



## Calc Guide

# *Chapter 8*

## *Using Pivot Tables*

## Copyright

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## Using LibreOffice on macOS

Some keystrokes and menu items are different on macOS from those used in Windows and Linux. The table below gives some common substitutions for the instructions in this chapter. For a more detailed list, see the application Help.

<i>Windows or Linux</i>	<i>macOS equivalent</i>	<i>Effect</i>
<b>Tools &gt; Options</b> menu	<b>LibreOffice &gt; Preferences</b>	Access setup options
Right-click	<i>Control</i> + click or right-click depending on computer setup	Open a context menu
<i>Ctrl</i> (Control)	⌘ (Command)	Used with other keys
<i>F5</i>	<i>Shift</i> +⌘+ <i>F5</i>	Open the Navigator
<i>F11</i>	⌘+ <i>T</i>	Open the sidebar Styles panel

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## Introduction

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Many requests for spreadsheet support are the result of using complicated formulas and solutions to solve simple day-to-day problems. For more efficient and effective solutions, use the pivot table, a tool for combining, comparing, and analyzing large amounts of data easily. Using pivot tables, you can view different summaries of the source data, display the details of areas of interest, and create reports, whether you are a beginner, an intermediate user, or an advanced user. In addition you can create a pivot chart to view a graphical representation of the data in a pivot table.

### Database preconditions

To work with a pivot table, you need a list of raw data, similar to a database table, consisting of rows (data sets) and columns (data fields). The field names are in the first row above the list.

The data source could be an external file or database. For the simplest case, where data is contained in a Calc spreadsheet, Calc offers sorting functions that do not require the pivot table.

For processing data in lists, Calc needs to know where in the spreadsheet the list is. The list can be anywhere in the sheet, in any position. A spreadsheet can contain several unrelated lists.

Calc recognizes your lists automatically. It uses the following logic: Starting from the cell you have selected (which must be within the list), Calc checks the surrounding cells in all four directions (left, right, above, below). The border is recognized if the program discovers an empty row or column, or if it hits the left or upper border of the spreadsheet. This means that the described functions can only work correctly if there are no empty rows or columns in the list. Avoid empty lines (for example for formatting). You can format the list by using cell formats.



#### Note

To make sure that Calc automatically recognizes a list correctly, check that there are no empty rows or empty columns within the list.

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If you select more than one cell before you start sorting, filtering, or creating the pivot table, then the automatic list recognition is switched off. Calc assumes that the list matches exactly the cells you have selected.



#### Tip

For sorting, filtering, or using the pivot table, always select only one cell to allow Calc to determine the scope of the list.

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A relatively common source of errors is to inadvertently declare a list by mistake and then to sort that list. If you select multiple cells—for example, a whole column—then the sorting mixes up the data that should be together in one row.

In addition to these formal aspects, the logical structure of the list is also very important.



#### Note

Calc lists must have the *normal form*; that is, they must have a simple linear structure.

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When entering the data, do not add outlines, groups, or summaries. Here are some mistakes commonly made by inexperienced spreadsheet users:

- You made several unnecessary sheets; for example, a sheet for each group of articles. In this case, analyses are then possible only within each group.
- In a Sales list, instead of only one column for the amount, you made a column for the amounts for each employee. In this case, the system will have difficulty grouping data from

the various columns together. Thus, an analysis with the pivot table would no longer be possible. All data must be entered into the same column for the pivot table to be able to analyze it.

- You entered the amounts in chronological order. At the end of each month, you made a sum total. In this case, sorting the list for different criteria is not possible because the pivot table will treat the sum totals the same as any other value. Getting monthly results is one of the very fast and easy features of the pivot table.

## Data sources

The possible data sources for the pivot table are a Calc spreadsheet or an external data source that is registered in LibreOffice.

### Calc spreadsheet

Analyzing a list in a Calc spreadsheet is the simplest and most often used case. Lists might be updated regularly or the data might be imported from a different application.

The list data might be entered directly into the spreadsheet or copied from another file or application. You can also use a Web Page Query input filter to insert data from a HTML file, a CSV file, a Calc spreadsheet, or a Microsoft Excel spreadsheet. See Chapter 10, Linking Calc Data, for more information.


The behavior of Calc while inserting data from a different application depends on the format of the data. If the data is in a common spreadsheet format, it is copied directly into Calc. However, if the data is in plain text format, the Text Import dialog appears after you select the file containing the data; see Chapter 1, Introducing Calc, for more information about this dialog.

### Registered data source

A registered data source is a connection to data held in a database outside of LibreOffice. When using a registered data source, the data to be analyzed will not be saved in Calc; Calc always uses the data from the original source. Calc is able to use many different data sources in addition to databases that are created and maintained with LibreOffice Base. For more information, see Chapter 10, Linking Calc Data.

## Using shortcuts


If you use pivot tables often in Calc, you might find the frequent use of the built-in menu paths inconvenient.

In some cases built-in keyboard shortcuts are already defined; see Appendix A, Keyboard Shortcuts. An example is the *F12* function key, which groups a selected data range. In some other cases, the built-in toolbars already provide relevant icons. An example is the **Insert Pivot Table** icon on the Standard toolbar. 

In addition to using the built-in keyboard shortcuts and toolbar icons, you can also define your own. See Chapter 14, Setting Up and Customizing Calc, for instructions.

## Creating a pivot table

If you want Calc to automatically determine the full extent of the raw data list, then select a single cell within this list. If you want to explicitly define the extent of the raw data list then select all relevant cells.

Create the pivot table by selecting **Data > Pivot Table > Create** from the Menu bar, selecting **Insert > Pivot Table** from the Menu bar, or clicking the **Insert Pivot Table** icon in the Standard toolbar. 

Calc displays the Select Source dialog (Figure 1), where you can choose between using the selected data cells, a range of cells that has already been named, or a data source that has already been registered with LibreOffice.



## Note

See Chapter 13, Calc as a Simple Database, for more information about named ranges. See Chapter 10, Linking Calc Data, for more information about linking to registered data sources.

	A	B	C	D	E	F	G
1	Date	Sales Value	Category	Region	Employee		
2	04/13/08	\$498.00	Sailing	North	Kurt		
3	02/07/08	\$1,383.00	Sailing	South	Kurt		
4	05/28/08	\$4,655.00	Tennis	East	Hans		
5	04/20/08	\$3,993.00	Sailing	East	Fritz		
6	02/28/08	\$3,377.00	Golf	South	Ute		
7	01/27/08	\$2,095.00	Sailing	North	Brigitte		
8	02/16/08	\$4,731.00	Sailing	East	Ute		
9	04/15/08	\$4,330.00	Tennis	South	Kurt		
10	04/20/08	\$3,664.00	Golf	So			
11	06/07/08	\$769.00	Tennis	We			
12	02/29/08	\$293.00	Sailing	Ea			
13	04/06/08	\$3,705.00	Tennis	No			
14	06/19/08	\$1,747.00	Golf	We			
15	05/14/08	\$449.00	Tennis	We			
16	05/30/08	\$1,795.00	Golf	So			
17	02/28/08	\$610.00	Sailing	We			
18	06/08/08	\$1,625.00	Tennis	Ea			
19	05/12/08	\$3,887.00	Sailing	So			
20	01/30/08	\$2,458.00	Tennis	West	Hans		
21	05/09/08	\$4,369.00	Golf	South	Ute		
22	03/15/08	\$1,785.00	Golf	East	Hans		

Figure 1: Select Source dialog


Click **OK** on the Select Source dialog to display the Pivot Table Layout dialog, which is described in the next section.

## The Pivot Table Layout dialog

The function of the pivot table is managed in two places: first, in the Pivot Table Layout dialog; and second, through manipulations of the result in the spreadsheet. This section describes the Pivot Table Layout dialog in detail.



## Tip

To access the Pivot Table Layout dialog again after initial creation of the pivot table, right-click in the results area of the pivot table and select the **Edit Layout** option from the context menu. Alternatively left-click in the results area and select the **Insert Pivot Table**  icon in the Standard toolbar.

## Basic layout

In the Pivot Table Layout dialog (Figure 2) are four areas that show the layout of the resulting pivot table:

- *Page Fields*
- *Column Fields*
- *Row Fields*
- *Data Fields*

Beside these four areas is another area labeled *Available Fields* that contains the names of the fields in the source data list. To choose a layout, drag and drop the fields from the *Available Fields* area to the other four areas.

The *Data Fields* area must contain at least one field. Advanced users can use more than one field here. For the fields in the *Data Fields* area, an aggregate function is used. For example, if you move the **Sales Value** field into the *Data Fields* area, it initially appears there as **Sum – Sales Value**.

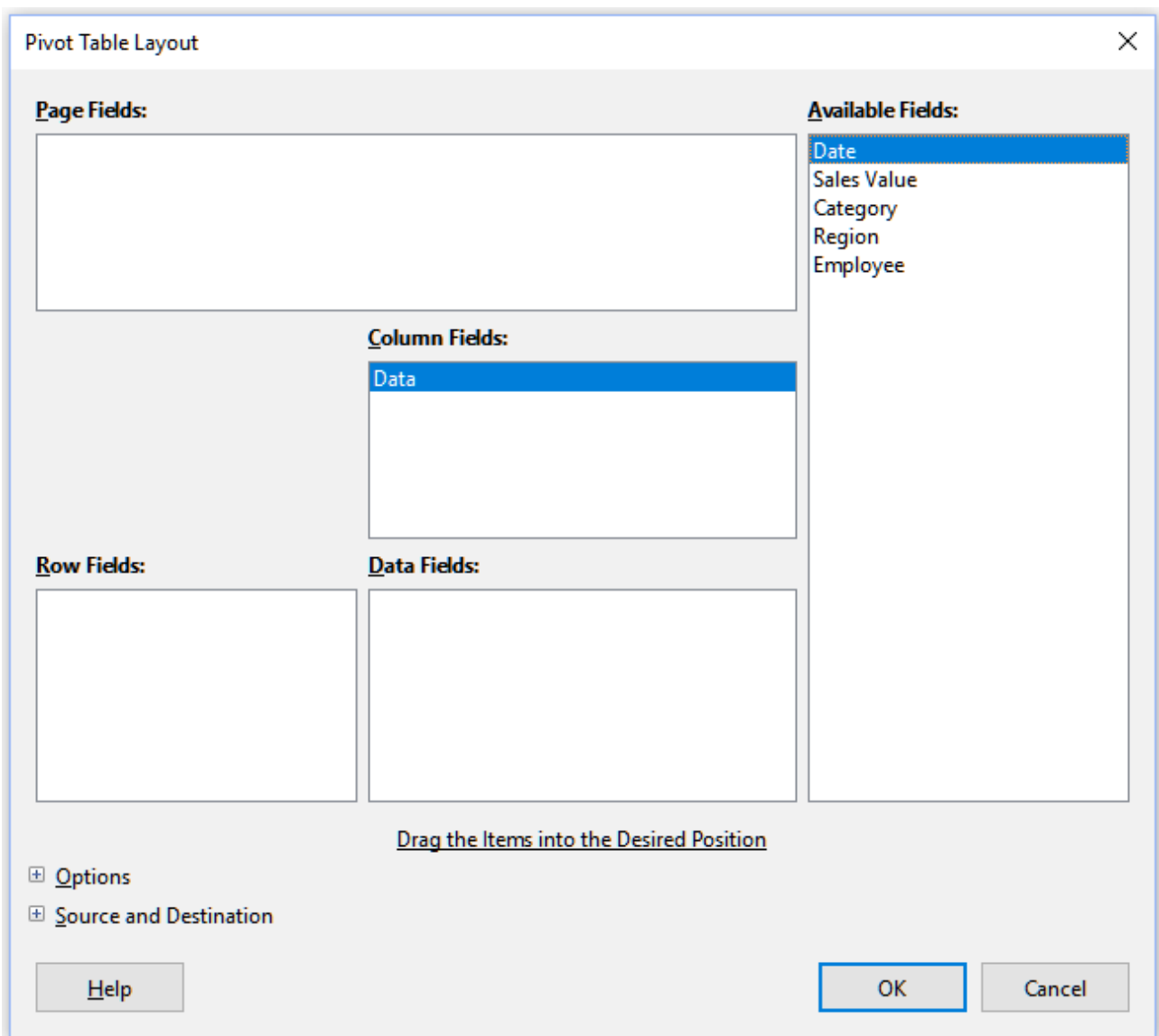


Figure 2: Pivot Table Layout dialog



Row and column fields indicate from which groups the result will be sorted. Often more than one field is used at a time to get partial sums for rows or columns. The order of the fields gives the order of the sums from overall to specific.

For example, if you drag **Region** and **Employee** into the *Row Fields* area, the sum will be divided into the regions. Within the regions will be the listing for the different employees (Figure 3).

Sum - Sales	Value	Category
Region	Employee	Golf
East	Brigitte	\$5,822
	Fritz	\$15,172
	Hans	\$5,316
	Kurt	\$9,707
	Ute	\$5,954
North	Brigitte	\$3,814
	Fritz	\$3,443
	Hans	\$3,049
	Kurt	\$2,214
	Ute	\$6,221
South	Brigitte	\$5,151
	Fritz	\$23,290
	Hans	\$4,196
	Kurt	\$11,681

**Row Fields:**

- Region
- Employee

**Column Fields:**

- Category
- Data

**Data Fields:**

- Sum - Sales Value

Figure 3: Field order for analysis and resulting layout of pivot table

Fields that are placed into the *Page Fields* area appear at the top of the resulting pivot table as a drop-down list. The summary in the result takes into account only that part of the base data that you have selected. For example, if you include **Employee** in the *Page Fields* area, you can filter the result shown for each employee.

To move a field from an area, just drag it to a new area. To remove a field from the *Page Fields*, *Column Fields*, *Row Fields*, or *Data Fields* areas, drag it to the *Available Fields* area.



### Tip

To rapidly move a selected field from one area of the Pivot Table Layout dialog to another, press the letter on the keyboard that corresponds to the underlined letter in the target area's label.

## More options

To expand the Pivot Table Layout dialog and show more options, click the plus signs adjacent to the *Options* and *Source and Destination* labels (Figure 4).

### Ignore empty rows

If the source data is not in the recommended form, this option tells the pivot table to ignore empty rows.

**Options**

Ignore empty rows

Total columns

Add filter

Identify categories

Total rows

Enable drill to details

**Source and Destination**

**Source**

Named range

Selection: '\$Sales List'.\$A\$1:\$E\$157

**Destination**

New sheet

Named range

Selection

Figure 4: Expanded area of the Pivot Table Layout dialog

**Identify categories**

With this option selected, if the source data has missing entries in a list and does not meet the recommended data structure (as in Figure 5 for example), the pivot table adds it to the listed category above it. If this option is not chosen, then the pivot table inserts (empty) (Figure 7).

	A	B	C
1	Produce	Region	Quantity
2	Apples	Italy	6.2 t
3		Lake Constance	19.2 t
4		California	3.6 t
5	Pears	Italy	7.0 t
6		Lake Constance	22.0 t
7			

Figure 5: Example of data with missing entries in Column A

The option **Identify categories** ensures that in this example rows 3 and 4 are included for Apples and that row 6 is included for Pears (Figure 6).

Sum - Quantity	Region			
Produce	California	Italy	Lake Constance	<b>Total Result</b>
Apples	3.6 t	6.2 t	19.2 t	<b>29.0 t</b>
Pears		7.0 t	22.0 t	<b>29.0 t</b>
<b>Total Result</b>	<b>3.6 t</b>	<b>13.2 t</b>	<b>41.2 t</b>	<b>58.0 t</b>

Figure 6: Pivot table result with **Identify categories** selected

Without category recognition, the pivot table shows an (empty) category (Figure 7).

Sum - Quantity	Region			
Produce	California	Italy	Lake Constance	<b>Total Result</b>
Apples		6.2 t		<b>6.2 t</b>
Pears		7.0 t		<b>7.0 t</b>
(empty)	3.6 t		41.2 t	<b>44.8 t</b>
<b>Total Result</b>	<b>3.6 t</b>	<b>13.2 t</b>	<b>41.2 t</b>	<b>58.0 t</b>

Figure 7: Pivot table result without **Identify categories** selected

Logically, the behavior with category recognition is better. A list showing missing entries is also less useful, because you cannot use functions such as sorting or filtering.

### Total columns, Total rows

With these options you can decide if the pivot table shows an extra row with the sums of each column, or if it adds on the very right a column with the sums of each row. In some cases, an added total sum is meaningless, for example if the entries are accumulated or the result of comparisons.

### Add filter

Use this option to add or hide the cell labeled **Filter** above the pivot table results. This conveniently provides additional filtering options within the pivot table. For more information, see “Filtering” on page 26.

### Enable drill to details

With this option enabled, if you double-click on a single data cell in the pivot table result, including a cell produced from **Total columns** or **Total rows**, a new sheet opens giving a detailed listing of the individual entry. If you double-click on a cell in either a row or column field area, then the Show Detail dialog opens (Figure 38). If this function is disabled, the double-click will keep its usual edit function within a spreadsheet. For more information, see “Drilling (showing details)” on page 25.

### Source

The **Selection** field in this area shows the sheet name and the range of cells containing the raw data for the pivot table. If the source spreadsheet contains any named ranges, these can be selected through the **Named range** option.

### Destination

The controls in this area define where the result will be shown.

Selecting **New sheet** adds a new sheet to the spreadsheet file and places the results there. The new sheet is named using the format **Pivot Table\_sheetname\_X**; where X is the number of the table created, 1 for first, 2 for second and so on. For a sheet named Sales List, the new sheet for the first pivot table produced would be named **Pivot Table\_Sales List\_1**. Each new sheet is inserted next to the source sheet.

If the target spreadsheet contains any named ranges, these can be selected with the **Named range** option.

The **Selection** field in this area shows the sheet name and the range of cells for the pivot table’s results.



### Tip

To display the pivot table on the same sheet as the raw data, check the **Selection** option in the *Destination* area, click in the *Selection* field, click the **Shrink** button to the right of the *Selection* field, click at an appropriate cell in an empty area of the sheet, click the **Expand** button, and click **OK** on the Pivot Table Layout dialog.

## More settings for the fields: Field options

The options discussed in the previous section are valid for the pivot table in general. You can also change settings for any field that is currently included in the pivot table layout (that is, fields within the *Page*, *Column*, *Row*, and *Data Fields* areas). Change a field’s settings by double-clicking that field within the *Page*, *Column*, *Row*, or *Data Fields* areas of the Pivot Table Layout dialog. Double-clicking a field within the *Available Fields* area has no effect. The options available for fields in the *Data Fields* area differ from those for fields in the other three areas.

## Options for data fields

Double-click a field in the *Data Fields* area of the Pivot Table Layout dialog to access the Data Field dialog shown in Figure 8.

In the Data Field dialog, you can select the function to be used to accumulate the values from the data source. While you often use the Sum function, other functions (like standard deviation or a counting function) are also available. For example, the counting function can be useful for non-numerical data fields.

Select the **Show items without data** option to include empty columns and rows in the results table.

Click the expansion symbol (plus sign or triangle) to expand the *Displayed value* section of the dialog.

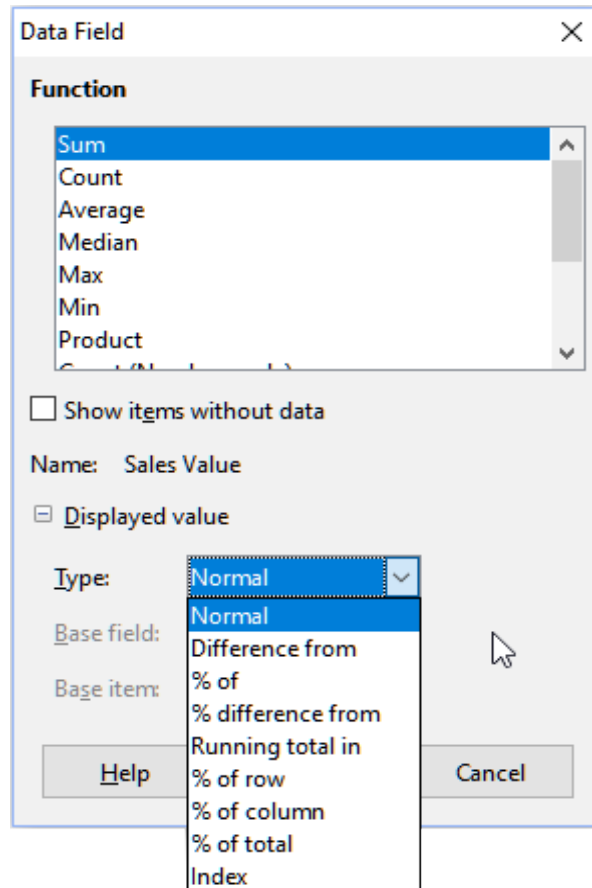


Figure 8: Expanded dialog for a data field

In the *Displayed value* section, you can choose other possibilities for analysis using the aggregate function. Depending on the setting for *Type*, you may have to choose definitions for *Base field* and *Base item*.

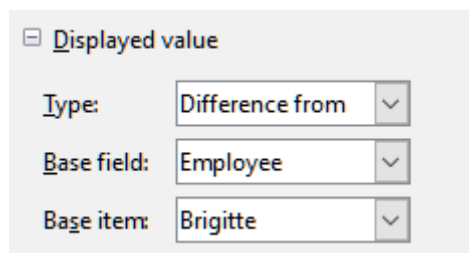


Figure 9: Example choices for Base field and Base item

The table below lists the possible types of displayed value and associated base field and base item, together with a note on usage.

<b>Type</b>	<b>Base field</b>	<b>Base item</b>	<b>Analysis</b>
<b>Normal</b>	—	—	Simple use of the chosen aggregate function (for example, Sum).
<b>Difference from</b>	Selection of a field from the data source of the pivot table (for example, Employee).	Selection of an element from the selected base field (for example, Brigitte)	<p>The result is the difference between the result of the base field and the base item (for example, sales volume of the other employees against the sales volume of Brigitte; see Figure 10).</p> <p>If <b>previous item</b> or <b>next item</b> is specified as the <i>Base item</i>, the reference value is the result for the next visible member of the base field, in the base field's sort order.</p>
<b>% of</b>	Selection of a field from the data source of the pivot table (for example, Employee)	Selection of an element from the selected base field (for example, Brigitte)	<p>The result is a percentage ratio of the value of the base field to the base item (for example, sales result of the other employees relative to the sales result of Brigitte; see Figure 11).</p> <p>If <b>previous item</b> or <b>next item</b> is specified as the <i>Base item</i>, the reference value is the result for the next visible member of the base field, in the base field's sort order.</p>
<b>% difference from</b>	Selection of a field from the data source of the pivot table (for example, Employee)	Selection of an element from the selected base field (for example, Brigitte)	<p>From each result, its reference value is subtracted, and the difference is divided by the reference value (for example, sales of the other employees as relative difference from the sales of Brigitte; see Figure 12).</p> <p>If <b>previous item</b> or <b>next item</b> is specified as the <i>Base item</i>, the reference value is the result for the next visible member of the base field, in the base field's sort order.</p>
<b>Running total in</b>	Selection of a field from the data source of the pivot table (for example, Date)	—	<p>Each result is added to the sum of the results for preceding items in the base field, in the base field's sort order, and the total sum is shown.</p> <p>Results are always summed, even if a different summary function was used to get each result.</p>
<b>% of row</b>	—	—	The result is a percentage of the value of the whole row (for example, the row sum).

Type	Base field	Base item	Analysis
% of column	—	—	The result is a percentage of the total column value (for example, the column sum).
% of total	—	—	The result is a percentage of the overall result (for example, the total sum).
Index	—	—	(Default result x total result) / (row total x column total)

Sum - Sales Value	Data				
Category	▼ Brigitte	Fritz	Hans	Kurt	Ute
Golf	\$26,961	\$46,839	\$17,941	\$28,346	\$36,127
Sailing	\$24,422	\$19,976	\$14,060	\$20,814	\$30,580
Tennis	\$17,721	\$38,638	\$30,467	\$27,675	\$28,198
<b>Total Result</b>	<b>\$69,104</b>	<b>\$105,453</b>	<b>\$62,468</b>	<b>\$76,835</b>	<b>\$94,905</b>

Sum - Sales Value	Data				
Category	▼ Brigitte	Fritz	Hans	Kurt	Ute
Golf		\$19,878	-\$9,020	\$1,385	\$9,166
Sailing		-\$4,446	-\$10,362	-\$3,608	\$6,158
Tennis		\$20,917	\$12,746	\$9,954	\$10,477
<b>Total Result</b>		<b>\$36,349</b>	<b>-\$6,636</b>	<b>\$7,731</b>	<b>\$25,801</b>

Figure 10: Original pivot table (top) and a **Difference from** example (bottom)

Sum - Sales Value	Data				
Category	▼ Brigitte	Fritz	Hans	Kurt	Ute
Golf	100.00%	173.73%	66.54%	105.14%	134.00%
Sailing	100.00%	81.80%	57.57%	85.23%	125.21%
Tennis	100.00%	218.04%	171.93%	156.17%	159.12%
<b>Total Result</b>	<b>100.00%</b>	<b>152.60%</b>	<b>90.40%</b>	<b>111.19%</b>	<b>137.34%</b>

Figure 11: Example of a % of analysis

Sum - Sales Value	Data				
Category	▼ Brigitte	Fritz	Hans	Kurt	Ute
Golf		73.73%	-33.46%	5.14%	34.00%
Sailing		-18.20%	-42.43%	-14.77%	25.21%
Tennis		118.04%	71.93%	56.17%	59.12%
<b>Total Result</b>		<b>52.60%</b>	<b>-9.60%</b>	<b>11.19%</b>	<b>37.34%</b>

Figure 12: Example of % **difference from** analysis

### Options for row and column fields

Double-click a field in the *Row* or *Column Fields* areas of the Pivot Table Layout dialog to access the Data Field dialog shown in Figure 13.

In the Data Field dialog for a row or column field, you can choose to show subtotals for each category. Subtotals are deactivated by default. Subtotals are useful only if the values in one row or column field can be divided into subtotals for another (sub)field.

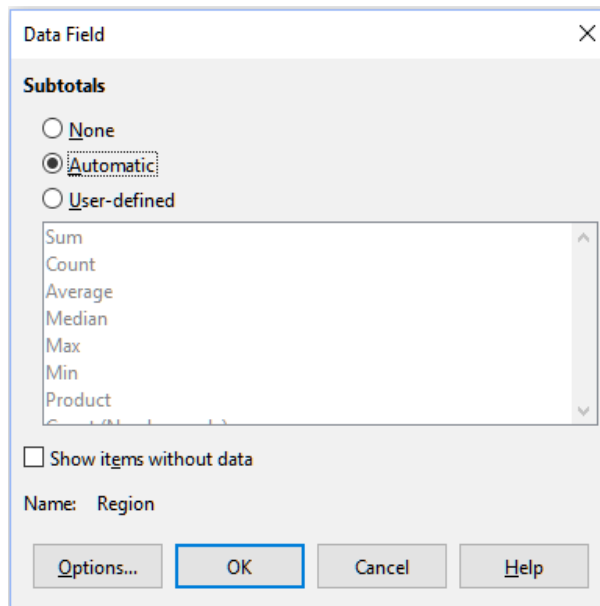


Figure 13: Data Field dialog for a row or column field

Some examples are shown in Figures 14, 15, and 16.

Sum - Sales Value	Category			
Region	Golf	Sailing	Tennis	Total Result
East	\$41,971	\$22,484	\$35,966	\$100,421
North	\$18,741	\$22,468	\$34,533	\$75,742
South	\$56,257	\$44,801	\$34,258	\$135,316
West	\$39,245	\$20,099	\$37,942	\$97,286
<b>Total Result</b>	<b>\$156,214</b>	<b>\$109,852</b>	<b>\$142,699</b>	<b>\$408,765</b>

Figure 14: No subdivision with only one row or column field

Sum - Sales Value		Category			
Region	Employee	Golf	Sailing	Tennis	Total Result
East	Brigitte	\$5,822	\$2,135	\$4,872	\$12,829
	Fritz	\$15,172	\$5,730	\$12,455	\$33,357
	Hans	\$5,316	\$909	\$12,220	\$18,445
	Kurt	\$9,707	\$6,475	\$2,417	\$18,599
	Ute	\$5,954	\$7,235	\$4,002	\$17,191
North	Brigitte	\$3,814	\$10,151	\$3,985	\$17,950
	Fritz	\$3,443	\$2,698	\$9,115	\$15,256
	Hans	\$3,049	\$3,008	\$5,361	\$11,418
	Kurt	\$2,214	\$3,485	\$10,499	\$16,198
	Ute	\$6,221	\$3,126	\$5,573	\$14,920
South	Brigitte	\$5,151	\$4,432		\$9,583
	Fritz	\$23,290	\$4,806	\$15,641	\$43,737
	Hans	\$4,196	\$9,263	\$3,858	\$17,317
	Kurt	\$11,681	\$7,270	\$14,759	\$33,710
	Ute	\$11,939	\$19,030		\$30,969
West	Brigitte	\$12,174	\$7,704	\$8,864	\$28,742
	Fritz	\$4,934	\$6,742	\$1,427	\$13,103
	Hans	\$5,380	\$880	\$9,028	\$15,288
	Kurt	\$4,744	\$3,584		\$8,328
	Ute	\$12,013	\$1,189	\$18,623	\$31,825
<b>Total Result</b>		<b>\$156,214</b>	<b>\$109,852</b>	<b>\$142,699</b>	<b>\$408,765</b>

Figure 15: Division of the regions for employees (two row fields) without subtotals

Sum - Sales Value		Category			
Region	Employee	Golf	Sailing	Tennis	Total Result
East	Brigitte	\$5,822	\$2,135	\$4,872	\$12,829
	Fritz	\$15,172	\$5,730	\$12,455	\$33,357
	Hans	\$5,316	\$909	\$12,220	\$18,445
	Kurt	\$9,707	\$6,475	\$2,417	\$18,599
	Ute	\$5,954	\$7,235	\$4,002	\$17,191
<b>East Sum – Sales Value</b>		<b>\$41,971</b>	<b>\$22,484</b>	<b>\$35,966</b>	<b>\$100,421</b>
North	Brigitte	\$3,814	\$10,151	\$3,985	\$17,950
	Fritz	\$3,443	\$2,698	\$9,115	\$15,256
	Hans	\$3,049	\$3,008	\$5,361	\$11,418
	Kurt	\$2,214	\$3,485	\$10,499	\$16,198
	Ute	\$6,221	\$3,126	\$5,573	\$14,920
<b>North Sum – Sales Value</b>		<b>\$18,741</b>	<b>\$22,468</b>	<b>\$34,533</b>	<b>\$75,742</b>
South	Brigitte	\$5,151	\$4,432		\$9,583
	Fritz	\$23,290	\$4,806	\$15,641	\$43,737
	Hans	\$4,196	\$9,263	\$3,858	\$17,317
	Kurt	\$11,681	\$7,270	\$14,759	\$33,710
	Ute	\$11,939	\$19,030		\$30,969
<b>South Sum – Sales Value</b>		<b>\$56,257</b>	<b>\$44,801</b>	<b>\$34,258</b>	<b>\$135,316</b>
West	Brigitte	\$12,174	\$7,704	\$8,864	\$28,742
	Fritz	\$4,934	\$6,742	\$1,427	\$13,103
	Hans	\$5,380	\$880	\$9,028	\$15,288
	Kurt	\$4,744	\$3,584		\$8,328
	Ute	\$12,013	\$1,189	\$18,623	\$31,825
<b>West Sum – Sales Value</b>		<b>\$39,245</b>	<b>\$20,099</b>	<b>\$37,942</b>	<b>\$97,286</b>
<b>Total Result</b>		<b>\$156,214</b>	<b>\$109,852</b>	<b>\$142,699</b>	<b>\$408,765</b>

Figure 16: Division of the regions for employees with subtotals (by region)

To calculate subtotals that can also be used for the data fields (see above), select the **Automatic** option in the *Subtotals* section of the Data Field dialog.

You can choose the type of subtotal to use by selecting **User-defined** and then clicking the type of subtotal you want to calculate from the list. Functions in this list are only available when **User-defined** is selected.

Normally, the pivot table does not show a row or column for categories that have no entries in the underlying database. By choosing the **Show items without data** option, you can force these to be displayed.

For illustration purposes, the data was manipulated in such a way that the employee Brigitte has no sales values for the Golf category.

Employee	Brigitte		
Sum - Sales Value	Category		
Region	Sailing	Tennis	Total Result
East	\$2,135	\$4,872	\$7,007
North	\$10,151	\$3,985	\$14,136
South	\$4,432		\$4,432
West	\$7,704	\$8,864	\$16,568
<b>Total Result</b>	<b>\$24,422</b>	<b>\$17,721</b>	<b>\$42,143</b>

Figure 17: Default setting



Employee	Brigitte			
Sum - Sales Value	Category			
Region	Golf	Sailing	Tennis	Total Result
East		\$2,135	\$4,872	\$7,007
North		\$10,151	\$3,985	\$14,136
South		\$4,432		\$4,432
West		\$7,704	\$8,864	\$16,568
Total Result		\$24,422	\$17,721	\$42,143

Figure 18: Setting *Show items without data*

Click the **Options** button on the Data Field dialog to access the Data Field Options dialog (Figure 19). Use this dialog to specify additional options for fields in the *Column* and *Row Fields* areas of the Pivot Table Layout dialog.

Figure 19: Data Field Options dialog

The following options are provided:

- **Sort by.** Select the data field that you want to sort columns or rows by. **Ascending** sorts the values from the lowest value to the highest value. If the selected field is the field for which the dialog was opened, the items are sorted by name. If a data field was selected, the items are sorted by the resultant value of the selected data field. Similarly **Descending** sorts the values descending from the highest value to the lowest value. **Manual** sorts values alphabetically.
- **Display Options.** You can specify the display options for all row fields except for the last, innermost row field. Select from the *Layout* drop-down list to select the layout mode for the field in the list box. Select the **Empty line after each item** option to add an empty row after the data for each item in the pivot table. Select or deselect the **Repeat item labels** option as required.

- **Show Automatically.** This feature displays the top or bottom *nn* items when you sort by a specified field. Click the **Show** option to turn on the automatic show feature and enter the maximum number of items that you want to show automatically. The *From* drop-down list selects to show the top or bottom items in the specified sort order. The *Using field* drop-down list selects the data field by which to sort the data.
- **Hide Items.** Use these options to select the items to hide from the calculations.
- **Hierarchy.** Select the hierarchy to use. The pivot table must be based on external source data that contains data hierarchies.

### Options for page fields

The Data Field dialog for fields in the *Page Fields* area is the same as for fields in the *Row* and *Column Fields* areas, even though it appears to be useless to have the same settings as described for the row and column fields. With the flexibility of the pivot table, you can switch the different fields between pages, columns, or rows. The fields keep the settings that you made for them. The page field has the same properties as a row or column field. These settings only take effect when you use the field not as a page field but as a row or column field.

## Working with the results of the pivot table

The Pivot Table Layout dialog is very flexible and a pivot table can be totally restructured with only a few mouse clicks.

### Changing the layout

The layout of the pivot table can be changed quickly and easily by using drag-and-drop. With the Pivot Table Layout dialog open, fields can be dragged around from *Row*, *Column*, *Page*, and *Data Fields* areas to any position you want to put them, and then dropped. Unused fields can also be added, and fields removed in error can be replaced by dragging and dropping them into the positions required.

Some manipulation can also be carried out in the results view of the pivot table. Within the results of the pivot table, drag one of the page, column, or row fields to a different position. The cursor will change shape from its starting shape (horizontal or vertical block on the arrow head) to the opposite if moving to a different field, such as from row to column, where it can be dropped.


Sum - Sales Value	Employee	
Category	Brigitte	Fritz
Golf	\$26,961	\$46,839
Sailing	\$24,422	\$19,976
Tennis	\$17,721	\$38,638
<b>Total Result</b>	<b>\$69,104</b>	<b>\$105,453</b>

Figure 20: Drag a column field - note the cursor shape

Sum - Sales Value	Employee	
Category	Brigitte	Fritz
Golf	\$26,961	\$46,839
Sailing	\$24,422	\$19,976
Tennis	\$17,721	\$38,638
<b>Total Result</b>	<b>\$69,104</b>	<b>\$105,453</b>

Figure 21: Drag a row field - note the cursor shape

You can remove a column, row, or page field from the pivot table by clicking on it and dragging it out of the table. The cursor changes to that shown in Figure 22. A field removed in error cannot be recovered, without returning to the Pivot Table Layout dialog to replace it.



Sum - Sales Value	Employee	
	Brigitte	Fritz
Golf	\$26,961	\$46,839
Sailing	\$24,422	\$19,976
Tennis	\$17,721	\$38,638
<b>Total Result</b>	<b>\$69,104</b>	<b>\$105,453</b>

Figure 22: Field dragged out of the pivot table

## Grouping rows or columns

For many analyses or summaries, the categories have to be grouped. You can merge the results in classes. You can only carry out grouping on an ungrouped pivot table.

After selecting the correct cell area, select **Data > Group and Outline > Group** from the Menu bar, or press *F12* on the keyboard. The type of values to be grouped is what mainly determines how the grouping function works. You need to distinguish between scalar values, or other values, such as text, that you want grouped.



### Note

Before you can group, you have to produce a pivot table with ungrouped data. The time needed for creating a pivot table depends mostly on the number of columns and rows and not on the size of the basic data. Through grouping you can produce the pivot table with a small number of rows and columns. The pivot table can contain a lot of categories, depending on your data source.

To remove grouping again, click inside the group, then choose **Data > Group and Outline > Ungroup**.

### Grouping of categories with scalar values

For grouping scalar values, select a single cell in the row or column of the category to be grouped. Choose **Data > Group and Outline > Group** from the Menu bar or press *F12* on the keyboard; Calc displays the Grouping dialog shown in Figure 23.

You can define in which value range (*Start / End*) the grouping should take place. The default setting is the whole range, from the smallest to the largest value. In the field *Group by*, you can enter the class size, also known as the interval size.

Figure 23: Grouping dialog with scalar categories

Figure 24 shows part of a pivot table created from a list containing speed measurements as a function of time. This pivot table shows the count of km/h speed measurements in the raw data. The pivot table in Figure 25 is based on the same raw data. However in this case the speed measurements are grouped into intervals if 10 km/h.

km/h	Count - time
30	2
31	1
32	5
33	4
34	5
35	2
36	2
37	1
38	6
39	1
40	1
41	4
42	2
43	3

Figure 24: Pivot table without grouping

km/h	Count - time
30-39	29
40-49	22
50-59	23
60-69	23
70-79	18
80-89	23
90-99	18
100-109	27
110-119	35
<b>Total Result</b>	<b>218</b>

Figure 25: Pivot table with grouping

### Grouping of categories with date / time values

For grouping date / time values, select a single cell in the row or column of the category to be grouped. Choose **Data > Group and Outline > Group** from the Menu bar or press *F12* on the keyboard; Calc displays the Grouping dialog shown in Figure 26.

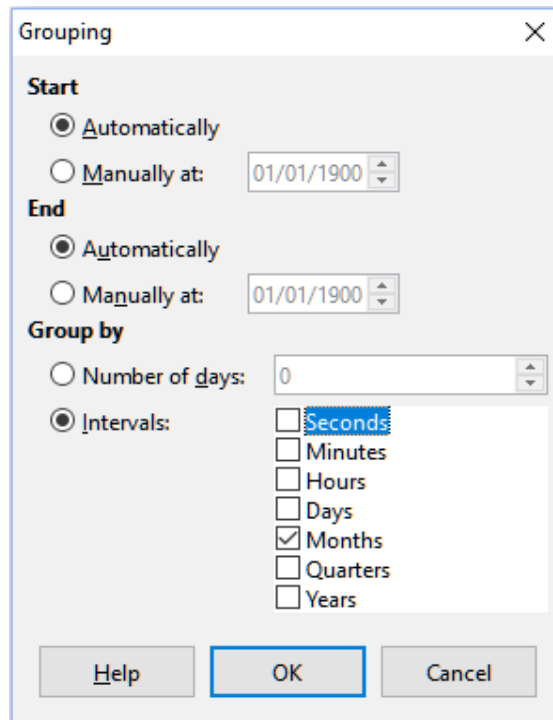


Figure 26: Grouping dialog for date/time categories

You can define in which value range (*Start / End*) the grouping should take place. The default setting is the whole range, from the smallest to the largest value. In the field *Group by*, you can enter the class size, also known as the interval size. In this case you can select one of the predefined time intervals (**Seconds, Minutes, Hours, Days, Months, Quarters, or Years**) as an alternative to explicitly specifying a time interval in days.

Figure 27 shows a pivot table configured to show the daily sales in the North region.

Sum - Sales Value	Region	
Date	North	Total Result
01/02/08	\$410	\$410
01/15/08	\$1,858	\$1,858
01/17/08	\$4,842	\$4,842
01/25/08	\$4,263	\$4,263
01/27/08	\$2,095	\$2,095
01/30/08	\$1,260	\$1,260
02/02/08	\$734	\$734
02/06/08	\$3,443	\$3,443
02/13/08	\$204	\$204
03/03/08	\$3,985	\$3,985
03/06/08	\$1,379	\$1,379
03/18/08	\$3,814	\$3,814
03/20/08	\$918	\$918
04/02/08	\$1,355	\$1,355
04/03/08	\$576	\$576
04/06/08	\$3,705	\$3,705
04/07/08	\$3,126	\$3,126
04/13/08	\$498	\$498
04/19/08	\$4,101	\$4,101
04/22/08	\$4,276	\$4,276
04/24/08	\$3,008	\$3,008
04/25/08	\$2,564	\$2,564
05/15/08	\$520	\$520
05/30/08	\$2,214	\$2,214
06/10/08	\$4,839	\$4,839
06/15/08	\$3,404	\$3,404
06/20/08	\$3,617	\$3,617
06/22/08	\$2,987	\$2,987
06/28/08	\$3,049	\$3,049
06/29/08	\$2,698	\$2,698
<b>Total Result</b>	<b>\$75,742</b>	<b>\$75,742</b>

Figure 27: Pivot table without grouping

Figure 28 shows the same data but configured to show the monthly sales in the North region.

Sum - Sales	Region	
Date	North	Total Result
Jan	\$14,728	\$14,728
Feb	\$4,381	\$4,381
Mar	\$10,096	\$10,096
Apr	\$23,209	\$23,209
May	\$2,734	\$2,734
Jun	\$20,594	\$20,594
<b>Total Result</b>	<b>\$75,742</b>	<b>\$75,742</b>

Figure 28: Pivot table with grouping

### Grouping without automatic creation of intervals

It is not possible to create intervals for some categories (for example, those containing text fields). However, for such fields it is possible to define which values are put together in one group.

For grouping of these categories, select in the results of the pivot table all the individual field values that you want to put together in the group. With more than one cell selected, choose **Data > Group and Outline > Group** from the Menu bar, or press **F12** on the keyboard, to group the selected cells.



## Tip

You can select several non-contiguous cells by pressing and holding the *Control* key while clicking with the mouse.

Given the input data shown in Figure 29, create a pivot table with Department in the *Row Fields* area and Sum - Sick days in the *Data Fields* area. The result should be as shown in Figure 30.

Last name	First name	Department	Sick days
Meier	Hans	Sales	7
Muller	Karin	Accounting	7
Schuster	Josef	Purchasing	3
Huber	Ema	Purchasing	3
Aigner	Hermann	Production	7
Schulze	Josef	Production	7
Schroder	Gerhard	Production	4
Forster	Inge	Assembly	4
Meier	Gunter	Assembly	1
Gabriel	Juri	Warehouse	0
Schumacher	Helmut	Warehouse	5

Figure 29: Database with text categories

Department	Sum - Sick days
Accounting	7
Assembly	5
Production	18
Purchasing	6
Sales	7
Warehouse	5
<b>Total Result</b>	<b>48</b>

Figure 30: Pivot table with text categories

In the results of the pivot table select Accounting, Purchasing, and Sales in the Department column. Select **Data > Group and Outline > Group** from the Menu bar or press *F12* on the keyboard. The pivot table result updates to reflect the new group, as shown in Figure 31.

Department2	Department	Sum - Sick days
Assembly	Assembly	5
Group1	Accounting	7
	Purchasing	6
	Sales	7
Production	Production	18
Warehouse	Warehouse	5
<b>Total Result</b>		<b>48</b>

Figure 31: Summary of single categories in one group

In the updated pivot table result, select Assembly, Production, and Warehouse in the Department column. Select **Data > Group and Outline > Group** from the Menu bar or press *F12* on the keyboard. The pivot table updates again to reflect the new group, as shown in Figure 32.

You can change the default names for the groups and the newly created group field by editing the name in the input field (for example changing Group2 to Technical). The pivot table will remember these settings, even if you change the layout later on.

Department2	Department	Sum - Sick days
Group1	Accounting	7
	Purchasing	6
	Sales	7
Group2	Assembly	5
	Production	18
	Warehouse	5
<b>Total Result</b>		<b>48</b>

Figure 32: Grouping finished

To add partial sums for the groups, right-click the results of the pivot table and select the **Edit Layout** option. Double-click the **Department2** entry in the *Row Fields* area and select the **Automatic** option on the Data Field dialog (Figure 13). Click the two **OK** buttons and the pivot table is updated to include the partial sums for the groups, as shown in Figure 33.

Department2	Department	Sum - Sick days
Group1	Accounting	7
	Purchasing	6
	Sales	7
<b>Group1 Result</b>		<b>20</b>
Technical	Assembly	5
	Production	18
	Warehouse	5
<b>Technical Result</b>		<b>28</b>
<b>Total Result</b>		<b>48</b>

Figure 33: Renamed group and partial results

If it is not enabled already, select the **Enable drill to details** option on the Pivot Table Layout dialog. Double-click the Group 1 and Technical entries in the Department2 column to collapse/expand the group entries (for example, Figure 34 shows both groups collapsed).

Department2	Sum - Sick days
Group1	20
Technical	28
<b>Total Result</b>	<b>48</b>

Figure 34: Reduced to the new groups



## Note

A well-structured database makes manual sorting within the pivot table obsolete. In the example shown, you could add another column with the name Department, that has the correct entry for each person based on whether the employee's department belongs to the group Office or Technical. The mapping for this (1:n relationship) can be done easily with the VLOOKUP() function from Calc.

## Sorting the result

The results of a pivot table are by default sorted so that categories in columns and rows are presented in ascending order. There are three ways to change the sorting order:

- Select a sort order from the drop-down menu on a column's heading.
- Sort manually by using drag and drop.
- Select a sort order through the Data Field Options dialog for the appropriate row or column field (Figure 19).

### Select sort order from drop-down menus on each column heading

The simplest way to sort entries is to click the arrow on the right side of the column heading for a row or column field, and select one of the three sorting options (Figure 35):

- Sort Ascending
- Sort Descending
- Custom Sort

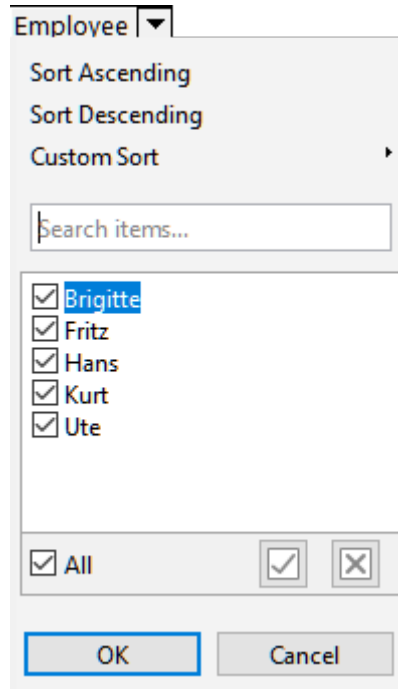


Figure 35: Column sorting and filtering dialog

Selecting the **Custom Sort** option sorts according to one of the predefined custom sorts defined in **Tools > Options > LibreOffice Calc > Sort Lists**. See Chapter 2, Entering, Editing, and Formatting Data for more information about creating and using sort lists.

This dialog also provides facilities for simple filtering of the data in the pivot table. Check the required individual boxes to select the data displayed in the results of the pivot table. Options are provided to show all, show only the current item, or hide only the current item. Click **OK** to activate the selected filtering. Once filtering has been carried out, the color of the arrow changes from black to blue, and a small square of matching color is added to the bottom right of the arrow button (Figure 36).

Sum - Sales Value	Category				
Region	Employee	Golf	Sailing	Tennis	Total Result
East	Brigitte	\$5,822	\$2,135	\$4,872	\$12,829
North	Brigitte	\$3,814	\$10,151	\$3,985	\$17,950
South	Brigitte	\$5,151	\$4,432		\$9,583
West	Brigitte	\$12,174	\$7,704	\$8,864	\$28,742
<b>Total Result</b>		<b>\$26,961</b>	<b>\$24,422</b>	<b>\$17,721</b>	<b>\$69,104</b>

Figure 36: Arrow color change and indicator square on column heading

### Sort manually by using drag and drop

You can change the order within the categories by moving the cells with the category values in the results of the pivot table. The dragged cell is inserted above the cell on which you drop it.



Be aware that in Calc, a cell must be selected, it is not enough that the cursor is in the cell. The background of a selected cell is marked with a different color. To mark a single cell do one of the following:

- Click, then *Shift*+click the cell.
- Press the mouse button, drag a range across two cells, do not release the mouse button, and then drag back to the first cell. Release the mouse button. You can now move the individual cell by drag and drop.

To select several cells, mark one cell with no extra key pressed, then press the *Shift* or *Ctrl* key while clicking in other cells.

### Sort automatically

To sort automatically, right-click within the pivot table and choose **Edit Layout**. This will open the Pivot Table Layout dialog (Figure 2). Double-click the row or column field you want to sort. In the Data Field dialog which opens (Figure 13), click **Options** to display the Data Field Options dialog (Figure 19).

For *Sort by*, choose either **Ascending**, **Descending**, or **Manual**. **Ascending** sorts the values from the lowest value to the highest value. If the selected field is the field for which the dialog was opened, the items are sorted by name. If a data field was selected, the items are sorted by the resultant value of the selected data field. Similarly **Descending** sorts the values descending from the highest value to the lowest value. **Manual** sorts values alphabetically.

### Drilling (showing details)

Use Drill to show the related detailed data for a single, compressed value in the pivot table result. This facility is available only if you selected the **Enable drill to details** option on the Pivot Table Layout dialog.

To activate a drill, double-click on the cell or choose **Data > Group and Outline > Show Details**. There are two possibilities:

- The active cell is a row or column field. In this case, drill means an additional breakdown into the categories of another field. For example, double-click on the cell with the value Golf. In this instance the values that are aggregated within Golf can be subdivided using another field.

Sum - Sales Value	Region				
Category	East	North	South	West	Total Result
Golf	\$41,971	\$18,741	\$56,257	\$39,245	\$156,214
Sailing	\$22,484	\$22,468	\$44,801	\$20,099	\$109,852
Tennis	\$35,966	\$34,533	\$34,258	\$37,942	\$142,699
<b>Total Result</b>	<b>\$100,421</b>	<b>\$75,742</b>	<b>\$135,316</b>	<b>\$97,286</b>	<b>\$408,765</b>

Figure 37: Before the drill down for Golf

The Show Detail dialog appears allowing you to select the field to use for further subdivision. In this example, **Employee**.

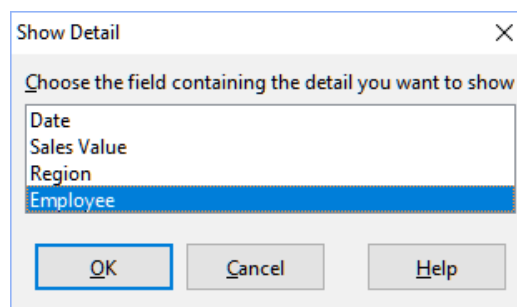


Figure 38: Selecting the field for the subdivision

Sum - Sales Value		Region				
Category	Employ	East	North	South	West	Total Result
Golf	Brigitte	\$5,822	\$3,814	\$5,151	\$12,174	\$26,961
	Fritz	\$15,172	\$3,443	\$23,290	\$4,934	\$46,839
	Hans	\$5,316	\$3,049	\$4,196	\$5,380	\$17,941
	Kurt	\$9,707	\$2,214	\$11,681	\$4,744	\$28,346
	Ute	\$5,954	\$6,221	\$11,939	\$12,013	\$36,127
Sailing		\$22,484	\$22,468	\$44,801	\$20,099	\$109,852
Tennis		\$35,966	\$34,533	\$34,258	\$37,942	\$142,699
<b>Total Result</b>		<b>\$100,421</b>	<b>\$75,742</b>	<b>\$135,316</b>	<b>\$97,286</b>	<b>\$408,765</b>

Figure 39: After the drill down

To hide the details again, double-click on the cell Golf or choose **Data > Group and Outline > Hide Details**.

The pivot table remembers your selection (in our example the field **Employee**) by adding and hiding the selected field, so that for the next drill down for a field in the **Category** column the dialog does not appear. To remove the selection **Employee**, open the Pivot Table Layout dialog by right-clicking and choosing **Edit Layout**, then delete the unwanted selection in the *Row or Column Fields* area.

- The active cell is a data field. In this case, drill down results in a listing of all data entries of the data source that aggregate to this value.

In our example, if we double-click on the cell with the value \$18,741 from Figure 37, we would have a new list of all data sets that are included in this value. This list is displayed in a new sheet.

	A	B	C	D	E
1	Date	Sales Value	Category	Region	Employee
2	02/06/08	\$3,443	Golf	North	Fritz
3	03/18/08	\$3,814	Golf	North	Brigitte
4	01/17/08	\$4,842	Golf	North	Ute
5	06/28/08	\$3,049	Golf	North	Hans
6	03/06/08	\$1,379	Golf	North	Ute
7	05/30/08	\$2,214	Golf	North	Kurt

Figure 40: New sheet after the drill down for a value in a data field

## Filtering

To limit the pivot table analysis to a subset of the information that is contained in the data basis, you can filter with the pivot table.



### Note

An autofilter or default filter used on the sheet containing the raw data has no effect on the pivot table analysis process. The pivot table always uses the complete list that was selected when it was started.

To do this, click the **Filter** button at the top left above the results, or click in the results and select **Filter** from the context menu.



### Note

The **Filter** button is available only if you selected the **Add filter** option on the Pivot Table Layout dialog.

	A	B	C	D	E	F	G
1	Filter						
2							
3	Sum - Sales	Employee					
4	Region	Brigitte	Fritz	Hans	Kurt	Ute	Total Result
5	East	\$12,829	\$33,357	\$18,445	\$18,599	\$17,191	\$100,421
6	North	\$17,950	\$15,256	\$11,418	\$16,198	\$14,920	\$75,742
7	South	\$9,583	\$43,737	\$17,317	\$33,710	\$30,969	\$135,316
8	West	\$28,742	\$13,103	\$15,288	\$8,328	\$31,825	\$97,286
9	Total Result	\$69,104	\$105,453	\$62,468	\$76,835	\$94,905	\$408,765

Figure 41: Filter field in the upper left area of the pivot table

In the Filter dialog (Figure 42), you can define up to three filter options that are used in the same way as Calc's default filter.

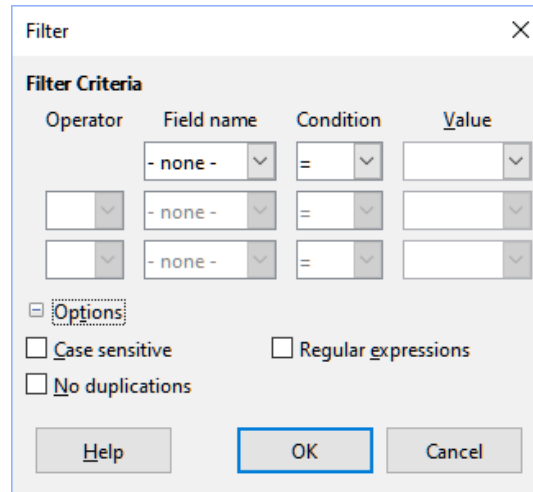


Figure 42: Dialog for defining the filter

The data presented in a pivot table can also be filtered using the drop-downs on the right hand side of column headings or by using page fields. Filtering through column headings is described in "Select sort order from drop-down menus on each column heading" on page 24.

Even if they are not called a filter, page fields are another practical way to filter the results of the pivot table. The advantage is that the filtering criteria used are clearly visible. Click the arrow on the right side of the page field button to access the associated filtering dialog (Figure 43).

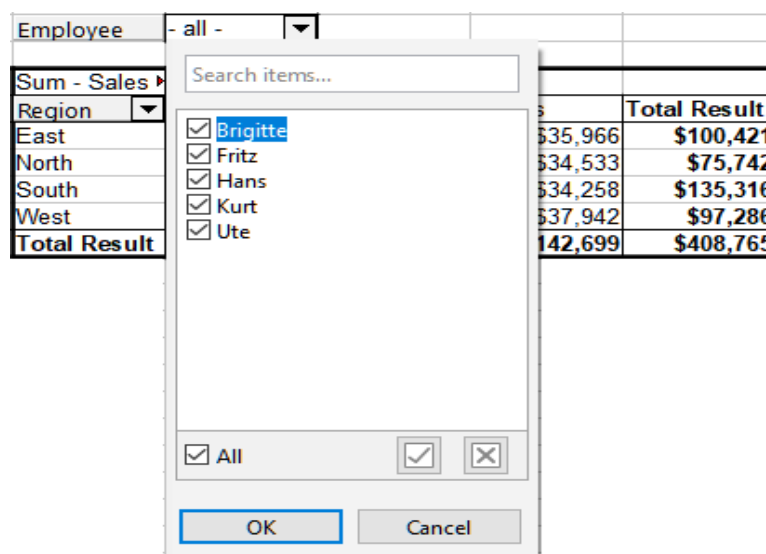


Figure 43: Page field filtering dialog

The text adjacent to a page field button indicates the filtering status, that is "- all -" when nothing is filtered, "- multiple -" when multiple but not all items are filtered, or the value when only that value is not filtered.

## Updating (refreshing) changed values

After you have created the pivot table, changes in the source data do not cause an automatic update in the resulting table. You must update (refresh) the pivot table manually after changing any of the underlying data values.

Changes in the source data could appear in two ways:

- The content of existing data sets has been changed.  
For example, you might have changed a sales value. To update the pivot table, click in the result area and choose **Refresh** from the context menu, or choose **Data > Pivot Table > Refresh** from the Menu bar.
- You have added or deleted data sets in the original list.  
In this case the change means that the pivot table has to use a different area of the spreadsheet for its analysis. Fundamental changes to the data set collection means you must redo the pivot table from the beginning.

## Cell formatting

The cells in the results area of the pivot table are automatically formatted by Calc. You can change this formatting using all the tools in Calc. However if you make any change in the design of the pivot table using direct formatting, the formatting will return to that applied automatically by Calc when the table is next refreshed.

On creating a pivot table, six standard cell styles are added to the list of styles in the document if they are not included already. Each of these styles is applied to part of the pivot table. You can customize these pivot table styles. The pivot table styles are:

- Pivot Table Category
- Pivot Table Corner
- Pivot Table Field
- Pivot Table Result
- Pivot Table Title
- Pivot Table Value



### Tip

Use the pivot table styles to make sure that the format of your pivot table is not unexpectedly changed during updates and that all pivot tables in your document have the same appearance.

---



### Note

Direct formatting of pivot table cells is not retained during updates.

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For the number format in the data field, Calc uses the number format that is used in the corresponding cell in the source list. In most cases, this is useful (for example, if the values are in the currency format, then the corresponding cell in the result area is also formatted as currency). However, if the result is a fraction or a percentage, the pivot table does not recognize that this might be a problem; such results must either be without a unit or be displayed as a percentage. Although you can correct the number format manually, the correction stays in effect only until the next update.

## Deleting a pivot table

To delete a pivot table, click in the result area and choose **Delete** from the context menu, or choose **Data > Pivot Table > Delete** from the Menu bar.



### Warning

If you delete a pivot table with an associated pivot chart, the pivot chart is also deleted. Calc opens a dialog box to confirm the pivot chart deletion.

## Using pivot table results elsewhere

### The problem

Normally, you create a reference to a value by entering the address of the cell that contains the value. For example, the formula `=C6*2` creates a reference to cell C6 and returns the doubled value. If this cell is located in the results area of the pivot table, it contains the result that was calculated by referencing specific categories of the row and column fields. In Figure 44, the cell C6 contains the sum of the sales values of the employee Hans in the category Sailing. The formula in the cell C12 uses this value.

	A	B	C	D	E
1	Filter				
2					
3	Sum - Sales Value	Category			
4	Employee	Golf	Sailing	Tennis	Total Result
5	Brigitte	\$26,961	\$24,422	\$17,721	\$69,104
6	Hans	\$17,941	\$14,060	\$30,467	\$62,468
7	Kurt	\$28,346	\$20,814	\$27,675	\$76,835
8	Ute	\$36,127	\$30,580	\$28,198	\$94,905
9	Total Result	\$109,375	\$89,876	\$104,061	\$303,312
10					
11					
12			\$28,120		

Figure 44: Formula reference to a cell of the pivot table

If the underlying data or the layout of the pivot table changes, then you must take into account that the sales value for Hans in the Sailing category might appear in a different cell. Your formula still references the cell C6 and therefore uses a wrong value. The correct value is in a different location. For example, in Figure 45, the location is now C7.

	A	B	C	D	E
1	Filter				
2					
3	Sum - Sales Value	Category			
4	Employee	Golf	Sailing	Tennis	Total Result
5	Brigitte	\$26,961	\$24,422	\$17,721	\$69,104
6	Fritz	\$46,839	\$19,976	\$38,638	\$105,453
7	Hans	\$17,941	\$14,060	\$30,467	\$62,468
8	Kurt	\$28,346	\$20,814	\$27,675	\$76,835
9	Ute	\$36,127	\$30,580	\$28,198	\$94,905
10	Total Result	\$156,214	\$109,852	\$142,699	\$408,765
11					
12			\$39,952		

Figure 45: The value that you really want to use can be found now in a different location

## The solution: Function GETPIVOTDATA()

Use the function GETPIVOTDATA() to have a reference to a value inside the pivot table by using the specific identifying categories for this value. This function can be used with formulas in Calc if you want to reuse the results from the pivot table elsewhere in your spreadsheet.

### Syntax

The syntax has two variations:

```
GETPIVOTDATA(target field, Pivot Table, [ Field name / Element, ... ])  
GETPIVOTDATA(Pivot Table, specification)
```

### First syntax variation

The **target field** specifies which data field of the pivot table is used within the function. If your pivot table has only one data field, this entry is ignored, but you *must* enter it anyway.

If your pivot table has more than one data field, then you have to enter the field name from the underlying data source (for example "Sales Value") or the field name of the data field itself (for example "Sum – Sales Value").

The argument **Pivot Table** specifies the pivot table that you want to use. It is possible that your document contains more than one pivot table. Enter here a cell reference that is inside the area of your pivot table. It might be a good idea to always use the upper left corner cell of your pivot table, so that you can be sure that the cell will always be within your pivot table, even if the layout changes.

Example: GETPIVOTDATA("Sales Value", A1)

If you enter only the first two arguments, then the function returns the *total* result of the pivot table ("Sum – Sales Value" entered as the field, will return a value of 408,765).

You can add more arguments as pairs with **Field name** and **Element** to retrieve specific partial sums. In the example in Figure 46, where we want to get the partial sum of Hans for Sailing, the formula in cell C12 would look like this:

```
=GETPIVOTDATA("Sales Value",A1,"Employee", "Hans", "Category", "Sailing")
```

	A	B	C	D	E	F	G
1	Filter						
2							
3	Sum - Sales Value	Category					
4	Employee	Golf	Sailing	Tennis	Total Result		
5	Brigitte	\$26,961	\$24,422	\$17,721	\$69,104		
6	Fritz	\$46,839	\$19,976	\$38,638	\$105,453		
7	Hans	\$17,941	\$14,060	\$30,467	\$62,468		
8	Kurt	\$28,346	\$20,814	\$27,675	\$76,835		
9	Ute	\$36,127	\$30,580	\$28,198	\$94,905		
10	Total Result	\$156,214	\$109,852	\$142,699	\$408,765		
11							
12			14060				

Figure 46: First syntax variation

### Second syntax variation

The argument **Pivot Table** has to be given in the same way as for the first syntax variation.

For the **specification**, enter a list separated by spaces to specify the value you want from the pivot table. This list must contain the name of the data field, if there is more than one data field; otherwise it is not required. To select a specific partial result, add more entries in the form of Field name[Element].

In the example in Figure 47, where we want to get the partial sum of Hans for Sailing, the formula in cell C12 would look like this:

```
=GETPIVOTDATA(A1,"Sales Value Employee[Hans] Category[Sailing]")
```

	A	B	C	D	E	F	G
1	Filter						
2							
3	Sum - Sales Value	Category					
4	Employee	Golf	Sailing	Tennis	Total Result		
5	Brigitte	\$26,961	\$24,422	\$17,721	\$69,104		
6	Fritz	\$46,839	\$19,976	\$38,638	\$105,453		
7	Hans	\$17,941	\$14,060	\$30,467	\$62,468		
8	Kurt	\$28,346	\$20,814	\$27,675	\$76,835		
9	Ute	\$36,127	\$30,580	\$28,198	\$94,905		
10	Total Result	\$156,214	\$109,852	\$142,699	\$408,765		
11							
12			14060				

Figure 47: Second syntax variation

When working with data sets containing date information, you must take care if you use the date information in the GETPIVOTDATA() function. The function will only recognize the date entry if it is entered into the formula in exactly the same way that it appears in the data set from which the pivot table is produced. In the example of Figure 48, an error is returned when the date format does not match that of the data. Only with the correct format is the result returned.

Sum - Cost		Date		Total Result
Name	Phone number	26/01/2010	24/02/2010	
Jones	12345678921	0.84	1.0928	1.9328
	12345678922	7.816	1.4812	9.2972
<b>Jones Sum - Cost</b>		<b>8.656</b>	<b>2.574</b>	<b>11.23</b>
Smith	12345678911	1.0038	3.7265	4.7303
	12345678912	15.911	4.4125	20.3235
<b>Smith Sum - Cost</b>		<b>16.9148</b>	<b>8.139</b>	<b>25.0538</b>
<b>Total Result</b>		<b>25.5708</b>	<b>10.713</b>	<b>36.2838</b>
Result	Formula			
#REF!	=GETPIVOTDATA(\$A\$2,"Date[26/01/10]")			
25.5708	=GETPIVOTDATA(\$A\$2,"Date[26/01/2010]")			

Figure 48: Error produced if date information is not entered correctly

## Using pivot charts

### Introduction

A pivot table is a powerful tool to reorganize, manipulate and summarize data. A pivot chart provides a visual representation of the information in a pivot table. You can create a pivot chart from the output of a pivot table and, if the pivot table gets changed, so does the pivot chart.

Pivot charts are a special case of the more general Calc charts described in Chapter 3, Creating Charts and Graphs. The main differences between pivot charts and other charts in Calc are as follows:

- A pivot chart tracks the changes in the data issued from a pivot table and Calc automatically adjusts the data series and data range of the pivot chart accordingly.
- Pivot chart buttons are provided on pivot charts. These buttons are unique to pivot charts and are not provided on Calc's normal charts. An important purpose of the buttons is to represent the layout of the underlying pivot table and they show the pivot table's fields. Buttons representing the page fields (if present) are provided at the top of the pivot chart. Buttons representing the row fields are provided at the bottom of the pivot chart. Buttons representing the column fields are stacked in the legend at the right of the pivot chart. You can also use pivot chart buttons to filter the data displayed in the pivot chart.

### Pivot Table

Filter	
Branch	- all -

	Data		
Car model	Sum - Show Room	Sum - Used	Sum - Repair Shop
Model 01	52	36	18
Model 02	60	41	49
Model 03	21	47	50
Model 04	55	34	60
Model 05	38	43	18
Model 06	36	48	42
Model 07	29	55	31
<b>Total Result</b>	<b>291</b>	<b>304</b>	<b>268</b>

### Pivot Chart

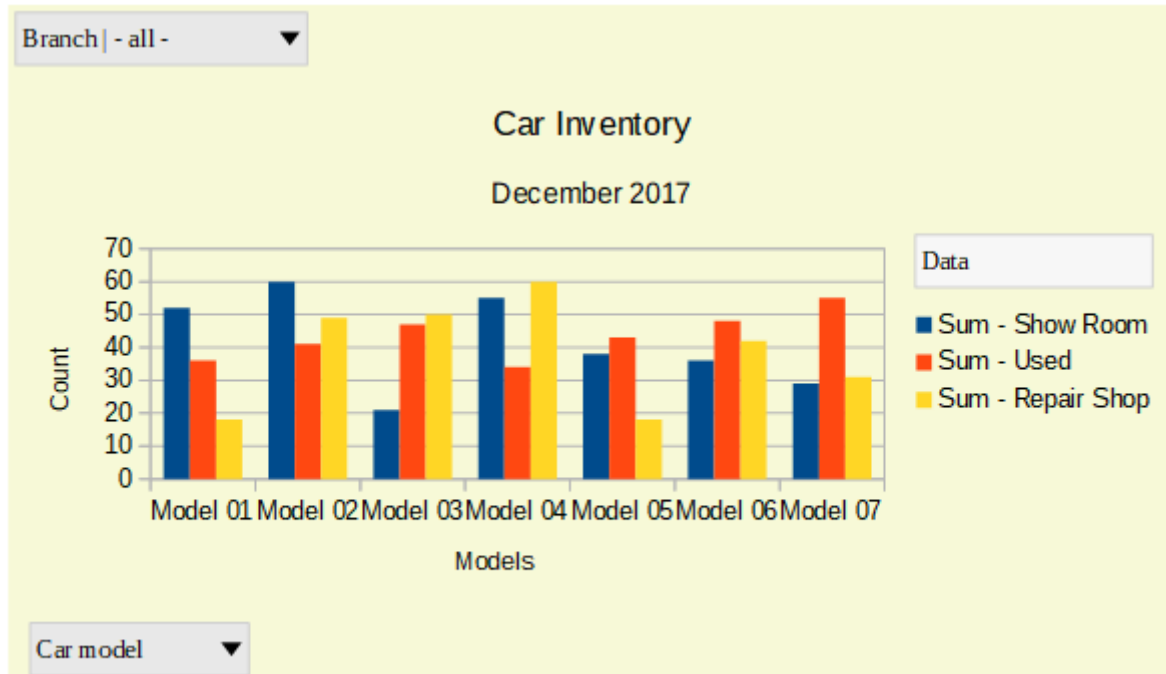



Figure 49: Sample pivot chart and associated pivot table



## Creating a pivot chart

To create a pivot chart, click inside the pivot table and select **Insert > Chart** on the Menu bar or click the **Insert Chart** icon  on the Standard toolbar.

Calc automatically detects the pivot table and opens the chart wizard. Through the chart wizard you can select the chart type and chart elements for the pivot chart. The wizard is similar to the corresponding wizard for normal charts but for pivot charts, the steps to define data range and data series are disabled.

The first step in the wizard is to select the chart type and the same options are available as for a normal chart (Figure 50).

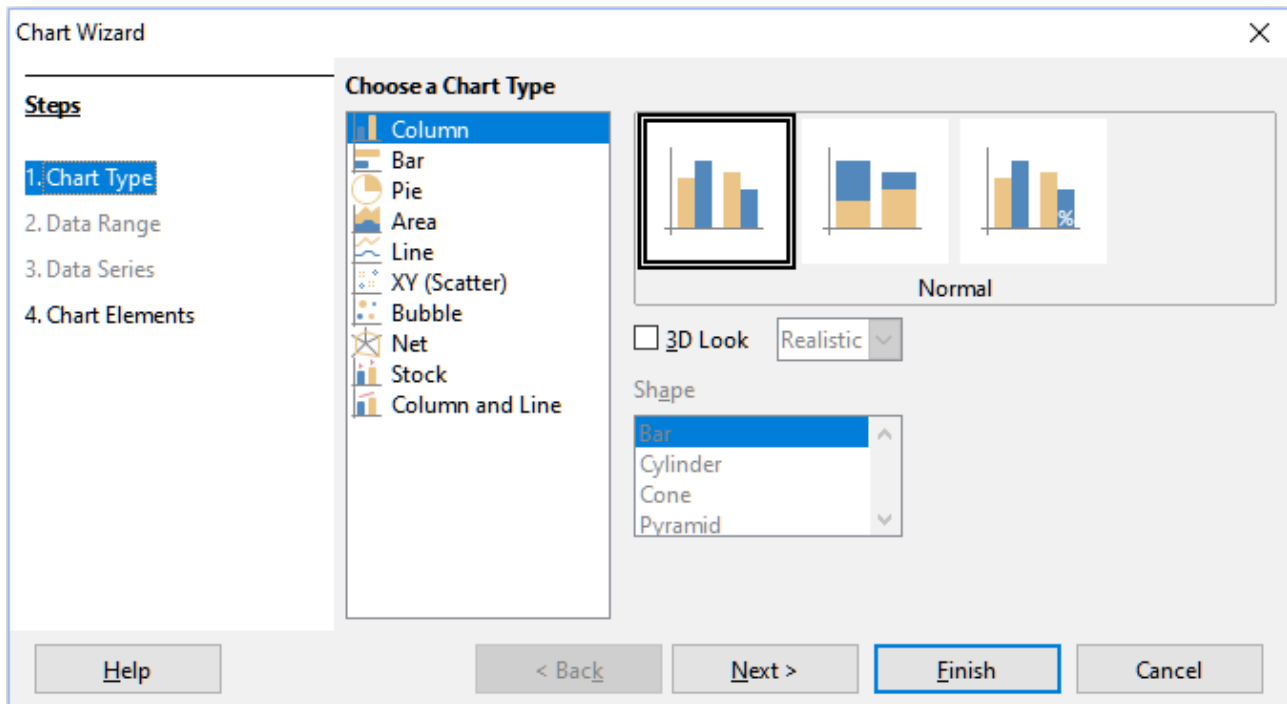


Figure 50: Select the chart type through the chart wizard when creating a pivot chart

The second step is to select the chart elements and these are similar to those for normal charts (Figure 51).

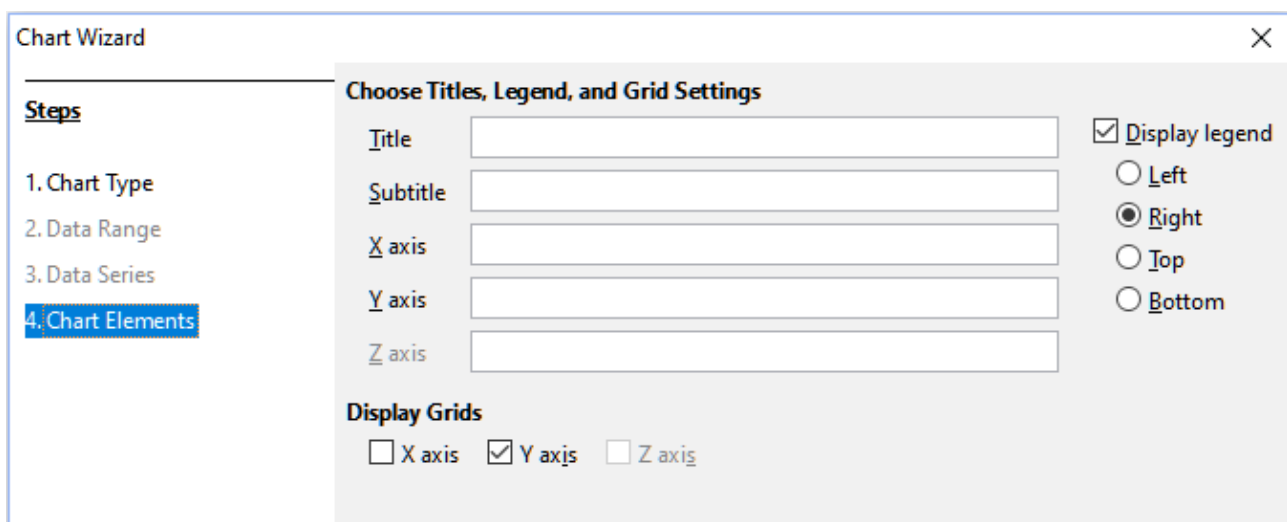


Figure 51: Enter chart elements through the chart wizard when creating a pivot chart

Click **Finish** to close the wizard and create the pivot chart.

## Editing a pivot chart

After you have created a pivot chart, you may find that you would like to move it, change its size or improve its appearance. Calc provides tools for changing the chart type, chart elements, fonts, colors, and many other options. The facilities provided for pivot charts are the same as those available for normal charts; see Chapter 3, Creating Charts and Graphs.

## Updating a pivot chart

If the source data of the pivot table changes, refresh the pivot table and the pivot chart is also updated accordingly. To refresh the pivot table (and thus the pivot chart), click in any cell within the pivot table and select **Data > Pivot Table > Refresh** from the Menu bar or select **Refresh** from the context menu.

## Filtering a pivot chart

Use filters to remove unwanted data from a pivot chart.

All filters applied to a pivot table affect any linked pivot chart equally, since the table and chart show exactly the same data. The various pivot table filtering mechanisms are described in “Filtering” on page 26.

Pivot chart buttons include a down arrow to indicate that there is an associated pop-up action. If any filtering is applied, then this arrow turns from black to blue.

Click a page field button located at the top of a pivot chart to access a filtering dialog similar to that shown in Figure 43. Change the filtering applied to the pivot table and pivot chart through this dialog. The right-hand section of the button’s legend indicates the filtering status, that is “- all -” when nothing is filtered, “- multiple -” when multiple but not all items are filtered, or the value when only that value is not filtered.

Buttons located at the bottom and right of a pivot chart that include a downward pointing arrow provide access to a sorting and filtering dialog similar to the shown in Figure 35. Change the sorting and filtering applied to the pivot table and pivot chart through this dialog.

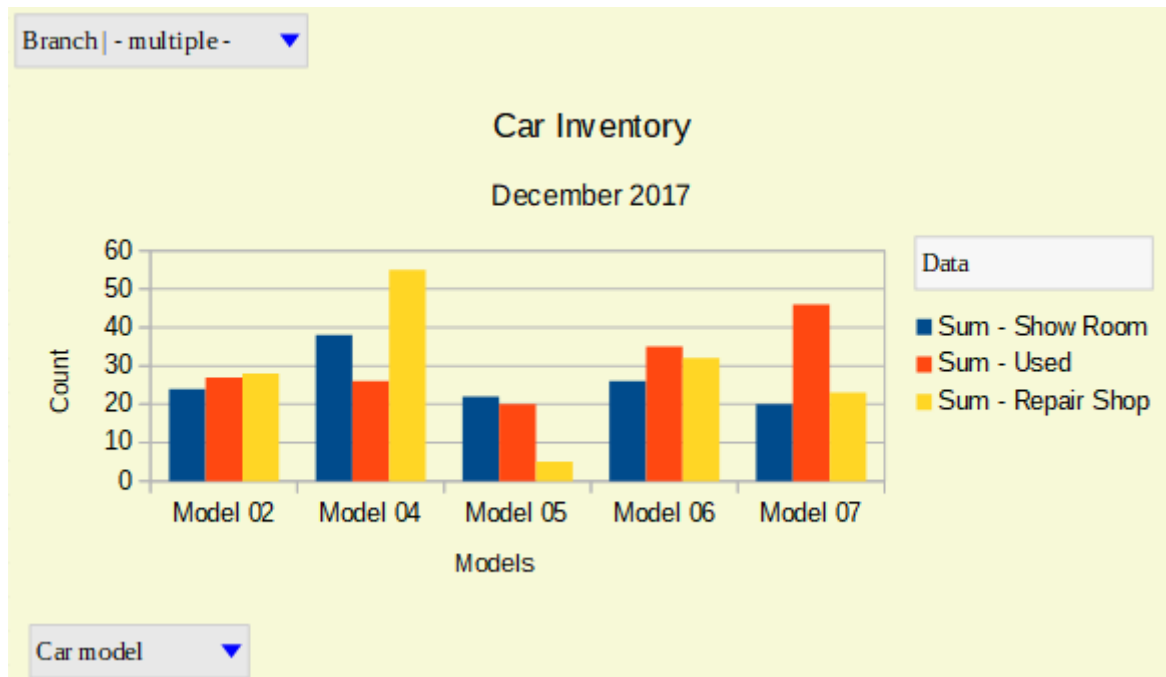


Figure 52: Filtering applied to page and row fields

## Deleting a pivot chart

To delete a pivot chart, select the chart and press *Del* on the keyboard.



### Note

When you delete a pivot chart, the associated pivot table is not affected.

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### Warning

If you delete a pivot table with an associated pivot chart, the pivot chart is also deleted. Calc opens a dialog box to confirm the pivot chart deletion.

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