should probably read this entire paragraph before trying to change a column width. Leverage is not a spreadsheet and the method it uses to adjust widths is slightly different from spreadsheets. Column widths are adjusted by moving the edge of the column. You make a column wider by moving its left edge farther to the left or its right edge farther to the right. You make a column narrower by moving its right edge to the left or its left edge to the right. Since you'll sometimes be tapping almost between two columns, Leverage highlights the header for the column being resized so you'll know which column is being changed. To make the first name column narrower, place your stylus on the right of the "First" column header, just to the left of the line separating "First" from "Last", and hold it there. A vertical line will appear indicating the right edge of the column. (The line will not appear directly under the stylus. It will appear directly under the line separating the two column headers. If no line appears and the header

flashes once, you have tapped too far from the edge of the column. If you move the stylus Leverage will think you are trying to rearrange the column order, which is covered in the next section, and if you lift the stylus without moving it Leverage will display a small dialog labeled “Column Format”. Just close it and try again, closer to the column edge.) Move the stylus to the left, keeping it in contact with the screen, and the line will move with it. When the position of the line looks right (just a little wider than the names displayed) lift the stylus. Leverage will redraw the list with this new width for the first name column. The following diagram may help.

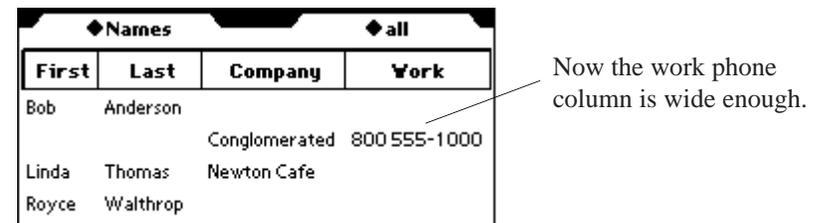


Resizing a column

Do the same thing for the last name column. Place the stylus near the right margin of the last name column header (just to the left of the line separating “Last” and “Company”) and drag

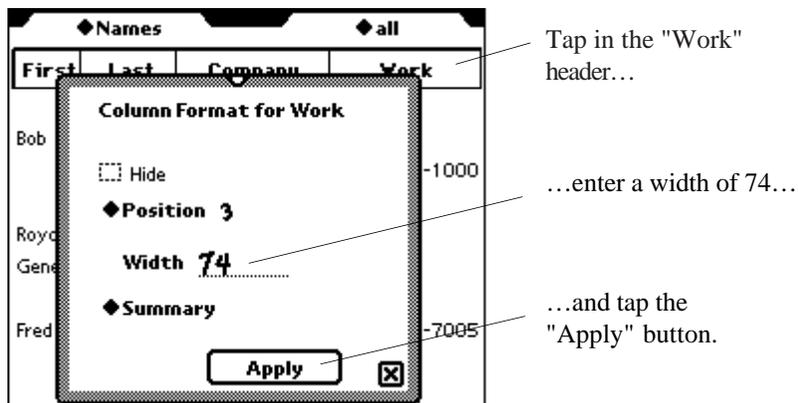
the resulting line leftward until there is just enough room to display the names.

Leverage is still dividing the remaining space between the company name and work phone columns. This is fine for the screen. In fact, by making the first and last name columns narrower we have probably made the work phone column wide enough to display the complete phone number.



Columns resized

However, if we print this view, dividing the space on the page between the company name and work phone number will give the work phone number more space than it needs. Let’s be specific about how much space we want to give the work phone column rather than letting it float. Tap (and release) the “Work” column header. The Column Format dialog is displayed.



Setting the column width

Enter a width of 74 (if it is already 74, enter a width of 75) and tap the "Apply" button. The screen will be redrawn. (The difference will probably not be apparent unless the layout is used to print a report.) This method of setting a column's width is particularly appropriate when the change is a small one. Leverage will interpret small changes using the dragging technique described above as requests to open the Column Format dialog.

Rearranging Columns

Now let's rearrange the order in which the columns appear, making the work phone number appear between last name and company.

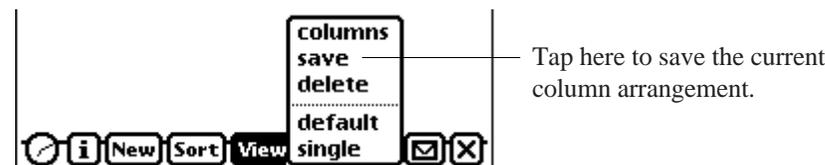
You might want to read the next two paragraphs completely before trying to move the work phone column. To move the work phone column to the left, place your stylus near the middle of the boldfaced word "Work" at the top of the work phone column and drag it to the left without lifting it. When

you've moved it to a point between "Last" and "Company", lift the stylus. The screen will be redrawn with the work phone column between last name and company. Leverage presents an alert with the message "Please wait" as it reconstructs the screen to let you know it is working.

Potential problems when moving a column: If the column format dialog appears when you are trying to drag a column, just close it and try again. If a vertical line appears on the right or left edge of the column, you've tapped too close to that edge of the field. Leverage thinks you want to resize the column width. Simply lift your stylus without moving it. This will cause the column format dialog to appear. Just close it and try again. Of course, rather than dismissing the column format dialog you can also use it to move a column (by changing the "Position" field in the "Column Format" dialog — in this case by changing it from 3 to 2), but then you won't be practicing your column dragging skills. For more information about rearranging columns, see Chapter 5 in the reference manual.

Saving Views

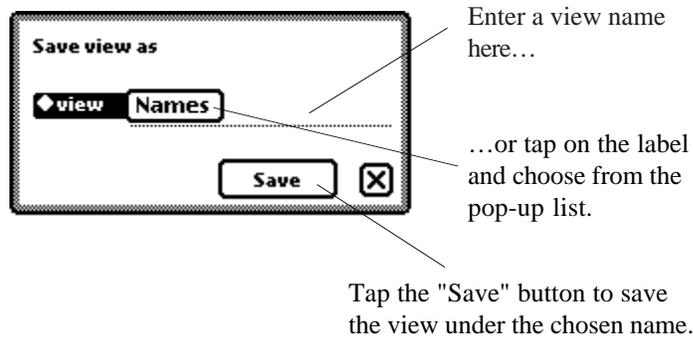
To save this view tap on the View button. You will notice that nothing is checked. This indicates you are using an unnamed view. Choose "save" to save the current arrangement with a name.



Saving a view

A floating dialog appears asking what name to save it under.

The input line labeled “view” has a diamond next to the label, suggesting there is a pop-up list available. In this case you can give the view the same name as the database by choosing from this list. (Leverage attaches no special significance to a view with the same name as its database — it just seems like a likely candidate for a name.)



Naming a view

Enter whatever name you would like and tap the save button.

If you tap the view button again you will see that your view name is checked, indicating that it is being used. (You can tap outside the pop-up list to dismiss it without changing anything.)

Queries

To select a portion of a database to look at you use the query file tab at the top of the screen on the right. Just as the database file tab indicates the current database, the query file tab indicates the current selection of records from that database. At the moment it should be labeled “◆all”, indicating that all the records in the names database are in the current selection.

This is the database file tab. The records listed are from the Names database.

This is the query file tab. The current selection includes all records.

◆ Names		◆ all	
First	Last	Company	Work
Bob	Anderson		
		Conglomerated	800 555-1000
Linda	Thomas	Newton Cafe	
Royce	Walthrop		

File tabs

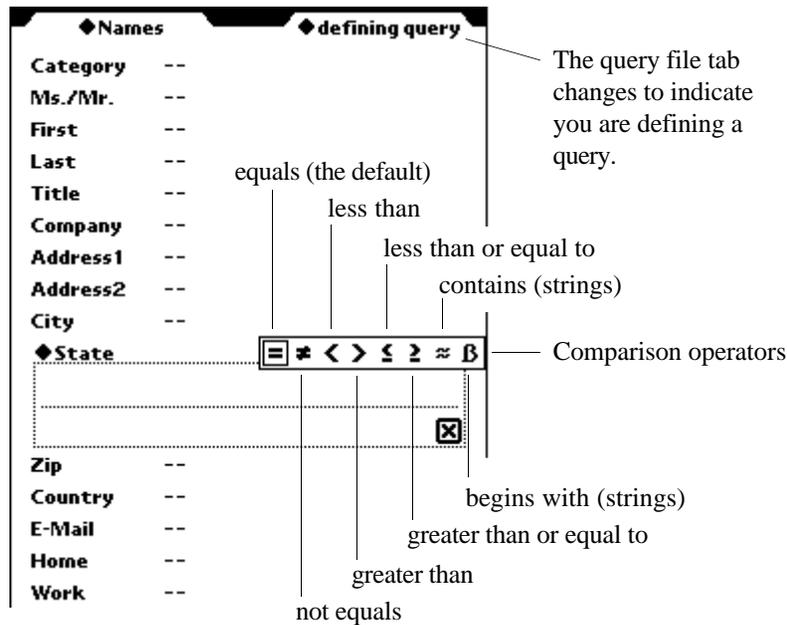
Suppose we’re interested in seeing all the people from New York. We’ll filter out the others by defining a query. Tap the query file tab. “all records” is checked, since we are looking at all the records in the database. Choose “new query” to indicate you want to define a new query.

Defining a Query

Leverage takes you to single record view to define your query. You define a query by filling in a record with the values you want to look for (or exclude). Usually when you enter single record mode one of the fields is open. However, in this case none of the fields are open because none are defined to be part of the current query. You can tell that you are in the process of defining a query rather than simply looking at an empty record by the label that appears on the query file tab. It now says “defining query”.

In this case we want to look at records for which state equals New York. Tap on the “State” field (or label) to open it. To the

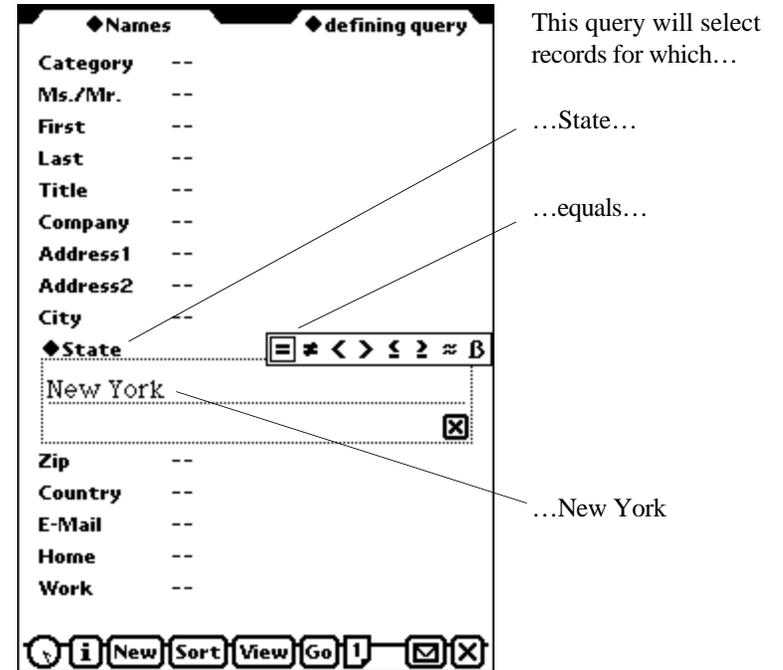
right there appears a list of comparison operators to choose from.



Defining a query

Most of the operators are easy to interpret. The last two are conventional. The “≈” is intended to mean “contains” and can be used to search a string, text, or note field for the presence of a word, string, or substring. The “β” is similar and is intended to represent “begins with”. The equals sign is already highlighted since it is the default comparison. Since we are interested in records with State = New York, we can leave the comparison operator alone. We only need to enter the New York. Then tap on the State label to bring up the list of possible values and choose “New York”. If New York doesn’t

appear in your list, either enter it in the field box or choose a different state. (If you have to enter New York by hand the query will return no records since all the states in your Names database appear in the pop-up list. If New York isn’t in the list, there aren’t any records from New York in the database.)



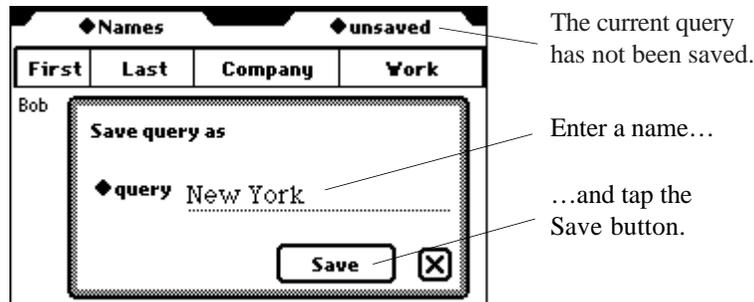
The query defined

You could close the field now, but you don’t have to. We’re finished defining this query, so we execute the query by tapping the query file tab and choosing “search”. The query file tab stays highlighted and changes to “searching” to show Leverage is searching for records that satisfy this condition. Since we started in list view, Leverage takes us back to list

view to see the results of our query. (Had we started in single record view, Leverage would have left us there, showing the first record satisfying our query.) We can't tell the records selected are from New York (or whatever state we selected) if we're in the list view we defined above, since the State field isn't included in the columns displayed. We could go to single record view to confirm that they are indeed.

Saving the Query

The query file tab has changed its label once again, this time to "unsaved". This indicates that the active query has not been saved under a name. To save your query so that you can reuse it without having to redefine it (and so Leverage will remember it as the current query), tap the query file tab and choose "save". A dialog appears much like the one you used to save your view earlier.



Saving a query

Enter a name for the query ("New York", for example) and tap the Save button. (Unlike saving views, you cannot tap on the label to select the database name as the query name. This is because it is probably never a good idea to name a query after the database since then the two file tabs at the top would look

confusing.) Now the query file tab shows that your query is active.

Other Stuff

We haven't touched on the New button, the Sort button, or the Action button (the little button that looks like an envelope next to the close box). We'll look at them in the database we're about to create.

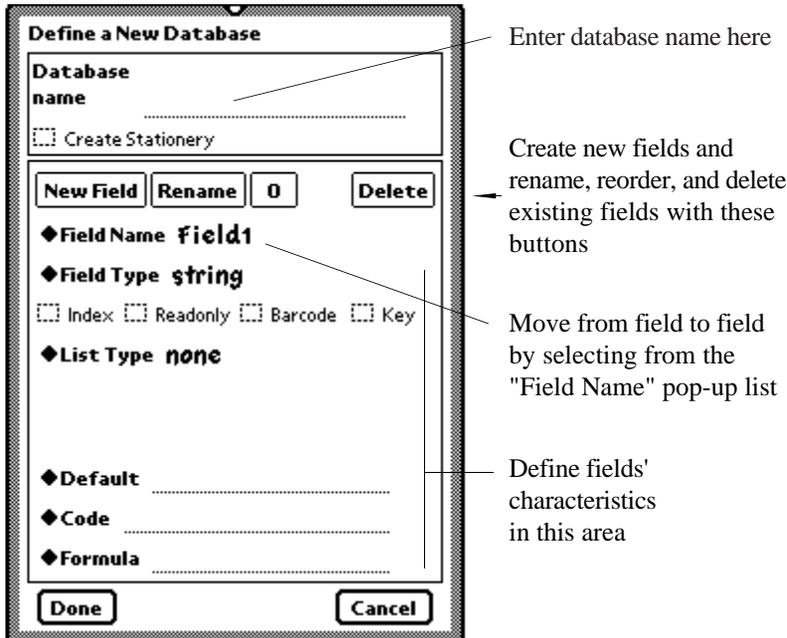
Creating a New Database

To illustrate more of the features of Leverage and to get you started on using it for your own information needs, let's create a new database (or maybe two).

First we'll create a database to keep track of groceries. Keeping your grocery list in Leverage has several advantages over keeping it in the Notes application or on paper. The information we'll keep in the database will include item (i.e., what we're buying) and what aisle it's on in the store where we usually shop. If we shop in several stores we can have an aisle field for each one. We could even have different views that display the appropriate columns depending on which store we're in if we're really into technological overkill. We'll also have a field to indicate whether we need the item. That way, rather than having to remember how to spell broccoli each time we need it and then deleting it after we've bought it, we'll enter it once and just note whether we need it or not each time we shop. We'll be less likely to forget something, since we can look at the list of things we usually buy when deciding what we need this time. So we can predict the total to spend, we'll also include a field for price.

Tap the database file tab at the top of the screen. Unless

you've been poking around on your own it should still say "Names". Choose "New database" from the bottom of the list that appears. A dialog appears to collect the information Leverage needs to create your database.

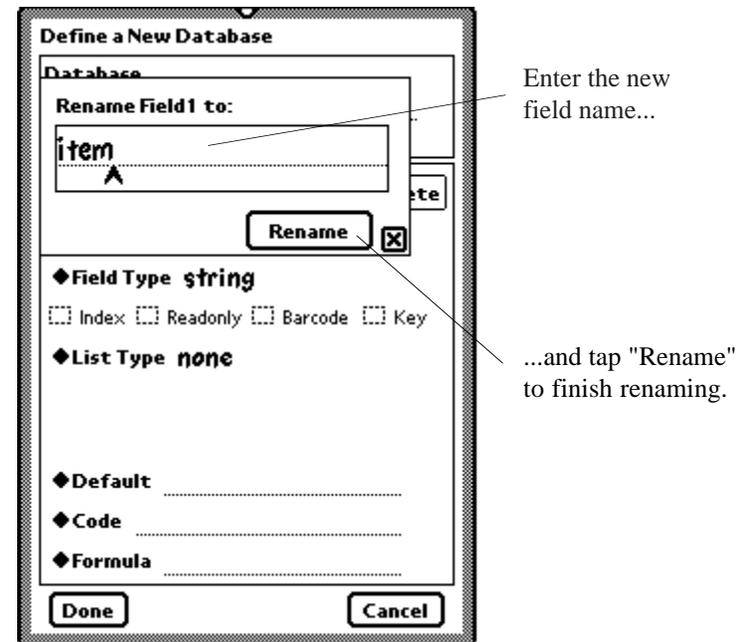


Create database dialog

Start by naming the database. Since it's intended to keep information about groceries, we'll call it groceries. Enter "groceries" into the field at the top labeled "Database name".

Next we enter descriptions of the information we're keeping about our groceries. Leverage is already offering a field name of Field1, but that's not very descriptive. Tap the Rename button. A small view will appear asking you what you would

like to change the field name to.



Renaming fields

Scrub out "Field1" and replace it with "item" and tap the "Rename" button. The field type can remain "string" indicating that the item will be a short textual description of what we're buying (i.e., it'll be text, but only a word or two, not a paragraph). We'll often want to see our list in alphabetical order by item, so go ahead and check the Index check box. Ignore the remaining fields and tap the "New Field" button.

Again, Leverage's offered name of Field2 can be improved on. Change the field name to "aisle". (Leverage automatically opens the small rename pane for you, so scrub "Field2", enter

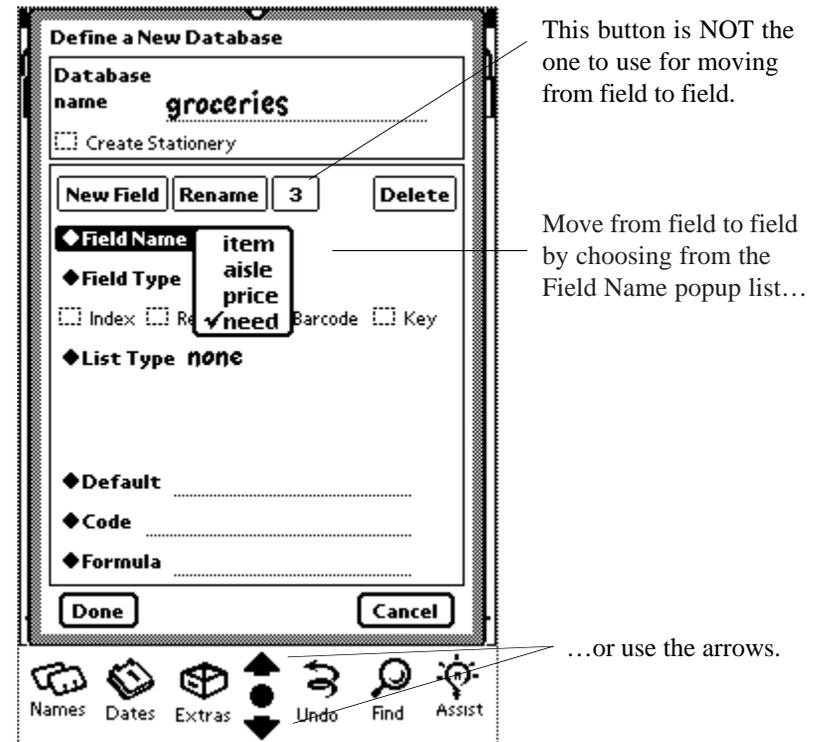
“aisle”, and tap the “Rename” button.) If you know the aisles in your stores are all numbers you can tap the Field Type label and choose “int” as the field type from the list that appears. (“int” refers to integers, i.e., whole numbers like 3, 5, and -6. Of course, in this case negative numbers wouldn’t make sense, but “int” is the field type that is closest to the range of values we want to allow.) Otherwise (to allow for aisles like 13a) leave the Field Type a string. We want this field to be indexed as well since we may want to look at the items we’re buying sorted by aisle to speed our path through the store, so check the Index check box again. Tap the “New Field” button to create the third field.

This will be the price field. Change the field name to price. Change the type to “real” by tapping the “Field Type” label and choosing “real” (real fields are for numbers with decimal places like 3.1416 or 98.6). A “Decimals” pop-up list appears allowing you to specify the number of decimal places to use when displaying prices. Leave it at the default of 2. Now tap the “New Field” button to create the last field.

The last field will be the one we use to indicate whether we need the item, so change the field name to “need” and change the type to “Boolean”. A Boolean field is one that can take on only two values, true or false, like a check box which can either be checked or unchecked. We either need an item or we don't, so a Boolean field is appropriate here.

At any point during the definition you can return to a field and review or change its definition by choosing it from the list that appears when you tap on the Field Name label. If you tap on it now you will see the four items we have defined: item, aisle, price, and need. Need is checked since it is the field we are currently looking at. If you choose another field Leverage will bring up its information for you to review or change (for

example, if you’re having second thoughts about the type of the aisle field). You can also move from field to field using the usual up and down arrows.



Moving from field to field

That’s everything, so tap the Done button at the bottom of the dialog.

Leverage automatically takes you to the newly created database, so you can immediately start entering data.

Entering Data

To enter new records into your database, tap the New button on the status bar. (By my reckoning you are in list view, so you need to tap New to enter a new record. If you're in single record view you are already looking at an empty record and can simply start filling it in.) The "New" button stays highlighted while Leverage is preparing the screen. Enter "milk" as the item. Assuming the price to be about \$2.00, tap on price and enter 2.00. Note that just as in other Newton applications (such as the Names application) double tapping in the field will bring up an appropriate keyboard. In the case of the price field, for example, the keyboard would be numeric. Lastly tap on the need field to set the value to true (tapping a Boolean field causes it to switch between true and false). Then tap New again to bring up another empty record. In this case the boolean field closed automatically, but you never have to close a field you've changed before tapping "New" (or moving to another record or another database, etc.) Leverage saves the change for you automatically. As before enter an item , a price, and note that you need it. Then tap the overview button (the dot next to the up and down arrows) or choose "list" from the View button to go to list view.

Adjusting the Formatting

There is your data, but the formatting could be improved. Move the need column to the far left so it will be near the item name and then make the aisle and price columns narrower. Then save the view as "groceries" (tap the View button on the status bar, choose save, enter "groceries" as the view name in the resulting dialog, choosing it from the "view" label's pop-up list, and tap the Save button in the dialog). NOTE: moving the need column is slightly tricky since it's so narrow. Leverage decides whether you are moving a column or resizing it by how

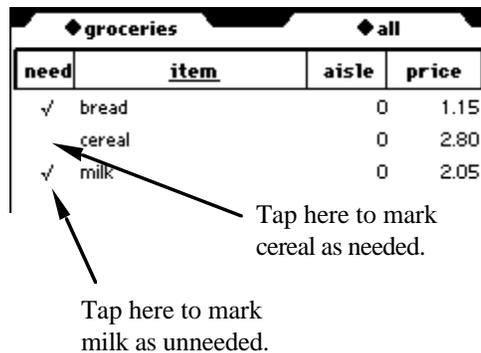
close you tap to the edge of the column. Since the need column is rather narrow, it's easy to tap too close to the edge and get the resize line instead of dragging the column. Alternatively, you could simply tap in the header and change the "Position" field in the resulting "Column Format" floater. You could also try moving the other columns to the right instead of moving the need column to the left. This would be easier since they are wider so you would be less likely to tap near the right edge by accident, but that would require three moves to the right rather than just one to the left.

Defining a Query

When you're deciding what you need to buy you'll probably want to look at all the items. That's easy. If the query file tab doesn't already indicate "all", just tap it and choose "all records". The other selection you're likely to be interested in is those items that you need, so you should define a query that only displays those items for which need is true. To do this tap the Query file tab and choose new query. Leverage takes you to single record view so you can describe the records you're interested in. Tap the need field to open it and tap in the field box to change the value to true (or "√") (the equals sign is already chosen by default so leave it). The query is defined now, but it isn't saved. It should probably be possible to save it at this point (i.e., give it a name), but it's not. Only active queries can be saved. So tap the Query file tab (which now reads "♦ defining query") and choose "search" to execute the query. Leverage now displays only those items that are checked as needed. Now that the query is active you can tap the Query file tab again and choose save. Put a sensible name ("needed", for example) in the dialog that appears and tap the Save button in the dialog. Now when you are in the grocery store you can tap the Query file tab and choose your query to see only those items you need.

Using the Grocery List Database

One special note about this database. Since Boolean fields can only take on two values (true or false) a simple tap is all that is needed to tell Leverage to change the value. Thus, when looking at all items in list view (if all isn't already selected tap the query file tab and choose "all" to see all your items) it isn't necessary to go to single record view to note that an item is needed. Simply tap in the correct row in the need column and the item will be checked as needed (or, if it is already checked, it will be unchecked).



Noting whether an item is needed

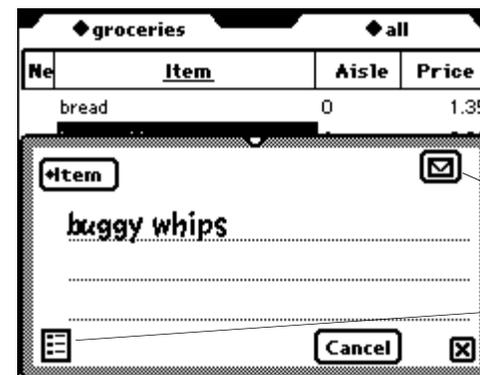
Then when you choose the query that shows only needed items (tap the query file tab and choose the query you defined above to see only the needed items) only those that are checked will be shown. To repeat, tapping on a Boolean field in list view doesn't take you to single record view — it just toggles the value of the field (provided "Edit in List View" is checked in your preferences).

Then, as you make your way through the store putting items in your basket, stay in list view and tap in the need column for

each item as you put it into your basket. Its record will disappear in the typical Newtonian puff of smoke. It's still in the database, it just doesn't satisfy your query any more since you're looking at needed items and it isn't needed. Choose query/all and you will see that it is still there. (Under some circumstances it may be necessary to scroll up or down to see it, of course.)

Deleting Items from the Database

Of course, sometimes you will want to delete a record from a database. To do so, go to single record view (tap on the row of the record you wish to delete, somewhere other than the need column and Leverage will take you to single record view with that record active.) With version 3.0 you can delete the record in the list edit slip that appears if "Edit in List View" is checked. See the version 3.0 addendum for more information. For now, if the small list edit slip appears, tap on the single record view button in the lower left of the list edit slip to go to single record view:



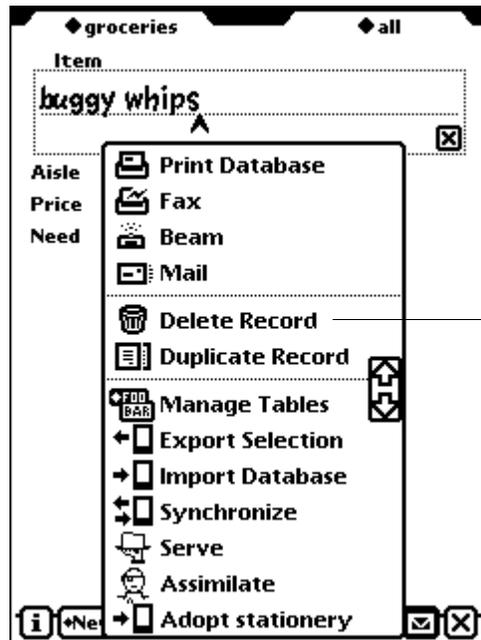
If "Edit in List View" is checked in Leverage's prefs, tapping on a row will open the list edit slip.

You could delete this record using the list edit slip's action button...

...but tap on the single record view button instead.

List Edit Slip

Once you're in single record view, Tap on the action button (the one in the lower right that looks like an envelope).



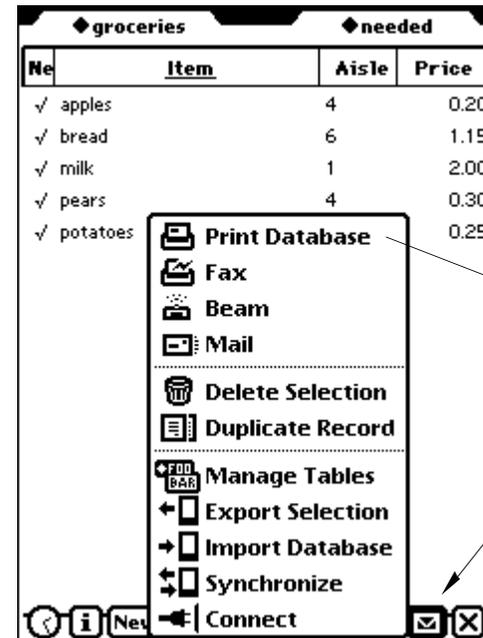
Deleting a record

Choose delete record and the currently displayed record will crumple and be consigned to the trash, revealing the next record. If you want to bring the record back, tap the undo button (↶).

Printing Reports

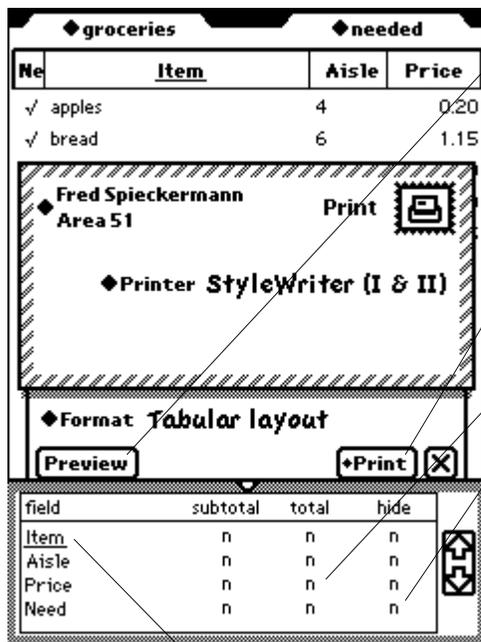
If you're going shopping, you'll take your Newton along, of course. Occasionally, however, you may want to print the list (Perhaps you're sending someone else to do the shopping. You

could lend them your Newton, but that's like lending someone your toothbrush.) To print the current selection in the current list view format as a report, tap on the action button and choose print database.



Reporting

It doesn't matter whether you're in single record view or not. Leverage always prints the current selection. It might be nice if the format selection in the printer dialog included options to print all records or the current record or some other named selection, but this isn't supported. If you want to print the report for all records, make sure all records are selected before printing the report. If you want to print a single record you will need to construct a query that selects only that record.



Tap here to get a vague idea of what the report will look like.

Tap here to print immediately or put the report in the Out Box.

Tap here to total the prices.

Tap here to hide (i.e., not print) the "need" column.

Scroll through the fields with the arrows if there are more than can be seen at one time.

The report will be in order by item. Tap "aisle" to print it in order by aisle.

Report Options

The options dialog allows you to change the field that the report is sorted by. It is displayed underlined in the first column. Tap on a different field to sort on it. (Boolean and note fields cannot be sorted on. If you tap on "need" nothing will happen.) You can choose to print totals and subtotals of the price field. Subtotals wouldn't make much sense in this case, but if you had major categories (dairy, fruit, grain, indulgences,

etc.) you could sort by these categories and produce subtotals for each one. Note that any columns that are hidden in the current list view will appear in the report options as hidden. You can choose to hide other fields if you wish, but you can't currently unhide a field that is hidden in the list view. All these fields are changed by simply tapping in them. For more information on report options, see Chapter 10 in the reference manual.

Tap on the "Preview" button if you want to look at an illegibly miniaturized simulacrum of your report. For the real thing, choose "Print". That puts the report in the Out Box (or you can choose to print immediately if you are connected to a printer). One note: there is some chance you will need to exit the application (or at least not be in list view) to successfully print. You can send as many reports to the Out Box as you like, but when you actually try to send it from the Out Box to a printer, you may run out of memory if Leverage is running. This is most likely if you are using a MessagePad 120 and are in list view looking at many records, each with many fields. Go ahead and try it, but you've been warned. For more information on memory usage see Chapter 10 in the reference manual.

Faxing

Of course, you might want to fax the report to the grocery or the person who'll be doing the shopping. Unfortunately, faxing with the Newton is trickier than one might hope. If the report is very long there is an excellent chance the fax will time out and fail.

Books Database

Next we'll create a database to keep track of books. This might be useful if you're a collector and wish to keep track of which

books you have and want for your collection. You think about it and decide the information you want to keep about each book is author, title, genre (mystery, science fiction, whatever), price, and date of purchase. If you don't own the book the date of purchase will be empty and the price might indicate how much you're willing to pay or how much you've seen it offered for sale for.

This database will illustrate some of the more advanced features of Leverage, but we'll still be doing things that don't require you to be in expert mode.

Assuming the print dialog (from the groceries example above) has been dismissed, tap the database file tab at the top of the screen. Choose "New database" from the bottom of the list that appears. The database creation dialog appears to collect the information Leverage needs to create your database.

Start by naming the database. Since it's intended to keep information about books, we'll call it books. Enter "books" into the field at the top labeled "Database name".

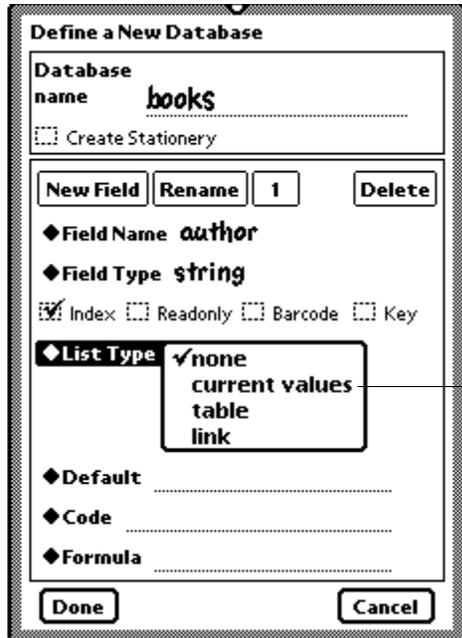
Next we enter descriptions of the information we're going to keep about each entry in the database (i.e., about each book).

Change the offered field name of Field1 to "title" (tap the Rename button, scrub "Field1" and enter "title", tap the "Rename" button). Leave the field type as string and check the index check box since we'll probably want to look at our books in order by title. (We can always choose later to see something in an order we haven't indexed, but if we know in advance the order we'll prefer then it makes sense to tell Leverage.) That's all for this field so tap the "New Field" button.

Listing Current Values

Change the Field2 name to "author". The type should be string and it should probably be indexed. We're not done with this field yet, however. It's likely you'll have more than one book in your list by the same author. We can take advantage of this and eliminate unnecessary writing by associating a pop-up list of current values with the author field. This means that when we open the author field in single record view there will be a diamond by the label. If we tap on the diamond we will get a pop-up list of all the authors currently in the database. In this way we will only have to write out "Sir Arthur Conan Doyle" (for example) once. After that we'll be able to choose it from the pop-up list.

Simply tap on the "♦List Type" label and choose "current values".



Current Values

That's all for this field, so we tap the "New Field" button.

Tables

Rename Field3 to "genre". Here we'll be keeping track of the type of book, whether reference, science fiction, mystery, romance, or whatever. Since there may be many books and only a few types, we would like to enter these few types once and then choose from them each time we enter a book. To do this we will use a table. This is similar to a current values list. Like a current values list it will cause the field to have a diamond and a pop-up list so that one can choose from a list of

possible values. One difference is that tables are generally faster than current values lists. Tables are probably more appropriate when the values one wishes to appear in the pop-up list are fairly static. Another issue is whether the values being listed could be used by another database. If so, a table is probably the right way to store them since tables can be shared. On the other hand, a table would be inappropriate for a very large number of values (more than fifty or so). In any case, for this field in this example we'll use a table.

As noted above, the field name should be "genre". The field type should remain string. I'll leave it up to you whether to index the field or not. Tap the "◆List Type" label and choose "table". Leverage makes a "Table" field appear. (It also makes an "Options" button appear. You're probably better off ignoring it at this point.) Tap the table label if you'd like to see that there are already some tables defined. (It will take a moment for the table list to appear, since Leverage has to gather the information from many places.) We're defining a new table for this field, however, so tap elsewhere to make the pop-up list go away. This is a table of genres so we'll call it "genre". Enter "genre" into the table field. That's all for this field. Tap the "New Field" button.

Remaining Fields

The fourth field is the date of purchase field. Name it "purchased" and set the type to "date". (If the field name contains the word "date" the type will be set to date automatically. Of course, you'd still be able to set it to something else.) The last field is the price field. Create it as you did for the grocery database: (field name: "price", field type: "real", number of decimals: 2).

That's it. Tap Done at the bottom of the dialog and Leverage

creates the database for you. It also brings up a dialog asking whether you would like to populate the table you specified (the genre table) at this time.

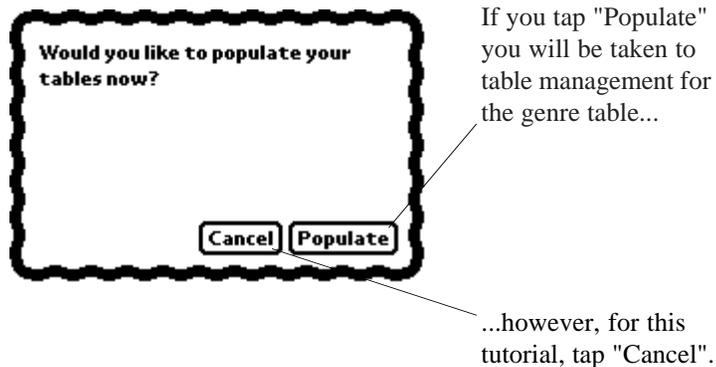


Table management

If you choose “Cancel” the table will be populated as you enter data. If you choose “Populate” the table management dialog will appear with the (currently empty) genre table ready for entries. The table management dialog is also accessed by choosing “Manage Tables” from the Action button. Table management is documented in Chapter 11 in the Leverage reference manual. Tap “Cancel”.

Using the Books Database

Leverage automatically takes you to the empty database. If you’re in list mode tap the New button on the status bar to enter a book or two. If you’re in the single record view Leverage will already be showing an empty record and you can just start entering the books. We’ll enter a couple of Sherlock Holmes novels to see how current values lists and tables work.

Enter the title “A Study in Scarlet”. Open the author field and enter “Sir Arthur Conan Doyle”. (Although there is a diamond by the label, nothing interesting happens if you tap it since there are no authors in the database yet.) Now open the genre field and enter “mystery”. (As with the author field, tapping the label at this point just results in a click and a flicker since the genre table is currently empty.) The purchased field will be empty. If you don’t have the book, you can leave it empty. To enter a date it is probably easiest to tap on the label to bring up the calendar which you can use to set the date. Use the arrows at the top of the calendar to move from month to month, tap on the desired date, and tap on the “set” button to close the calendar and set the field to the selected date. Do what you wish with the price field. When you are done the screen should look something like the figure below.

	books	all
title	A Study in Scarlet	
author	Sir Arthur Conan Doyle	
genre	mystery	
purchased	9/7/90	
price	5.95	

A books record

Now tap the New button and we will see how the lists and tables make entry easier. Enter the title “The Sign of Four”. Tap on the author field to open it. This time when you tap on the author label it produces a pop-up list with the single entry “Sir Arthur Conan Doyle” (he being the only author in our database).

books all

title The Sign of Four

author Sir Arthur Conan Doyle

genre --

purchased --

price 0.00

Once an author's name is in the database it can be chosen from a pop-up list.

Listing authors

Choose this from the list and tap on the genre field. Again, tap on the genre label to produce a list with one element: “mystery”.

books all

title The Sign of Four

author Sir Arthur Conan Doyle

genre mystery

purchased --

price 0.00

Having entered a mystery, that genre can now be chosen from a pop-up list.

Listing genres

Choose “mystery” and fill in the remaining fields as you like.

Congratulations on making it to the end of the tutorial! Look in the reference manual for information on the areas the tutorial didn't cover or more details on areas it did. But first, perhaps you should investigate Leverage on your own for a while. Try creating some databases and see what works well for you and what doesn't.

Be sure to check for any addenda as these will include information (e.g., on new versions and features) that has not been merged into the reference manual yet.

Contacting Us

If you need help, remember, Balcones Software can be reached electronically as well as the usual ways. Our email address is:

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Also visit our web site, <http://www.balconessoftware.com>, which includes a link to our ftp site, <ftp://ftp.bga.com/vendors/balconessoftware.com> (easier to just follow the link from the web page). Demos of the latest versions, sample databases, Newton utilities, and other software can be found there.