Pivot Tables

Pivot Tables

Although sorting provides a way of organising data that you may want to summarise, Pivot Tables provides a more efficient way of doing this. A simple example is creating a frequency table of counts. For example, suppose we want to know from a study of infants at what gestational age babies were born.

Before starting, click on a cell in the worksheet containing the data to be analysed.

Select the **Insert** ribbon and from the **Tables** group **click** on **PivotTable** a **Create PivotTable** dialogue is displayed.

Excel offers a range of data to be analysed. If this is not correct click on the solution and select the data to be analysed.

Select *New Worksheet* from the *Choose where you want the Pivot Table report to be placed* option. It is better to keep the data and the table on different Excel sheets.

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Choose the data that you want to analyze							
Select a table or rail	nge						
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🔘 Use an external data source							
Choose Connection							
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Choose where you want the PivotTable report to be placed New Worksheet Existing Worksheet							
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A skeleton Pivot table will be created as shown below.

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Calculating Frequencies

Select **Gestational Age** in the *Pivot Table Field* list. But make sure you do not tick the box next to it, if you do untick it.

Drag **Gestation Age** into the *Row labels* section.

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A list of the Gestational Ages will be created as shown opposite.

Right click on **Gestational Age** and select *Add to Values*.

Note You could have right clicked at the previous step. There is more than one way to build the Pivot Table.

Excel displays the *Sum of Gestational Ages* by default. You can change this as shown on the next page.





Click on cell **B3** Sum of Gestational Ages (weeks).

Select the Calculations group - *Summarize Value By* and select *Count*.

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The number of infants born at each gestational age is now displayed. The title of this column makes it wide.

Change this by either editing the cell or by selecting **Count of Gest...** in the *Values* section. Click the down arrow. Count of Gesta... Select Value Field Settings...

from the menu.

Change the custom name to **Count** using the *Value Field Settings* dialogue. This also provides another way to change the *Summarize Value Field* by.

Click **OK**

You might want to narrow the width of the column.

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Value Field Settings
Source Name: Gestational Age (weeks)
Custom Name: Count
Summarize Values By Show Values As Summarize value field by
Choose the type of calculation that you want to use to summarize data from the selected field
Sum
Count
Max
Min
Product T
Number Format OK Cancel

Creating a Pivot Chart

The Pivot table button drop down provides the option to create a *PivotChart* as well as a table. Clicking this option displays a *Create PivotTable with PivotChart* dialogue.





Drag **Gestation Age** to the *Axis Fields (Categories)* section and again to the *Values* section. This is similar to process for producing a PivotTable described above.

The chart may display the *Sum* rather than *Counts*.



Select **Pivot Tables – Options** and use the **Calculations** group to select *Summarise Values By* to choose the *Count* option.

The chart displays *Field* buttons. These can be removed by **right** clicking over a button and selecting Hide All Field Buttons on Chart.

PivotTable Tools	
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Charts and how to edit them will be described later.

Adding more Columns (fields)

Suppose you want to calculate the percentages of each gestational age as well as counts. **Right click** on **Gestational Age** in the '*Choose fields to add to report section*', select

Σ Add to Values

First change the contents of the cell *Sum of Gestational Age* (weeks) to Percentages.

From the Calculations group select: *Calculations Show Values As* and choose: % of Column Total



The screen opposite shows the result (with titles changed).



Two dimensional tables

Suppose that you want to analyse the Gestational age by Gender.

You can either: Select **Gender** and **Drag** it into the *Columns Labels* area above the Σ values \neg item, which needs good drag and mouse control. Or

Right click on **Gender** in the *Choose Fields to add to report* section and select *Add to Column Labels*. Then click the Σ values \checkmark dropdown button and select *Move Down*.

√ Report Filter
Column Labels Gender
Row Labels
Gestational Ag 🔻

Select the Show group and **click** the Field Headers icon ^[I]Field Headers to improve the display of the table.

The display with Gender \checkmark above Σ Values \checkmark may be preferable to the alternative, which has counts for Gender next to each other followed by Percentages

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Note If you place a Field, in the 'wrong' position in the Pivot Table, you can drag the field out of the Pivot Table Field List to remove it, or untick a selected field. Alternatively, you can click the Undo and Redo buttons To Construct to restore the Pivot table to its previous setting or return to the current one.

Modifying the layout

The **Design** tab in the **PivotTable Tools** can be used to change the layout of the Table. You can also use the tools on the **Home** tab as well.

Subtotals Grand * Totals * Layout * Rows	 Row Headers Banded Rows Column Headers Banded Columns 	
Layout	PivotTable Style Options	PivotTable Styles

One useful button is the **Grand Totals**, which allows you to display or hide the Column and Row totals.

Pivot Tables

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e screenshot at the previous page							
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	Ending at:	45					
	By:	5					
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Grouping Data

If there are many categories in a field we might wish to group the data. For example you might wish to group the Gestational Ages in 5 year bands.

The Grouping Tools on the Options Tab of PivotTabl

Male 1.71% 32.19%

66.10%

this, but you must select Row Labels (A5 to A14 in the e). in the pivot table to enable them. X

Total Count Total Percentage

100.00%

2

74

111

187

Click Group Field and enter your grouping parameters opposite.

🖗 Ungroup 🛃 Group Field Group

Cancel

1

Group Selection

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Groupings can be

Another way to group is to highlight a selection of cells and click Group Selection this allows for random groups of cell.

Percentage

0.00%

100.00% 100.00%

45.18% 82%

54.

A table based on grouped values is shown below.

Male Female

33

64

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99

Count

30-34

35-39

40-45

Grand Total

Female

41

88

The screen below shows the result. *Group 1* can be condensed to a single row by clicking on the \blacksquare button

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Viewing the raw data for a cell

The data (cases) that contribute to each row of a Pivot Table can be displayed in a new worksheet by **double clicking** on a cell in that row. The new sheet below was created by clicking on cell **C11** in the screenshot above which shows a count of 6.

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More Complex Tables

Pivot tables can be used to produce summary statistics for discrete categories or groups of a Field. For example you might require the Count, Mean, and Standard Deviation of a continuous variable (field).

The figures below illustrates this, summary statistics have been produced for *Birth Weight* by each *Gestational Age*.

This was created by: Selecting **Birth Weight** in the *Choose fields to add to report section*. **Right Click** and selecting *Add to Values* three times.

Each item in *Values* was selected (using the dropdown) and *Value Field Settings* used to change the *Custom Name* and *Summarize Value field by* options.

Decimal places were reduced using the **Decrease Decimal** button on the **Home** tab.

