

# Excel- Summarise and Analyse Data with Pivot Tables

Pivot Tables are one of Excel's best features. You can use a Pivot Table to summarise and analyse data. It is particularly useful if you work with large amounts of data and need a quick, flexible way to produce reports from it.

## Make sure your data is well laid-out

In order to create a Pivot Table successfully, just follow a few golden rules:

- Your data should be arranged in columns and rows.
- Each column should contain a descriptive heading.

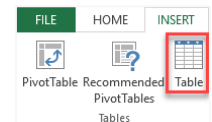


Although not essential, it's good practice to apply formatting, e.g. **bold** to the column headings.

	A	B	C	D	E
1	First Name	Last Name	Salary	Age	Gender
2	Stephanie	Corbett	£125,000	32	Female
3	Diane	Ford	£37,500	25	Female
4	Rose	Kirby	£25,000	26	Female
5	Frances	Holt	£70,313	38	Female
6	Anne	Beager	£21,875	31	Female

- Avoid empty *rows* or *columns* within the data (an occasional empty cell is OK).
- Turning your data into an *Excel Table* will make it easier to add or remove rows and columns in your data without having to redefine the data range of the Pivot Table.

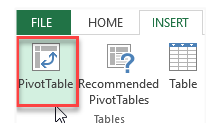
- o Click a cell within your block of data.
- o Press **CTRL + T** on the keyboard, or click the **Insert** tab on the ribbon and click **Table**.



Use the *Table Tools* on the ribbon to apply a *Table Style* to your data.

## Create the Pivot Table

1. Click the **Insert** tab
2. Click **Pivot Table** on the ribbon or press **Alt + N+V** or click **Recommended Pivot Tables**

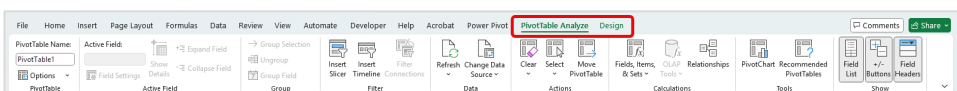


## Choose the information to display in the Pivot Table

Excel creates the pivot table and places a set of **Pivot table Tools** on the ribbon. Use these to work with your pivot table.

Excel also displays the Pivot Table Fields area at the right-hand side of the screen. This is where you can construct the pivot table and decide on its layout.

The pivot table includes totals by default, but you can choose whether to include these or not- Use the **Grand Totals** button in the **Layout** section of the **Design** tab of the **PivotTable Tools**.



## Design the pivot table

Designing your pivot table is as simple as dragging fields from the field list to the field areas. As you do, Excel builds the pivot table on the worksheet so you can see how the data will look.

The screenshot shows the Excel interface with a PivotTable and the PivotTable Fields task pane. The PivotTable is structured as follows:

Row Labels	ESTATES	FINANCE	HR	STORES	TPT	Grand Total
Assistant	£360,000	£342,000	£846,000	£1,026,000	£378,000	£9,042,000
Asst. Manager	£595,000	£420,000	£490,000	£175,000	£1,680,000	£1,680,000
Co-ordinator	£100,000	£600,000	£275,000	£50,000	£200,000	£1,675,000
Director	£50,000	£50,000	£80,000	£50,000	£100,000	£100,000
Manager	£160,000	£280,000	£400,000	£840,000	£560,000	£8,000
Managing Director	£128,000	£560,000	£80,000	£944,000	£96,000	£1,728,000
Operative	£342,000	£285,000	£228,000	£313,500	£171,000	£1,339,500
Supervisor	£342,000	£285,000	£228,000	£313,500	£171,000	£1,339,500
<b>Grand Total</b>	<b>£1,090,000</b>	<b>£2,662,000</b>	<b>£2,299,000</b>	<b>£2,906,000</b>	<b>£2,195,500</b>	<b>£11,964,500</b>

The PivotTable Fields task pane shows the following configuration:

- Filters: Status, Dept
- Columns: Dept
- Rows: Job Title
- Values: Sum of Salary

## See your data in a different way

Pivot Tables are extremely flexible so if you want to change how your data is arranged, just click and drag the fields from one area of the field list pane to another. Excel will rebuild the pivot table and rearrange the data.

If you no longer want a field as part of the pivot table, drag it out of the field list area until you see a cross attached to your mouse then release the mouse button, or click the tick against the field name in the Field List at the right of the window to deselect it.



The screenshot shows the Excel interface with a PivotTable and the PivotTable Fields task pane. The PivotTable is structured as follows:

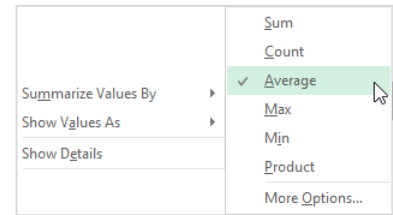
Row Labels	Sum of Salary
Assistant	£3,042,000
Asst. Manager	£1,680,000
Co-ordinator	£1,675,000
Director	£100,000
Manager	£2,320,000
Managing Director	£80,000
Operative	£1,728,000
Supervisor	£1,339,500
<b>Grand Total</b>	<b>£11,964,500</b>

The PivotTable Fields task pane shows the following configuration:

- Filters: Status
- Columns: (Empty)
- Rows: Job Title
- Values: Sum of Salary

## Change the calculation used to summarise your data

1. **Right-click** a summarised value in the pivot table.
2. Choose **Summarize Values By** from the shortcut menu to display a list of available functions.
3. Click the function you want to use to recalculate your data.

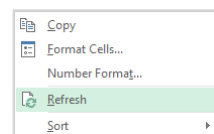


**Note:** by default Excel summarises numeric fields in pivot tables by *Sum* and text data by *Count*.

## Refresh the pivot table

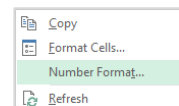
If you change any of the source data for your pivot table, the pivot table will **not** recalculate automatically. To reflect any changes you have made to the source data, you must **refresh** the pivot table.

1. Make changes in the source data.
2. Click into the pivot table.
3. Right-click any cell in the pivot table, and choose **Refresh** from the shortcut menu. Alternatively, click the **Refresh button** on the **Analyze** tab of the PivotTable Tools on the ribbon.



## Format the Pivot Table

- Use the Tools on the **Design** tab to choose the look for the whole pivot table
- **Right-click** a *value* in the pivot table and choose **Number Format...** from the shortcut menu to select the number format you want.
- Right-click text in the pivot table and choose **Format Cells...** from the shortcut menu to set the text format you want.



## Drill down into a summarised value to view details

1. **Double-click** a summarised value in the pivot table.
2. Excel creates a new sheet and places all the items that make up the summarised value into separate rows.

**Note:** the data on the new sheet is static, so won't reflect any later changes.

StaffID	First Name	Last Name	Full Name	Status	Dept	Job Title	Level	Salary	Employment Date	Birthdate	Age
498	Nancy	Bailey	Bailey, Nancy	Full-Time	HR	Assistant	ADM	18000	24/10/2017	11/03/1971	54
497	Arthur	Flores	Flores, Arthur	Full-Time	FINANCE	Assistant	ADM	18000	09/12/2006	24/02/1994	31
495	Amy	Hughes	Hughes, Amy	Temporary	FINANCE	Assistant	ADM	18000	25/02/2017	01/03/1975	50
493	Kathy	Ward	Ward, Kathy	Part-Time	DIST	Assistant	ADM	18000	25/08/2009	10/05/1968	57
5	Anne	Beager	Beager, Anne	Full-Time	DIST	Assistant	ADM	18000	14/11/2008	12/12/1993	32
482	Timothy	Price	Price, Timothy	Full-Time	HR	Assistant	ADM	18000	15/06/2005	15/01/1986	39
481	Kimberly	Anderson	Anderson, Kimberly	Temporary	HR	Assistant	ADM	18000	05/08/2013	19/11/1998	27
480	Elizabeth	Diaz	Diaz, Elizabeth	Temporary	HR	Assistant	ADM	18000	02/03/2013	12/02/1989	36
9	Gloria	Brown	Brown, Gloria	Full-Time	HR	Assistant	ADM	18000	17/04/2008	13/03/1987	38
479	Andrew	Russell	Russell, Andrew	Full-Time	FINANCE	Assistant	ADM	18000	07/05/2016	30/12/1969	56
478	Paula	Ramirez	Ramirez, Paula	Temporary	ESTATES	Assistant	ADM	18000	18/04/2015	05/11/1974	51
477	Lois	Lee	Lee, Lois	Full-Time	STORES	Assistant	ADM	18000	25/02/1996	20/07/1989	36
476	Willie	Barnes	Barnes, Willie	Temporary	DIST	Assistant	ADM	18000	25/05/2013	30/10/1994	31
475	Sandra	Long	Long, Sandra	Temporary	TPT	Assistant	ADM	18000	25/10/2001	18/03/1989	36
467	Teresa	Baker	Baker, Teresa	Temporary	HR	Assistant	ADM	18000	02/09/1996	18/11/1993	32
16	Violet	Squires	Squires, Violet	Temporary	HR	Assistant	ADM	18000	01/03/2002	01/09/1992	33
463	Ruth	Taylor	Taylor, Ruth	Full-Time	HR	Assistant	ADM	18000	02/11/2012	07/02/1966	59
18	Wanda	Frost	Frost, Wanda	Part-Time	ESTATES	Assistant	ADM	18000	16/07/2002	14/09/1998	27
19	Ellen	Lock	Lock, Ellen	Full-Time	ESTATES	Assistant	ADM	18000	23/09/2015	23/04/1973	52
461	Irene	Bell	Bell, Irene	Temporary	HR	Assistant	ADM	18000	24/04/1999	05/03/1965	60
458	Marie	Moore	Moore, Marie	Full-Time	STORES	Assistant	ADM	18000	25/10/1995	31/12/1973	52
457	Roger	Johnson	Johnson, Roger	Full-Time	STORES	Assistant	ADM	18000	05/11/2012	05/11/1980	45
452	Marilyn	Hernandez	Hernandez, Marilyn	Temporary	FINANCE	Assistant	ADM	18000	21/09/2012	30/01/1994	31
451	Lois	Martin	Martin, Lois	Full-Time	HR	Assistant	ADM	18000	05/05/2012	02/11/1979	46
450	Robert	Bailey	Bailey, Robert	Part-Time	FINANCE	Assistant	ADM	18000	16/06/1996	16/09/1967	58

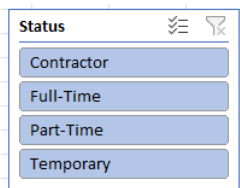
## Filter a pivot table

You can filter the data in a pivot table in several ways:

- Drag a field to the **Filter** area of the pivot table
- Filter the **Row labels** and/or **Column labels**
- Use the Filter arrows to choose the data to display

	A	B	C	D	E	F	G	H	I
1	Status	(All)	▼						
2									
3	Sum of Salary	Column Labels							
4	Row Labels	▼	DIST	ESTATES	FINANCE	HR	STORES	TPT	Grand Total
5	Assistant		£360,000	£342,000	£846,000	£1,026,000	£378,000	£90,000	£3,042,000
6	Asst. Manager			£595,000	£420,000	£490,000		£175,000	£1,680,000
7	Co-ordinator		£100,000	£600,000	£275,000	£500,000		£200,000	£1,675,000
8	Director				£50,000	£50,000			£100,000
9	Manager		£160,000	£280,000	£400,000	£840,000	£560,000	£80,000	£2,320,000
10	Managing Director				£80,000				£80,000
11	Operative		£128,000	£560,000			£944,000	£96,000	£1,728,000
12	Supervisor		£342,000	£285,000	£228,000		£313,500	£171,000	£1,339,500
13	<b>Grand Total</b>		<b>£1,090,000</b>	<b>£2,662,000</b>	<b>£2,299,000</b>	<b>£2,906,000</b>	<b>£2,195,500</b>	<b>£812,000</b>	<b>£11,964,500</b>
14									

- Use **Slicers** to select the data to display– see our guide [Filtering a pivot table with slicers](#) for more details



## Group data in a pivot table

Sometimes you may want to group data instead of seeing it in distinct rows or columns. This is particularly useful for dates. Excel can group dates automatically but you can also group data manually:

- Click and drag the items you want to group
- **Right-click** an item and click **Group...** from the shortcut menu. Depending on the data type, you may see extra options, eg for dates you can choose Years, Quarters, Months etc

	A	B	C	D	E	F	G	H	I
1	Status	(All)	▼						
2									
3	Sum of Salary	Column Labels							
4	Row Labels	▼	DIST	ESTATES	FINANCE	HR	STORES	TPT	Grand Total
5	Assistant		£360,000	£342,000	£846,000				£3,042,000
6	Asst. Manager			£595,000	£420,000				£1,680,000
7	Co-ordinator		£100,000	£600,000	£275,000				£1,675,000
8	Director				£50,000				£100,000
9	Manager		£160,000	£280,000	£400,000				£2,320,000
10	Managing Director				£80,000				£80,000
11	Operative		£128,000	£560,000					£1,728,000
12	Supervisor		£342,000	£285,000	£228,000				£1,339,500
13	<b>Grand Total</b>		<b>£1,090,000</b>	<b>£2,662,000</b>	<b>£2,299,000</b>				<b>£11,964,500</b>
14									
15									
16									
17									
18									
19									
20									
21									

A new column appears in the pivot table for the group total and a new group heading appears in the column or row area, depending on how you've grouped the data.

**Note:** Excel uses generic names for any groups you create eg *Group 1*, but you can change this by selecting the heading and overtyping with your own choice of title.

	A	B	C	D	E
1	Status	(All)			
2					
3	Sum of Salary	Column Labels			
4		Group1			Group1 Total
5	Row Labels	DIST	ESTATES	FINANCE	
6	Assistant	£360,000	£342,000	£846,000	£1,548,000
7	Asst. Manager		£595,000	£420,000	£1,015,000
8	Co-ordinator	£100,000	£600,000	£275,000	£975,000
9	Director			£50,000	£50,000
10	Manager	£160,000	£280,000	£400,000	£840,000
11	Managing Director			£80,000	£80,000
12	Operative	£128,000	£560,000		£688,000
13	Supervisor	£342,000	£285,000	£228,000	£855,000
14	Grand Total	£1,090,000	£2,662,000	£2,299,000	£6,051,000

Once created, you can collapse/expand the group to display the level of detail you require

- Click the outline symbol (- or +) alongside the Group label

	A	B	C	D	E
1	Status	(All)			
2					
3	Sum of Salary	Column Labels			
4		Group1			Group1 Total
5	Row Labels	DIST	ESTATES	FINANCE	
6	Assistant	£360,000	£342,000	£846,000	£1,548,000
7	Asst. Manager		£595,000	£420,000	£1,015,000
8	Co-ordinator	£100,000	£600,000	£275,000	£975,000
9	Director			£50,000	£50,000
10	Manager	£160,000	£280,000	£400,000	£840,000
11	Managing Director			£80,000	£80,000
12	Operative	£128,000	£560,000		£688,000
13	Supervisor	£342,000	£285,000	£228,000	£855,000
14	Grand Total	£1,090,000	£2,662,000	£2,299,000	£6,051,000

	A	B
1	Status	(All)
2		
3	Sum of Salary	Column Labels
4		Group1
5	Row Labels	
6	Assistant	£1,548,000
7	Asst. Manager	£1,015,000
8	Co-ordinator	£975,000
9	Director	£50,000
10	Manager	£840,000
11	Managing Director	£80,000
12	Operative	£688,000
13	Supervisor	£855,000
14	Grand Total	£6,051,000

## Further information and help

- Use MyIT to log calls with the IT Service Desk: [myit.abdn.ac.uk](http://myit.abdn.ac.uk)
- If you want to learn about any Microsoft product in more detail you can use [Microsoft 365 help and learning](#) for tutorials, videos and helpful hints