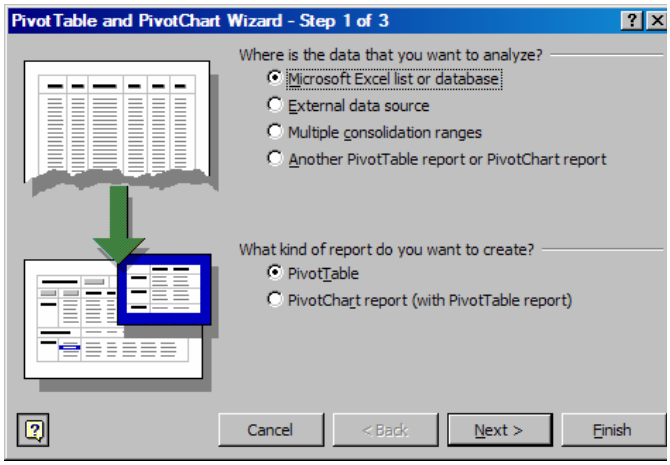
Pivot Tables

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:

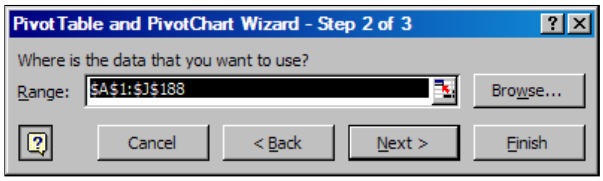


The data to be used is in an Excel list or database, but it can come from other sources, for example an Access database, or an existing Pivot Table.

Note *the wizard can also produce charts.*

Click **Next >**

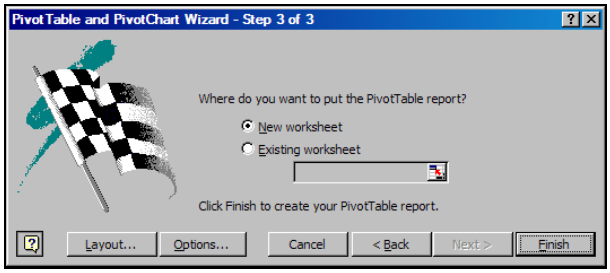
Step 2:



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

Click **Next >**

Step 3:



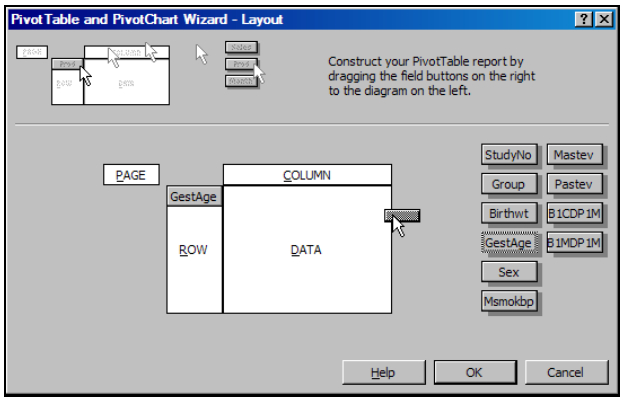
Choose where to create the Pivot table report, in a new worksheet or in an existing worksheet.

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

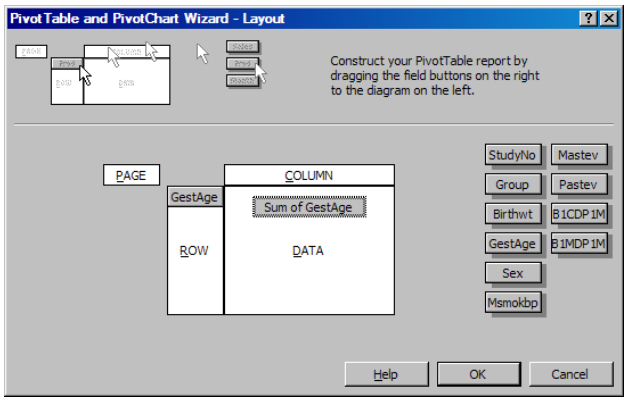
the label, ***GestAge***, in the list of field buttons from the left side of the screen to the ***ROW*** area of the table. Then drag the same label to the ***DATA*** area where the button is renamed to *Sum of Gestage*.



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

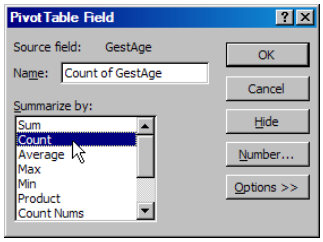
If the field selected has blank cells, Excel would offer the *Count of* the field, for example Count of Gestage.

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



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

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

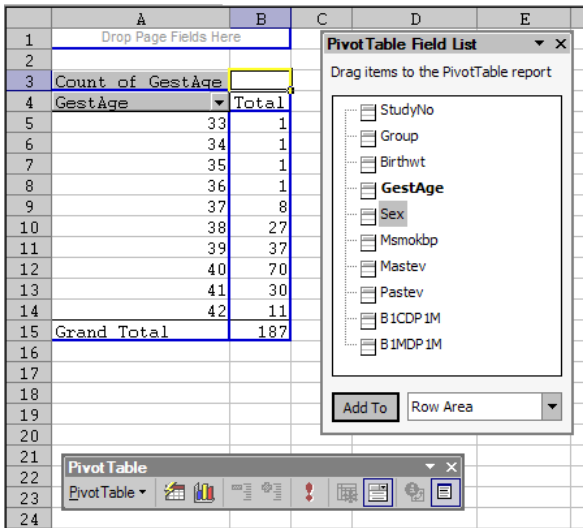


A pivot table can summarise data in one, two or three dimensions. This is controlled by which fields are dragged into the **Row**, **Column** or **Page** areas in the above figure. These areas provide the categories, or groupings for summaries of fields (e.g. counts, percentages, means) that are placed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

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

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.

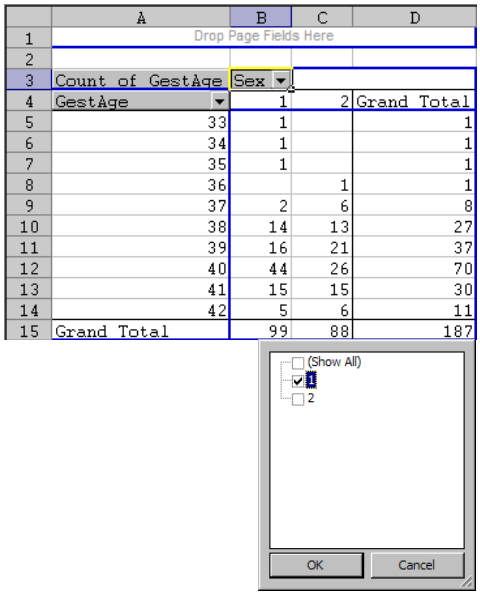


Note *In Excel 2000 the field list is shown on the Pivot Table toolbar, not as a separate item.*
The Pivot Table Tool bar can be displayed by selecting **View | Toolbars | Pivot Table**
The PivotTable Field List may be hidden or shown by clicking on the Hide Field List button  on the toolbar.

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

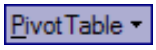
Note: *If this field is dragged into a different area of the table, different breakdown layouts are obtained.*

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.

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, 

, 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.

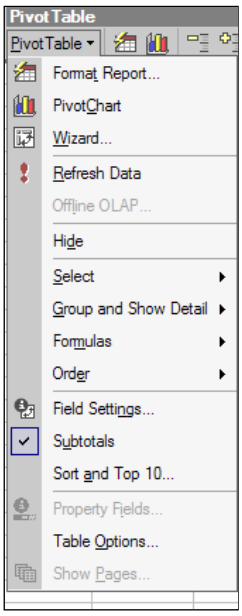
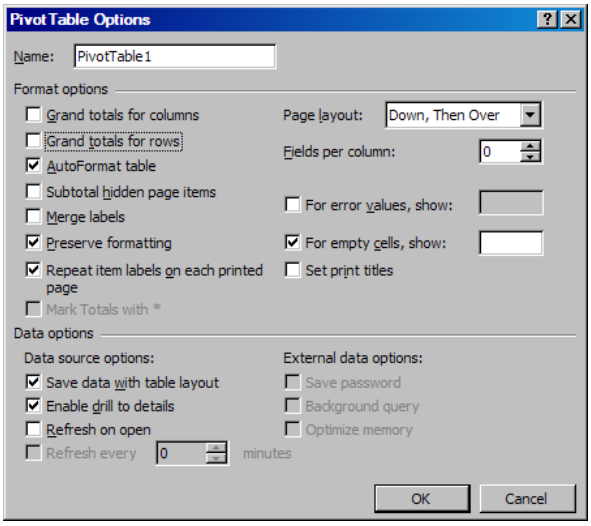
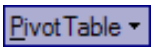


Table Options displays a Pivot Tables Options window as shown below. Two of the Options allow you to control whether the *Grand Totals* of the summary statistics for each field in the Table are shown for Columns and Rows.

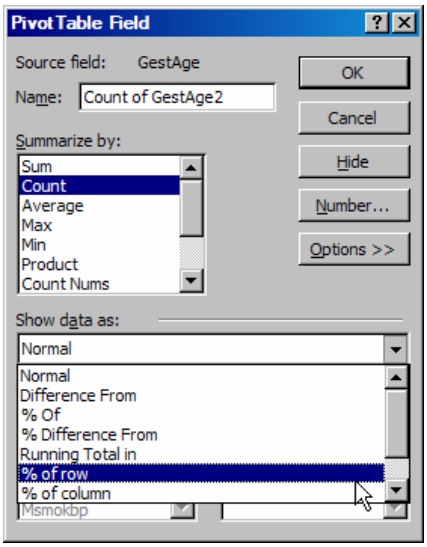


Displaying other statistics in a Pivot table.

If you wish to display row percentages for subgroups. Click 

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	B	C	D	E
1	Drop Page Fields Here				
2					
3			Sex		
4	GestAge	Data	1	2	Grand Total
5	33	Count of GestAge	1		1
6		Percent	100.00%	0.00%	100.00%
7	34	Count of GestAge	1		1
8		Percent	100.00%	0.00%	100.00%
9	35	Count of GestAge	1		1
10		Percent	100.00%	0.00%	100.00%
11	36	Count of GestAge		1	1
12		Percent	0.00%	100.00%	100.00%
13	37	Count of GestAge	2	6	8
14		Percent	25.00%	75.00%	100.00%
15	38	Count of GestAge	14	13	27
16		Percent	51.85%	48.15%	100.00%
17	39	Count of GestAge	16	21	37
18		Percent	43.24%	56.76%	100.00%
19	40	Count of GestAge	44	26	70
20		Percent	62.86%	37.14%	100.00%
21	41	Count of GestAge	15	15	30
22		Percent	50.00%	50.00%	100.00%
23	42	Count of GestAge	5	6	11
24		Percent	45.45%	54.55%	100.00%
25	Total Count of GestAge		99	88	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	B	C	D	E
1	Drop Page Fields Here				
2					
3			Sex		
4	Data	GestAge	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 GestAge		99	88	187
26	Total Percent		52.94%	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.

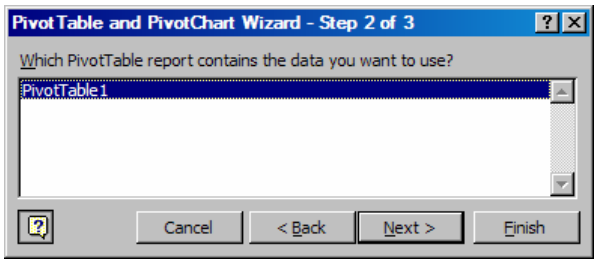
	A	B	C	D	E	F	G	H	I	J
1	StudyNo	Group	Birthwt	GestAge	Sex	Msmokbp	Mastev	Pastev	B1CDP1M	B1MDP1M
2	187	2	3.09	37	2	1	1		4262	10697
3	163	2	2.892	37	2	2	1	2	22	33
4	133	2	2.25	37	2	2	1	2	646	968
5	119	2	2.892	37	2	2	2	1		
6	103	2	3.289	37	2	1	1		26	182
7	93	1	2.6	37	2		1	2	227	34

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 >**

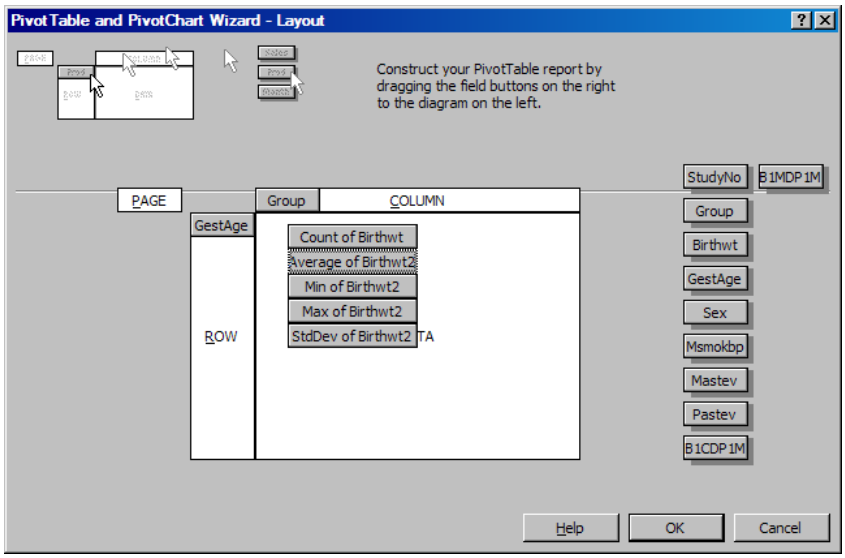
Proceed to select the fields

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

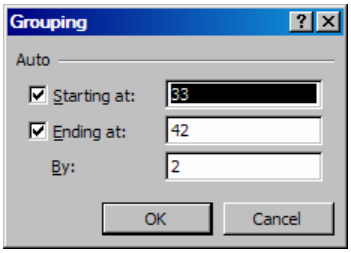
Pivot tables can be used to produce summary tables for fields where the content of the table might be the Count, Mean, Minimum, Maximum and Standard Deviation of a continuous field (variable). The figure below illustrates this, summary statistics have been produced for Birth Weight broken down by Gestational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



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.

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

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

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