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 at what gestational age babies were born from a study of infants.

Before starting, click on a cell in the worksheet containing the data to be analysed. Select **Data | Pivot Table and Pivot Chart Report**, a PivotTable and PivotChart wizard appears which has three steps.

Step 1:

The data to be used is in an Excel list or database, but it can come from other sources, for example an Access database, or an existing Pivot Table.

Note the wizard can also produce charts.

Click Next >



< Back

Pivot Table and Pivot Chart Wizard - Step 2 of 3

Where is the data that you want to use?

Cancel

Range: \$A\$1:\$3\$188

2

Step 2:

Excel may identify the range of cells containing your data or you may have to use the solution to identify the range of cells.

Click Next >

Step 3:

Choose where to create the Pivot table report, in a new worksheet or in an existing worksheet.

If the table is placed in an existing work sheet you must identify the cell that will contain the top right portion of the table

Click Layout...

A blank table is presented in the Layout window.

To specify what should appear in it, drag



? ×

Browse...

<u>Finish</u>

.

 $\underline{N}ext >$

the label, *GestAge*, in the list of field buttons from the left side of the screen to the *ROW* area of the table. Then drag the same label to the *DATA* area where the button is renamed to *Sum of Gestage*.



Note: If you drag the 'field buttons' name in the wrong place, or select the wrong button drag it to its correct location or drag it back to the list of 'fields' where it came from

If the field selected has blank cells, Excel would offer the *Count of* the field, for example Count of Gestage.

To obtain the *Count of*, or other summary statistics, double click the *Sum of* button (*GestAge* in this example)

Pivot Table and	d PivotCh	art Wizaro	d - Layout				?×
5000 2 5000 2	Bus Vornus (Y	}	Reserved C	construct yo ragging the the diagra	our PivotTable field buttons am on the lefi	e report by s on the right t.	
	PAGE	GestAge <u>R</u> OW	<u>C</u> OLUMN Sum of GestA <u>D</u> ATA	ge		StudyNo Group Birthwt GestAge Sex Msmokbp	Mastev Pastev BICDPIM BIMDPIM
				<u>H</u> elp		ОК	Cancel

Select the *Count* item in the *Summarize by:* list.

The text in the *Name:* text box could be changed, for example to Count.

A pivot table can summarise data in one, two or three dimensions. This is controlled by which fields are dragged into the **Row**, **Column** or **Page** areas in the above figure. These areas provide the categories, or groupings for summaries of fields (e.g. counts, percentages, means) that are placed in the **Data** area.

Click **OK** Click **Finish**

Pivot Table Field	?)
Source field: GestAge	ОК
Name: Count of GestAge	Cancel
Sum	Hide
Average	<u>N</u> umber
Max Min	Options >>
Count Nums	

A PivotTable will be created in a new worksheet.

Depending on your Excel settings, the Pivot Table toolbar may be displayed and a PivotTable Field List shown.

	Å	В	С	D	E
1	Drop Page Fields He	re	Piv	ot Table Field List	▼ ×
2			Des	a items to the Divet	Table conect
3	Count of GestAge		Dra	ig items to the Pivot	Table report
4	GestAge 🔹	Total			
5	33	1			
6	34	1		Group	
7	35	1		Birthwt	
8	36	1		🗏 GestAge	
9	37	8			
10	38	27			
11	39	37		Мізтокор	
12	40	70		- Mastev	
13	41	30		Pastev	
14	42	11			
15	Grand Total	187			
16					
17					
18					
19			A	dd To Row Area	•
20					
21	Divet Table				
22	Pivot i able				
23	Pivot Table 🔻 📶 🛄		【 】 【 閲		
24					

Note In Excel 2000 the field list is shown on the Pivot Table toolbar, not as a separate item. The Pivot Table Tool bar can be displayed by selecting **View | Toolbars | Pivot Table** The PivotTable Field List may be hidden or shown by clicking on the Hide Field List button on the toolbar

To subdivide this information by Gender, drag the *Sex* field from the Pivot Table Field List onto the *Total* cell.

Note: If this field is dragged into a different area of the table, different breakdown layouts are obtained.

To remove a field, drag it back from the Pivot table to the Pivot Table Field List.

To show just one group of a category, for example, Sex, click the dropdown arrow next to the Sex label and uncheck one of the groups.

	A	В	С	D
1	Drop	Page Field	s Here	
2				
3	Count of GestAge	Sex 💌	Į	
4	Geståge 💌 🔻	1	2	Grand Total
5	33	1		1
6	34	1		1
7	35	1		1
8	36		1	1
9	37	2	6	8
10	38	14	13	27
11	39	16	21	37
12	40	44	26	70
13	41	15	15	30
14	42	5	6	11
15	Grand Total	99	88	187
			_ (Show A ▼ 1 _ 2	1)
			OK	Cancel

Note Fields or items that have a grey background in the Pivot table can be double clicked to bring up a window to change their attributes, for example Count of Gestage, Gestage and Sex in the Pivot table above. The Pivot Table tool on the Tool bar, selected by clicking on, <u>PivotTable</u>, provides a variety of tools for organising and displaying data in a Pivot Table. A similar list of tools is presented by right clicking over the Pivot Table.

Table Options displays a Pivot TablesOptions window as shown below. Twoof the Options allow you to controlwhether the *Grand Totals* of thesummary statistics for each field in theTable are shown for Columns and Rows.

Pivo	tTable
<u>P</u> ivot	:Table 🔹 🚈 📶 🖳 🖓
2	Format Report
10	Pivot <u>C</u> hart
ī	<u>W</u> izard
1	<u>R</u> efresh Data
	Offline OLAP
	Hi <u>d</u> e
	Select +
	<u>G</u> roup and Show Detail →
	For <u>m</u> ulas •
	Ord <u>e</u> r •
€:	Field Settings
~	S <u>u</u> btotals
	Sort and Top 10
£ .,	Property Fields
	Table Options
E	Show <u>P</u> ages

Pivot Table Options	? ×
Name: PivotTable1	[
Format options	
Grand totals for columns	Page layout: Down, Then Over
Grand totals for rows AutoFormat table	Fields per column: 0
Subtotal hidden page items Merge labels	For error <u>v</u> alues, show:
Preserve formatting	For empty cells, show:
Repeat item labels on each printed page	Set print titles
Mark Totals with *	
Data options	
Data source options:	External data options:
Save data with table layout	Save password
Enable drill to details	Background query
<u>R</u> efresh on open	Optimize memory
Refresh every 0 👘 minu	tes
	OK Cancel

Displaying other statistics in a Pivot table.

If you wish to display row percentages for subgroups. Click **PivotTable** on the Pivot Table toolbar and select the **Wizard**. Step 3 of the Wizard will be displayed. Click on the **Layout...** button. The Pivot Table and Pivot Chart Wizard – Layout window will be displayed.

Drag *GestAge* to the *DATA* area where it will be renamed *Sum of GestAge*. Double Click on *Sum of GestAge*.

A Pivot Table Field dialogue box will be displayed.

Click on *Count* in the *Summarise by:* panel Select **Options >>** Click on the *Show data as:* dropdown list and select % of *Row*. Click **OK** Click **OK** Click **Finish**

The Pivot table shown below will be obtained.

The titles in the Data Area can be changed. For example *Count of GestAge2* could be changed to *Percentage* by Right Clicking over it, selecting Field Settings and editing the contents of the *Name:* text box



	A	В		С	D	E
1		Drop Page Fie	lds	s Here		
2						
3				Sex 🔻		
4	GestAge 💌 🔻	Data	Ŧ	1		2 Grand Total
5	33	Count of GestAge	∍	1		1
6		Percent		100.00%	0.00	% 100.00%
7	34	Count of GestAge	э	1		1
8		Percent		100.00%	0.00	% 100.00%
9	35	Count of GestAge	э	1		1
10		Percent		100.00%	0.00	% 100.00%
11	36	Count of GestAge	э			1 1
12		Percent		0.00%	100.00	% 100.00%
13	37	<u>Count of GestAq</u> e	∍	2		6 8
14		Percent		25.00%	75.00	% 100.00%
15	38	Count of GestAge	₽.	14	1	3 27
16		Percent		51.85%	48.15	% 100.00%
17	39	Count of GestAge	∍	16	2	1 37
18		Percent		43.24%	56.76	% 100.00%
19	40	Count of GestAge	∍	44	2	6 70
20		Percent		62.86%	37.14	<u>% 100.00%</u>
21	41	Count of GestAge	∍	15	1	5 30
22		Percent		50.00%	50.00	% 100.00%
23	42	Count of GestAge	∍	5		6 11
24		Percent		45.45%	54.55	<u>% 100.00%</u>
25	Total Count of Ge	ståge		99	8	8 187
26	Total Percent			52.94%	47.06	% 100.00%

A different table layout can be obtained by dragging the GestAge on to the Data field

The table opposite will be obtained.

	A	В	С	D	E
1		Drop Page	Fields Here		
2					
3			Sex 💌		
4	Data 🔻	Gestàqe 🔻	1	2	Grand Total
5	Count of GestAge	33	1		1
6		34	1		1
7		35	1		1
8		36		1	1
9		37	2	6	8
10		38	14	13	27
11		39	16	21	37
12		40	44	26	70
13		41	15	15	30
14		42	5	6	11
15	Percent	33	100.00%	0.00%	100.00%
16		34	100.00%	0.00%	100.00%
17		35	100.00%	0.00%	100.00%
18		36	0.00%	100.00%	100.00%
19		37	25.00%	75.00%	100.00%
20		38	51.85%	48.15%	100.00%
21		39	43.24%	56.76%	100.00%
22		40	62.86%	37.14%	100.00%
23		41	50.00%	50.00%	100.00%
24		42	45.45%	54.55%	100.00%
25	Total Count of Ge	estàge	99	88	187
26	Total Boncont		E2 04%	47 06%	100 00%

The rows of data (cases) that contribute to each cell of the GestAge by Sex table can be displayed in a new worksheet. For example, double clicking on the cell (showing a count of 6), where the field GestAge has a value of 37 and the Sex field has a value of 2 results in the following worksheet.

	A	В	С	D	E	F	G	Н	I	J
1	StudyNo	Group	Birthwt	Geståge	Sex	Msnokbp	Mastev	Pastev	B1CDP1M	B1MDP1M
2	187	2	3.09	37	2	1	1		4262	10697
3	163	2	2.892	37	2	2	1	2	22	33
4	133	2	2.25	37	2	2	1	2	646	968
5	119	2	2.892	37	2	2	2	1		
6	103	2	3.289	37	2	1	1		26	182
7	93	1	2.6	37	2		1	2	227	34

Additional Pivot tables

Suppose that we wish to create another table breaking the data down by fields *GestAge* and *MSmokbp* (Mother's smoking habits before pregnancy where 1 = Yes & 2 = No). Click on any cell in the worksheet that is **not** in the Pivot table, select the Pivot Table Wizard, from the tool bar or via the menu bar.

Step 1:

Choose the option 'Another PivotTable report or Pivotchart report' from the 'Where is the data that you want to analyse?' options.

Click **Next >** Step 2:

Select PivotTable1 Click **Next >**

PivotTable and PivotChart Wizard - Step 2 of 3					
Which Piv	votTable report contains the data you want to use?				
PivotTab	le1	<u> </u>			
		V			
2	Cancel < <u>B</u> ack <u>N</u> ext >	<u>F</u> inish			

Proceed to select the fields

Note:

- 1. It is more efficient to create new Pivot tables from an existing one
- 2. You must create individual pivot tables for each pair of fields

Complex Tables

Pivot tables can be used to produce summary tables for fields where the content of the table might be the Count, Mean, Minimum, Maximum and Standard Deviation of a continuous field (variable). The figure below illustrates this, summary statistics have been produced for Birth Weight broken down by Gestational Age and Group.

Pivot Table and PivotCh	art Wizard - Layout		?×
For Paus Lass Convert	Correction	nstruct your PivotTable report by gging the field buttons on the righ the diagram on the left.	t
PAGE	Group Count of Birthw Biverage of Birthw Min of Birthwt2 Max of Birthwt2 ROW StdDev of Birthw	OLUMN t t2 t2 TA	StudyNo B1MDP1M Group Birthwt GestAge Sex Msmokbp Mastev Pastev B1CDP1M
		Help	OK Cancel

The *Birthwt* field was dragged into the *DATA* area and each item changed from *Count of Birthwt*, by double clicking, to the required statistic. The name is changed to *BirthWt2* because each time the field is dragged into the DATA area it is initially set as Count of Birthwt2.

Grouping the Pivot Table

If there are many categories in a field we might wish to group the data. This can be achieved by clicking on **PivotTable** and selecting **Group and Show Detail**, then **Group**. A **Grouping** dialog box is displayed. In the example GestAge is grouped **By: 2**

The Pivot table is displayed as shown.

Note: There cannot be any blank cells in the range of cells to be grouped.

Grouping	? ×
Auto	
Starting at:	33
Ending at:	42
<u>B</u> y:	2
	OK Cancel

3	Count of GestAge	
4	GestAge 💌 💌	Total
5	33-34	2
6	35-36	2
- 7	37-38	37
8	39-40	105
9	41-42	41
10	Grand Total	187

Fields that have been grouped in a Pivot table can be ungrouped by selecting

More information on the Use of Pivot Tables can be found at from the Microsoft Office Assistance site where an introductory article called '*Pivot, Swivel, and Roll: It's Not Just for Dancing Anymore*' is available:

http://office.microsoft.com/assistance/2002/articles/colPivots.aspx