

PIVOT TABLES

From the course website download and open the file:

» **Sales representative**



Main differences between tables and pivot tables:

Normal tables are “fixed”. Pivot tables are “flexible”

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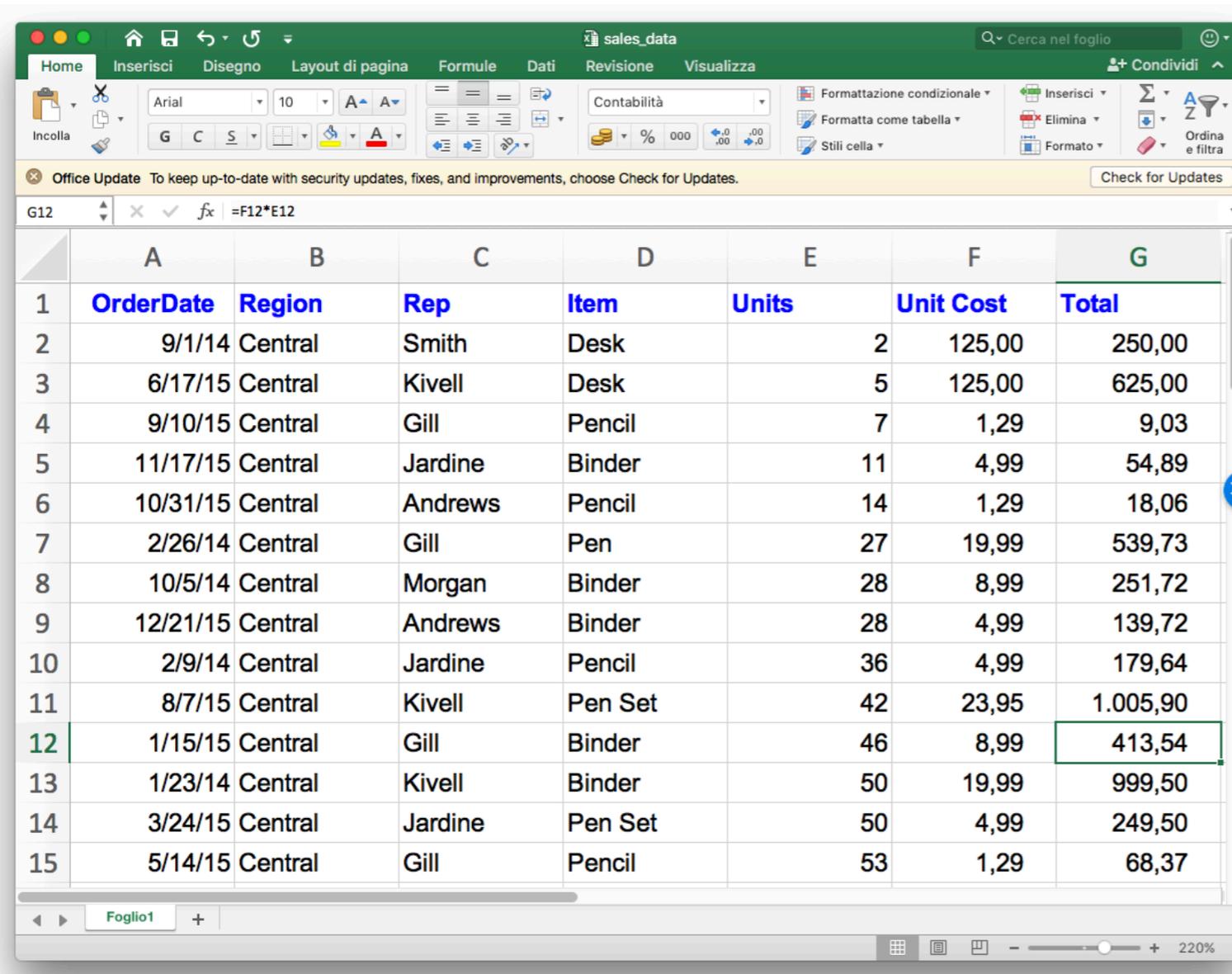
Normal tables are “fixed”. Pivot tables are “flexible”

Normal tables provides all the data.

	A	B	C	D	E	F	G
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total
2	9/1/14	Central	Smith	Desk	2	125,00	250,00
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06
7	2/26/14	Central	Gill	Pen	27	19,99	539,73
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90
12	1/15/15	Central	Gill	Binder	46	8,99	413,54
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37

Main differences between tables and pivot tables:

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13	1/23/14	Central	Kivell	Binder	50	19,99	999,50
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37

Normal tables provides all the data.

Pivot tables provides summarized data.

A dataset of Sales.

	A	B	C	D	E	F	G
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total
2	9/1/14	Central	Smith	Desk	2	125,00	250,00
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00
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14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34
18	12/12/14	Central	Smith	Pencil	67	1,29	86,43
19	4/18/14	Central	Andrews	Pencil	75	1,99	149,25

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12/4/15	Central	Jardine	Binder	94	19,99	1.879,06
11/25/14	Central	Kivell	Pen Set	96	4,99	479,04
2/18/15	East	Jones	Binder	4	4,99	19,96
11/8/14	East	Parent	Pen	15	19,99	299,85
9/18/14	East	Jones	Pen Set	16	15,99	255,84
7/12/14	East	Howard	Binder	29	1,99	57,71

Date of the sale



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9/1/14	Central	Smith	Desk	2	125,00	250,00
6/17/15	Central	Kivell	Desk	5	125,00	625,00
9/10/15	Central	Gill	Pencil	7	1,29	9,03
11/17/15	Central	Jardine	Binder	11	4,99	54,89
10/31/15	Central	Andrews	Pencil	14	1,29	18,06
2/26/14	Central	Gill	Pen	27	18,00	500,70
10/5/14	Central	Morgan	Binder	28		
12/21/15	Central	Andrews	Binder	28		
2/9/14	Central	Jardine	Pencil	36		
8/7/15	Central	Kivell	Pen Set	42		
1/15/15	Central	Gill	Binder	46		
1/23/14	Central	Kivell	Binder	50		
3/24/15	Central	Jardine	Pen Set	50		
5/14/15	Central	Gill	Pencil	53		
7/21/15	Central	Morgan	Pen Set	55		
4/10/15	Central	Andrews	Pencil	66	1,99	131,74
12/12/14	Central	Smith	Pencil	67	1,29	86,43
4/18/14	Central	Andrews	Pencil	75	1,99	149,25
5/31/15	Central	Gill	Binder	80	8,99	719,20
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Region in which the item has been sold.



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7/12/14	East	Howard	Binder	29	1,99	57,71

The surname of the representative that sold the item to the customer.



Smith



Kivell



Parent



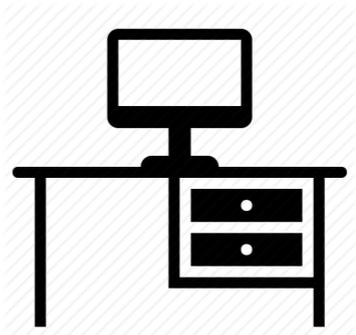
Andrews



Morgan

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The name of the item sold.



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7/12/14	East	Howard	Binder	29	1,99	57,71

How many item did the Rep sold?

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Cost of the item sold

The same item may have different costs!
This means that there are different types of Pencils, different types of Binders,....



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7/12/14	East	Howard	Binder	29	1,99	57,71

Total value of the sale.

UnitCost x Units

A problem of sales analytics

- 1) In which region where representative most successful?

A problem of sales analytics

- 1) In which region where representative most successful?
- 2) Which representative did the best job?

A problem of sales analytics

- 1) In which region where representative most successful?
- 2) Which representative did the best job?
- 3) Which item is the most sold?

A problem of sales analytics

- 1) In which region where representative most successful?
- 2) Which representative did the best job?
- 3) Which item is the most sold?
- 4) Which item produce the highest total income?

A problem of sales analytics

- 1) In which region where representative most successful?
- 2) Which representative did the best job?
- 3) Which item is the most sold?
- 4) Which item produce the highest total income?
- 5) How many blinders has each representative sold?

PivotTable is the right tool!



How do I create a Pivot table starting from a standard one?





How do I create a Pivot table starting from a standard one?



WARNING!!



Data must contain no blank rows and no blank columns.



Select the location of the Pivot table.

The screenshot shows the Microsoft Excel interface with the following data in the spreadsheet:

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
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18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Select the location of the Pivot table.

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. A red box highlights the 'Insert' tab in the ribbon. A black arrow points from the 'Insert' tab to a cell in column H, row 5, which is highlighted with a green border. Another black arrow points from the 'Insert' tab to a text box that says 'Click on "Insert" tab.' The spreadsheet data is as follows:

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
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13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Click on "Insert" tab.

sales_data

Home Insert Draw Page Layout Formulas Data Review View

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates. Check for Updates

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Foglio1

Ready 200%

The image shows the Microsoft Excel interface with the 'Insert' ribbon selected. The 'PivotTable' button is highlighted with a black box. A callout box with a black border and white background contains the text 'Click on the PivotTable button.' with an arrow pointing to the button. The spreadsheet below shows a table of sales data.

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pen						
7	2/26/14	Central	Gill	Pen						
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

sales_data

Home Insert Draw Page Layout Formulas Data Review View

PivotTable Recommended PivotTables Table Pictures Shapes Icons Get Add-ins My Add-ins Recommended Charts Maps PivotChart Sparklines Slicer Timeline Link Text Box Header & Footer Equation Symbol

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H5

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Create PivotTable

Choose the data that you want to analyze.

Select a table or range

Table/Range: Foglio1!\$A\$1:\$G\$44

Use an external data source

Choose Connection... No data fields have been retrieved.

Choose where to place the PivotTable.

New worksheet

Existing worksheet

Table/Range: Foglio1!\$H\$5

Cancel OK

Foglio1

Ready

200%

The screenshot shows the Microsoft Excel interface with a PivotTable creation dialog box open. The dialog box is titled "Create PivotTable" and has two main sections: "Choose the data that you want to analyze." and "Choose where to place the PivotTable." In the first section, the "Select a table or range" radio button is selected, and the "Table/Range" field contains the formula "Foglio1!\$A\$1:\$G\$44". In the second section, the "Existing worksheet" radio button is selected, and the "Table/Range" field contains the formula "Foglio1!\$H\$5". A black arrow points from the text "Where are source data?" in the bottom left towards the "Table/Range" field in the dialog box. The background shows a spreadsheet with columns labeled "OrderDate", "Region", "Rep", "Item", "Units", "Unit Cost", and "Total".

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Two questions:

1) Where are source data?

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates. Check for Updates

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Ready Foglio1 + 200%

Two questions:

- 1) Where are source data?
- 2) Where to put the PivotTable

sales_data

Home Insert Draw Page Layout Formulas Data Review View

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates. Check for Updates

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Create PivotTable

Choose the data that you want to analyze.

Select a table or range

Table/Range: Foglio1!\$A\$1:\$G\$44

Use an external data source

Choose Connection... No data fields have been retrieved.

Choose where to place the PivotTable.

New worksheet

Existing worksheet

Table/Range: Foglio1!\$H\$5

Cancel OK

Foglio1

Ready

200%

Click on this button to manually select your data

Drag and scroll to select all the data set

The screenshot displays the Microsoft Excel interface with a spreadsheet titled 'sales_data'. The ribbon is set to 'Insert'. A table of sales data is visible, with columns for OrderDate, Region, Rep, Item, Units, Unit Cost, and Total. A 'Create PivotTable' dialog box is open, showing the data range 'Foglio1!\$A\$1:\$G\$17'.

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

Drag and scroll to select all the data set

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The ribbon includes options like PivotTable, Recommended PivotTables, Table, Pictures, Shapes, Icons, Get Add-ins, My Add-ins, Recommended Charts, Maps, PivotChart, Sparklines, Timeline, Slicer, Link, Text Box, Header & Footer, Equation, and Symbol. An 'Office Update' notification is present. The spreadsheet data is as follows:

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,13			

The 'Create PivotTable' pop-up is open, showing the data range 'Foglio1!\$A\$1:\$G\$17'. A black arrow points from the text below to the 'Create PivotTable' button.

Once done click on this button to get back to the pop-up

sales_data

Home Insert Draw Page Layout Formulas Data Review View

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates. Check for Updates

	A	B	C	D	E	F	G	H	I	J
30	8/15/14	East	Jones	Pencil	35	4,99	174,65			
31	4/1/14	East	Jones	Binder	60	4,99	299,40			
32	6/8/14	East	Jones	Binder	60	8,99	539,40			
33	7/4/15	East	Jones	Pen Set	62	4,99	309,38			
34	10/22/14	East	Jones	Pen	64	8,99	575,36			
35	12/29/14	East	Parent	Pen Set	74	15,99	1.183,26			
36	7/29/14	East	Parent	Binder	81	19,99	1.619,19			
37	1/6/14	East	Jones	Pencil	95	1,99	189,05			
38	4/27/15	East	Howard	Pen	96	4,99	479,04			
39	8/24/15	West	Sorvino	Desk	3	275,00	825,00			
40	3/7/15	West	Sorvino	Binder	7	19,99	139,93			
41	5/22/14	West	Thompson	Pencil	32	1,99	63,68			
42	3/15/14	West	Sorvino	Pencil	56	2,99	167,44			
43	10/14/15	West	Thompson	Binder	57	19,99	1.139,43			
44	9/27/15	West	Sorvino	Pen	76	1,99	151,24			
45										
46										
47										

Create PivotTable

Choose the data that you want to analyze.

Select a table or range

Table/Range: Foglio1!\$A\$1:\$G\$44

Use an external data source

Choose Connection... No data fields have been retrieved.

Choose where to place the PivotTable.

New worksheet

Existing worksheet

Table/Range: Foglio1!\$H\$5

Cancel OK

Foglio1 +

Point

200%

The range of data selected now appears here.

	A	B	C	D	E	F	G	H	I	J
30	8/15/14	East	Jones	Pencil	35	4,99	174,65			
31	4/1/14	East	Jones	Binder	60	4,99	299,40			
32	6/8/14	East	Jones	Binder	60	8,99	539,40			
33	7/4/15	East	Jones	Pen Set	62	4,99	309,38			
34	10/22/14	East	Jones	Pen	64	8,99	575,36			
35	12/29/14	East	Parent	Pen Set	74	15,99	1.183,26			
36	7/29/14	East	Parent	Binder	81	19,99	1.619,19			
37	1/6/14	East	Jones	Pencil	95	1,99	189,05			
38	4/27/15	East	Howard	Pen	96	4,99	479,04			
39	8/24/15	West	Sorvino	Desk	3	275,00	825,00			
40	3/7/15	West	Sorvino	Binder	7	19,99	139,93			
41	5/22/14	West	Thompson	Pencil	32	1,99	63,68			
42	3/15/14	West	Sorvino	Pencil	56	2,99	167,44			
43	10/14/15	West	Thompson	Binder	57	19,99	1.139,43			
44	9/27/15	West	Sorvino	Pen	76	1,99	151,24			
45										
46										
47										

If you prefer a different location for the PivotTable just click here and then select a new position in the existing worksheet.

The screenshot shows the Microsoft Excel interface with a PivotTable creation dialog box open. The background is a spreadsheet with columns A through J and rows 30 through 44. The data in the spreadsheet is as follows:

	A	B	C	D	E	F	G	H	I	J
30	8/15/14	East	Jones	Pencil	35	4,99	174,65			
31	4/1/14	East	Jones	Binder	60	4,99	299,40			
32	6/8/14	East	Jones	Binder	60	8,99	539,40			
33	7/4/15	East	Jones	Pen Set	62	4,99	309,38			
34	10/22/14	East	Jones	Pen	64	8,99	575,36			
35	12/29/14	East	Parent	Pen Set	74	15,99	1.183,26			
36	7/29/14	East	Parent	Binder	81	19,99	1.619,19			
37	1/6/14	East	Jones	Pencil	95	1,99	189,05			
38	4/27/15	East	Howard	Pen	96	4,99	479,04			
39	8/24/15	West	Sorvino	Desk	3	275,00	825,00			
40	3/7/15	West	Sorvino	Binder	7	19,99	139,93			
41	5/22/14	West	Thompson	Pencil	32	1,99	63,68			
42	3/15/14	West	Sorvino	Pencil	56	2,99	167,44			
43	10/14/15	West	Thompson	Binder	57	19,99	1.139,43			
44	9/27/15	West	Sorvino	Pen	76	1,99	151,24			

The 'Create PivotTable' dialog box is open, showing the following options:

- Choose the data that you want to analyze.**
 - Select a table or range
 - Table/Range: Foglio1!\$A\$1:\$G\$44
 - Use an external data source
 - Choose Connection... No data fields have been retrieved.
- Choose where to place the PivotTable.**
 - New worksheet
 - Existing worksheet
 - Table/Range: Foglio1!\$H\$5

The 'OK' button is highlighted with a blue arrow pointing to it.

Finally click on “Ok” to finalize the creation

A blank PivotTable is created.

The screenshot shows the Microsoft Excel interface with the PivotTable Analyze ribbon selected. The data table is as follows:

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,43			
19	4/18/14	Central	Andrews	Pencil	75	1,99	149,25			
20	5/31/15	Central	Gill	Binder	80	8,99	719,20			
21	2/1/15	Central	Smith	Binder	87	15,00	1.305,00			
22	5/5/14	Central	Jardine	Pencil	90	4,99	449,10			
23	6/25/14	Central	Morgan	Pencil	90	4,99	449,10			

The PivotTable Fields task pane on the right shows the following fields:

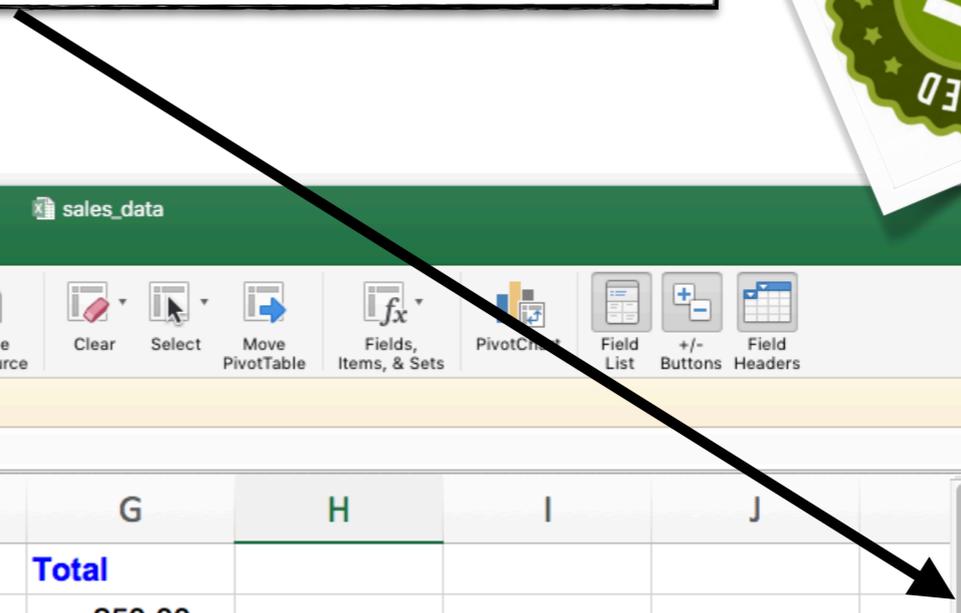
- OrderDate
- Region
- Rep
- Item
- Units
- Unit Cost

The PivotTable Fields task pane also shows the following sections:

- Filters
- Columns
- Rows
- Values

The PivotTable1 area is currently blank. A text box with the text "To build a report, choose fields from the PivotTable Field List" and an arrow pointing to the PivotTable1 area is overlaid on the screenshot.

All fields have been correctly recognized!



Excel interface showing a PivotTable and the PivotTable Fields task pane.

PivotTable Fields

FIELD NAME: Search fields

- OrderDate
- Region
- Rep
- Item
- Units
- Unit Cost

Filters: Columns

Rows: Values

Drag fields between areas

	A	B	C	D	E	F	G	H	I	J
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total			
2	9/1/14	Central	Smith	Desk	2	125,00	250,00			
3	6/17/15	Central	Kivell	Desk	5	125,00	625,00			
4	9/10/15	Central	Gill	Pencil	7	1,29	9,03			
5	11/17/15	Central	Jardine	Binder	11	4,99	54,89			
6	10/31/15	Central	Andrews	Pencil	14	1,29	18,06			
7	2/26/14	Central	Gill	Pen	27	19,99	539,73			
8	10/5/14	Central	Morgan	Binder	28	8,99	251,72			
9	12/21/15	Central	Andrews	Binder	28	4,99	139,72			
10	2/9/14	Central	Jardine	Pencil	36	4,99	179,64			
11	8/7/15	Central	Kivell	Pen Set	42	23,95	1.005,90			
12	1/15/15	Central	Gill	Binder	46	8,99	413,54			
13	1/23/14	Central	Kivell	Binder	50	19,99	999,50			
14	3/24/15	Central	Jardine	Pen Set	50	4,99	249,50			
15	5/14/15	Central	Gill	Pencil	53	1,29	68,37			
16	7/21/15	Central	Morgan	Pen Set	55	12,49	686,95			
17	4/10/15	Central	Andrews	Pencil	66	1,99	131,34			
18	12/12/14	Central	Smith	Pencil	67	1,29	86,43			
19	4/18/14	Central	Andrews	Pencil	75	1,99	149,25			
20	5/31/15	Central	Gill	Binder	80	8,99	719,20			
21	2/1/15	Central	Smith	Binder	87	15,00	1.305,00			
22	5/5/14	Central	Jardine	Pencil	90	4,99	449,10			
23	6/25/14	Central	Morgan	Pencil	90	4,99	449,10			

PivotTable1

To build a report, choose fields from the PivotTable Field List

Select the "Region" and drag it into the "Rows".

The screenshot shows the Microsoft Excel interface with the 'PivotTable Analyze' ribbon selected. The PivotTable Fields task pane is open on the right, showing a list of fields: OrderDate, Region, Rep, Item, Units, and Unit Cost. The 'Region' field is checked and placed in the 'Rows' area. The PivotTable in the background displays sales data grouped by region.

	Units	Unit Cost	Total	Row Labels
2	2	125,00	250,00	
3	5	125,00	625,00	
4	7	1,29	9,03	
5	11	4,99	54,89	Central
6	14	1,29	18,06	East
7	27	19,99	539,73	West
8	28	8,99	251,72	Grand Total
9	28	4,99	139,72	
10	36	4,99	179,64	
11	42	23,95	1.005,90	
12	46	8,99	413,54	
13	50	19,99	999,50	
14	50	4,99	249,50	
15	53	1,29	68,37	
16	55	12,49	686,95	
17	66	1,99	131,34	
18	67	1,29	86,43	
19	75	1,99	149,25	
20	80	8,99	719,20	
21	87	15,00	1.305,00	
22	90	4,99	449,10	
23	90	4,99	449,10	

sales_data

Home Insert Draw Page Layout Formulas Data Review View **PivotTable Analyze** Design

PivotTable Name: PivotTable1 Active Field: Region

Options Expand Field Collapse Field Group Selection Insert Slicer Insert Timeline Filter Connections Refresh Change Data Source Clear Select Move PivotTable Fields, Items, & Sets PivotChart Field List +/- Buttons Field Headers

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates. Check for Updates

	E	F	G	H	I	J	K	L
1	Units	Unit Cost	Total					
2	2	125,00	250,00					
3	5	125,00	625,00					
4	7	1,29	9,03					
5	11	4,99	54,89	Row Labels				
6	14	1,29	18,06	Central				
7	27	19,99	539,73	East				
8	28	8,99	251,72	West				
9	28	4,99	139,72	Grand Total				
10	36	4,99	179,64					
11	42	23,95	1.005,90					
12	46	8,99	413,54					
13	50	19,99	999,50					
14	50	4,99	249,50					
15	53	1,29	68,37					
16								
17								
18	67	1,29	86,43					
19	75	1,99	149,25					
20	80	8,99	719,20					
21	87	15,00	1.305,00					
22	90	4,99	449,10					
23	90	4,99	449,10					

PivotTable Fields

FIELD NAME Search fields

- OrderDate
- Region
- Rep
- Item
- Units
- Unit Cost

Filters Columns

Rows Values

- Region

Drag fields between areas

Now "Regions" appear as row headings!

Select the “Rep” and drag it into the “Columns”.

The screenshot displays an Excel PivotTable with the following data:

	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Total													
2	250,00													
3	625,00													
4	9,03													
5	54,89													
6	18,06	Row Labels	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
7	539,73	Central												
8	251,72	East												
9	139,72	West												
10	179,64	Grand Total												
11	1.005,90													
12	413,54													
13	999,50													
14	249,50													
15	68,37													
16	686,95													
17	131,34													
18	86,43													
19	149,25													
20	719,20													

The PivotTable Fields task pane on the right shows the following configuration:

- FIELD NAME:** Search fields
- OrderDate:**
- Region:**
- Rep:**
- Item:**
- Units:**
- Unit Cost:**

The task pane also shows the following layout:

- Filters:** (Empty)
- Columns:** Rep
- Rows:** Region
- Values:** (Empty)

At the bottom of the task pane, it says "Drag fields between areas".

Select the “Rep” and drag it into the “Columns”.

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates.

	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Total													
2	250,00													
3	625,00													
4	9,03													
5	54,89													
6	18,06	Row Labels	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
7	539,73	Central												
8	251,72	East												
9	139,72	West												
10	179,64	Grand Total												
11	1.005,90													
12	413,54													
13	999,50													
14														
15														
16														
17	131,34													
18	86,43													
19	149,25													
20	719,20													

Now “Rep” appear as column headings!

Select the “Total” and drag it into the “Values”.

The screenshot shows the Microsoft Excel interface with the PivotTable Analyze ribbon selected. The PivotTable Fields task pane is open on the right, showing a list of fields: Region, Rep, Item, Units, Unit Cost, and Total. The 'Total' field is selected. The PivotTable in the worksheet has 'Sum of Total' in the top-left cell and 'Grand Total' in the bottom-left cell. The 'Values' area of the task pane shows 'Sum of Total'.

Sum of Total	Column Labels	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
Central		438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,07
East				536,75		2363,04		3102,3					6002,09
West											1283,61	1203,11	2486,72
Grand Total		438,37	1749,87	536,75	2812,19	2363,04	3109,44	1387,77	3102,3	1641,43	1283,61	1203,11	19627,88

A problem of sales analytics

The screenshot shows the Microsoft Excel interface with a PivotTable. The PivotTable is set to show the sum of total sales for each representative in each region. The PivotTable Fields task pane on the right shows that 'Region' and 'Rep' are placed in the Columns area, and 'Total' is placed in the Values area. The PivotTable data is as follows:

Sum of Total	Column Labels	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
Row Labels	Central	438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,07
	East			536,75		2363,04			3102,3				6002,09
	West										1283,61	1203,11	2486,72
	Grand Total	438,37	1749,87	536,75	2812,19	2363,04	3109,44	1387,77	3102,3	1641,43	1283,61	1203,11	19627,88

A text box with a black border is overlaid on the spreadsheet, containing the text: "Now we see the total value sold by each representative in each region." An arrow points from the text box to the 'Grand Total' row of the PivotTable.

A problem of sales analytics

The screenshot shows an Excel PivotTable with the following data:

Sum of Total	Column Labels	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
Central		438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,0
East			536,75			2363,04			3102,3				6002,09
West										1283,61	1203,11		2486,72
Grand Total		438,37	1749,87	536,75	2812,19	2363,04	3109,44	1387,77	3102,3	1641,43	1283,61	1203,11	19627,88

The PivotTable Fields task pane on the right shows the following configuration:

- Field Name: Search fields
- Region:
- Rep:
- Item:
- Units:
- Unit Cost:
- Total:

Filters: Rep
Columns: Rep
Rows: Region
Values: Sum of Total

“Central” region is where the highest **sales value** was recorded.

A problem of sales analytics

The screenshot shows an Excel PivotTable with the following data:

Sum of Total	Column Labels	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
Central		438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,07
East				536,75		2363,04			3102,3				6002,09
West											1283,61	1203,11	2486,72
Grand Total		438.37	1749.87	536.75	2812.19	2363.04	3109.44	1387.77	3102.3	1641.43	1283.61	1203.11	19627.8

The PivotTable Fields task pane on the right shows the following configuration:

- Field Name: Search fields
- Checked fields: Region, Rep, Total
- Filters: (empty)
- Columns: Rep
- Rows: Region
- Values: Sum of Total

A red box highlights the Grand Total row, and a red arrow points to the value 1387.77 for Morgan Parent. A red text box at the bottom asks: "Which Representative did the best job? Difficult to see here!"

A problem of sales analytics

The screenshot displays an Excel PivotTable with the following data:

Sum of Total	Column Labels			
Row Labels	Central	East	West	Grand Total
Andrews	438,37			438,37
Gill	1749,87			1749,87
Howard		536,75		536,75
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Kivell	3109,44			3109,44
Morgan	1387,77			1387,77
Parent		3102,3		3102,3
Smith	1641,43			1641,43
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Grand Total	11139,07	6002,09	2486,72	19627,88

The PivotTable Fields task pane on the right shows the following configuration:

- Fields:** Region, Rep, Item (checked: Region, Rep)
- Filters:** (empty)
- Columns:** Region
- Rows:** Rep
- Values:** Sum of Total

A callout box with the text "Switch 'Regions' with 'Rep'" has arrows pointing to the "Region" field in the Columns area and the "Rep" field in the Rows area of the task pane.

A problem of sales analytics

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable has 'Rep' as row labels and 'Region' as column labels. The data is summarized by 'Sum of Total'. The PivotTable Fields task pane on the right shows 'Rep' in the Rows area and 'Region' in the Columns area. A text box is overlaid on the spreadsheet with the following text:

“Regions” are now in columns.
“Rep” are now in rows.

Sum of Total	Column Labels			
Row Labels	Central	East	West	Grand Total
Andrews	438,37			438,37
Gill	1749,87			1749,87
Howard		536,75		536,75
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Kivell	3109,44			3109,44
Morgan	1387,77			1387,77
Parent		3102,3		3102,3
Smith	1641,43			1641,43
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Grand Total	11139,07	6002,09	2486,72	19627,88

A problem of sales analytics

Drag and select all the elements in the last column

Sum of Total	Column Labels	Central	East	West	Grand Total
Row Labels					
Andrews		438,37			438,37
Gill		1749,87			1749,87
Howard			536,75		536,75
Jardine		2812,19			2812,19
Jones			2363,04		2363,04
Kivell		3109,44			3109,44
Morgan		1387,77			1387,77
Parent			3102,3		3102,3
Smith		1641,43			1641,43
Sorvino				1283,61	1283,61
Thompson				1203,11	1203,11
Grand Total		11139,07	6002,09	2486,72	19627,88

PivotTable Fields

FIELD NAME

OrderDate
 Region
 Rep

Filters

Columns

Region

Rows

Rep

Values

Sum of Total

Drag fields between areas

Average: 1784,352727 Count: 11 Sum: 19627,88 160%

A problem of sales analytics

The screenshot shows the Microsoft Excel interface with the 'PivotTable Analyze' ribbon selected. A red box highlights the 'Sort & Filter' button in the ribbon. An arrow points from this button to a text box that says 'Click on the Sort&Filter button'. The PivotTable Fields task pane is open on the right, showing the following configuration:

- FIELD NAME: Search fields
- OrderDate:
- Region:
- Rep:
- Filters: (empty)
- Columns: Region
- Rows: Rep
- Values: Sum of Total

The PivotTable data is as follows:

Sum of Total	Column Labels	Central	East	West	Grand Total
Andrews		438,37			438,37
Gill		1749,87			1749,87
Howard			536,75		536,75
Jardine		2812,19			2812,19
Jones			2363,04		2363,04
Kivell		3109,44			3109,44
Morgan		1387,77			1387,77
Parent			3102,3		3102,3
Smith		1641,43			1641,43
Sorvino				1283,61	1283,61
Thompson				1203,11	1203,11
Grand Total		11139,07	6002,09	2486,72	19627,88

A problem of sales analytics

From Largest to Smallest

The screenshot displays an Excel PivotTable with the following data:

Row Labels	Central	East	West	Grand Total
Andrews	438,37			438,37
Gill	1749,87			1749,87
Howard		536,75		536,75
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Kivell	3109,44			3109,44
Morgan	1387,77			1387,77
Parent		3102,3		3102,3
Smith	1641,43			1641,43
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Grand Total	11139,07	6002,09	2486,72	19627,88

The PivotTable Fields task pane shows:

- Field Name: OrderDate, Region, Rep
- Filters: (empty)
- Columns: Region
- Rows: Rep
- Values: Sum of Total

The context menu is open, showing the following options:

- Sort Smallest to Largest
- Sort Largest to Smallest (Selected)
- Custom Sort...
- Filter
- Clear
- Reapply

A problem of sales analytics

The screenshot displays the Microsoft Excel interface with a PivotTable and the PivotTable Fields task pane. The PivotTable summarizes sales data by region and representative. The PivotTable Fields task pane shows the following configuration:

- Field Name:** Search fields
- Fields:** OrderDate (unchecked), Region (checked), Rep (checked)
- Filters:** (Empty)
- Columns:** Region
- Rows:** Rep
- Values:** Sum of Total

The PivotTable data is as follows:

Sum of Total	Column Labels			
Row Labels	Central	East	West	Grand Total
Kivell	3109,44			3109,44
Parent		3102,3		3102,3
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Gill	1749,87			1749,87
Smith	1641,43			1641,43
Morgan	1387,77			1387,77
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Howard		536,75		536,75
Andrews	438,37			438,37
Grand Total	11139,07	6002,09	2486,72	19627,88

A problem of sales analytics

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Row Labels	Central	East	West	Grand Total
Kivell	3109,44			3109,44
Parent		3102,3		3102,3
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Gill	1749,87			1749,87
Smith	1641,43			1641,43
Morgan	1387,77			1387,77
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Howard		536,75		536,75
Andrews	438,37			438,37
Grand Total	11139,07	6002,09	2486,72	19627,88

Kivell is the most successful representative with 3109,44\$ of total value sold!!

Region

Rows

Rep

Values

Sum of Total

Drag fields between areas

Foglio1

160%

A problem of sales analytics

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates

Row Labels	Central	East	West	Grand Total
Kivell	3109,44			3109,44
Parent		3102,3		3102,3
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Gill	1749,87			1749,87
Smith	1641,43			1641,43
Morgan	1387,77			1387,77
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Howard		536,75		536,75
Andrews	438,37			438,37
Grand Total	11139,07	6002,09	2486,72	19627,88

Kivell 

Kivell is the most successful representative with 3109,44\$ of total value sold!!

Parent 

Also Parent did quite well.

A problem of sales analytics



Andrews



Why Andrews is performing so badly?

sales_data Search Sheet

View PivotTable Analyze Design

Conditional Formatting Insert

Format as Table Delete

Cell Styles Format

Sort & Filter



Kivell



Kivell is the most successful representative with 3109,44\$ of total value sold!!

Sum of Total	Column Labels	Central	East	West	Grand Total
Kivell		3109,44			3109,44
Parent			3102,3		3102,3
Jardine		2812,19			2812,19
Jones			2363,04		2363,04
Gill		1749,87			1749,87
Smith		1641,43			1641,43
Morgan		1387,77			1387,77
Sorvino				1283,61	1283,61
Thompson				1203,11	1203,11
Howard			536,75		536,75
Andrews		438,37			438,37
Grand Total		11139,07	6002,09	2486,72	19627,88



Parent



Also Parent did quite well.

A problem of sales analytics

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable Builder task pane is open on the right, showing the 'Columns' area with the 'Item' field selected. The PivotTable data is as follows:

Row Labels	Binder	Desk	Pen	Pen Set	Pencil	Grand Total	
Andrews		28			155	183	
Gill		126	27		60	213	
Howard		29	96			125	
Jardine		105		50	126	281	
Jones		124	64	78	130	396	
Kivell		50	5	138		193	
Morgan		28		55	90	173	
Parent		81	15	74		170	
Smith		87	2		67	156	
Sorvino		7	3	76	56	142	
Thompson		57			32	89	
Grand Total		722	10	278	395	716	2121

Item->Columns

A problem of sales analytics

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is located in the range K6:M18. The PivotTable Builder task pane is open on the right, showing the following configuration:

- FIELD NAME:** Search field
- Fields:** OrderDate, Region, Rep (checked), Item (checked)
- Filters:** (Empty)
- Columns:** Item
- Rows:** Rep
- Values:** Somma di Units

The PivotTable data is as follows:

Row Labels	Binder	Desk	Pen	Pen Set	Pencil	Grand Total
Andrews		28			155	183
Gill		126	27		60	213
Howard		29	96			125
Jardine		105		50	126	281
Jones		124	64	78	130	396
Kivell		50	5		138	193
Morgan		28		55	90	173
Parent		81	15	74		170
Smith		87	2		67	156
Sorvino		7	3	76	56	142
Thompson		57			32	89
Grand Total		722	10	278	395	2121

Item->Columns
Rep->Rows

A problem of sales analytics

The screenshot shows an Excel spreadsheet with a PivotTable and the PivotTable Builder task pane. The PivotTable is structured as follows:

Row Labels	Desk	Pen	Pen Set	Pencil	Grand Total	
Andrews	28			155	183	
Gill	126	27		60	213	
Howard	29	96			125	
Jardine	105		50	126	281	
Jones	124	64	78	130	396	
Kivell	50	5	138		193	
Morgan	28		55	90	173	
Parent	81	15	74		170	
Smith	87	2		67	156	
Sorvino	7	3	76	56	142	
Thompson	57			32	89	
Grand Total	722	10	278	395	716	2121

The PivotTable Builder task pane shows the following configuration:

- FIELD NAME:** OrderDate, Region, Rep, Item
- Filters:** (Empty)
- Columns:** Item
- Rows:** Rep
- Values:** Somma di Units

Item->Columns
Rep->Rows
Sum of Units->Values

A problem of sales analytics

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is set to show 'Somma di Units' (Sum of Units) for 'Rep' (Representative) across various product categories: Desk, Pen, Pen Set, and Pencil. The Grand Total for all representatives is 2121 units. The 'Rep' field in the PivotTable Builder is currently set to 'Descending' order. A callout box with an arrow pointing to the 'Rep' field in the Rows area contains the text 'Put it in ascending order!'.

Row Labels	Binder	Desk	Pen	Pen Set	Pencil	Grand Total
Andrews		28			155	183
Gill		126	27		60	213
Howard		29	96			125
Jardine		105		50	126	281
Jones		124	64	78	130	396
Kivell		50	5	138		193
Morgan		28		55	90	173
Parent		81	15	74		170
Smith		87	2		67	156
Sorvino		7	3	76	56	142
Thompson		57			32	89
Grand Total		722	10	278	395	2121

A problem of sales analytics

The screenshot displays the Microsoft Excel interface with a PivotTable and the PivotTable Builder task pane. The PivotTable summarizes sales data by representative (Rep) and product category (Item). The PivotTable Builder shows the current configuration: Rep is in the Rows area, Item is in the Columns area, and the value field is set to 'Somma di Units' (Sum of Units).

Row Labels	Desk	Pen	Pen Set	Pencil	Grand Total
Jones	124	64	78	130	396
Jardine	105		50	126	281
Gill	126	27		60	213
Kivell	50	5	138		193
Andrews	28			155	183
Morgan	28		55	90	173
Parent	81	15	74		170
Smith	87	2		67	156
Sorvino	7	3	76	56	142
Howard	29	96			125
Thompson	57			32	89
Grand Total	722	10 278	395	716	2121

A problem of sales analytics

Andrew sold even more items than Parent!

The screenshot shows an Excel PivotTable with the following data:

Row Labels	Desk	Pen	Pen Set	Pencil	Grand Total
Jones	124	64	78	130	396
Jardine	105		50	126	281
Gill	126	27		60	213
Kivell	50	5	138		193
Andrews	28			155	183
Morgan	28		55	90	173
Parent	81	15	74		170
Smith	87	2		67	156
Sorvino	7	3	76	56	142
Howard	29	96			125
Thompson	57			32	89
Grand Total	722	10 278	395	716	2121

The PivotTable Builder on the right shows the following configuration:

- OrderDate:
- Region:
- Rep:
- Item:

Filters: (empty)

Columns: Item

Rows: Rep

Values: Somma di Units

Callout box highlights: Andrews (183) and Parent (170). A green circle highlights the value 170 for Parent.

A problem of sales analytics

Nevertheless Andrews focused on the cheapest item: Pencil.

The screenshot shows an Excel PivotTable with the following data:

Row Labels	Desk	Pen	Pen Set	Pencil	Grand Total
Jones	124	64	78	130	396
Jardine	105		50	126	281
Gill	126	27		60	213
Kivell	50	5	138		193
Andrews	28			155	183
Morgan	28		55	90	173
Parent	81	15	74		170
Smith	87	2		67	156
Sorvino	7	3	76	56	142
Howard	29	96			125
Thompson	57			32	89
Grand Total	722	10 278	395	716	2121

The PivotTable Builder on the right shows the following configuration:

- OrderDate:
- Region:
- Rep:
- Item:

Filters: (empty)

Columns: Item

Rows: Rep

Values: Somma di Units

A problem of sales analytics

Double click on a number to see how it is built from row data.

The screenshot displays an Excel PivotTable with the following data:

Row Labels	Desk	Pen	Pen Set	Pencil	Grand Total
Jones	124	64	78	130	396
Jardine	105		50	126	281
Gill	126	27		60	213
Kivell	50	5	138		193
Andrews	28			155	183
Morgan	28		55	90	173
Parent	81	15	74		170
Smith	87	2		67	156
Sorvino	7	3	76	56	142
Howard	29	96			125
Thompson	57			32	89
Grand Total	722	10 278	395	716	2121

The PivotTable Builder task pane on the right shows the following configuration:

- Filters:** OrderDate, Region, Rep (checked), Item (checked)
- Columns:** Item
- Rows:** Rep
- Values:** Somma di Units

The cell containing the value 183 in the PivotTable is highlighted with a green border, and an arrow points from the callout box to this cell.

A problem of sales analytics

New sheet open on the left

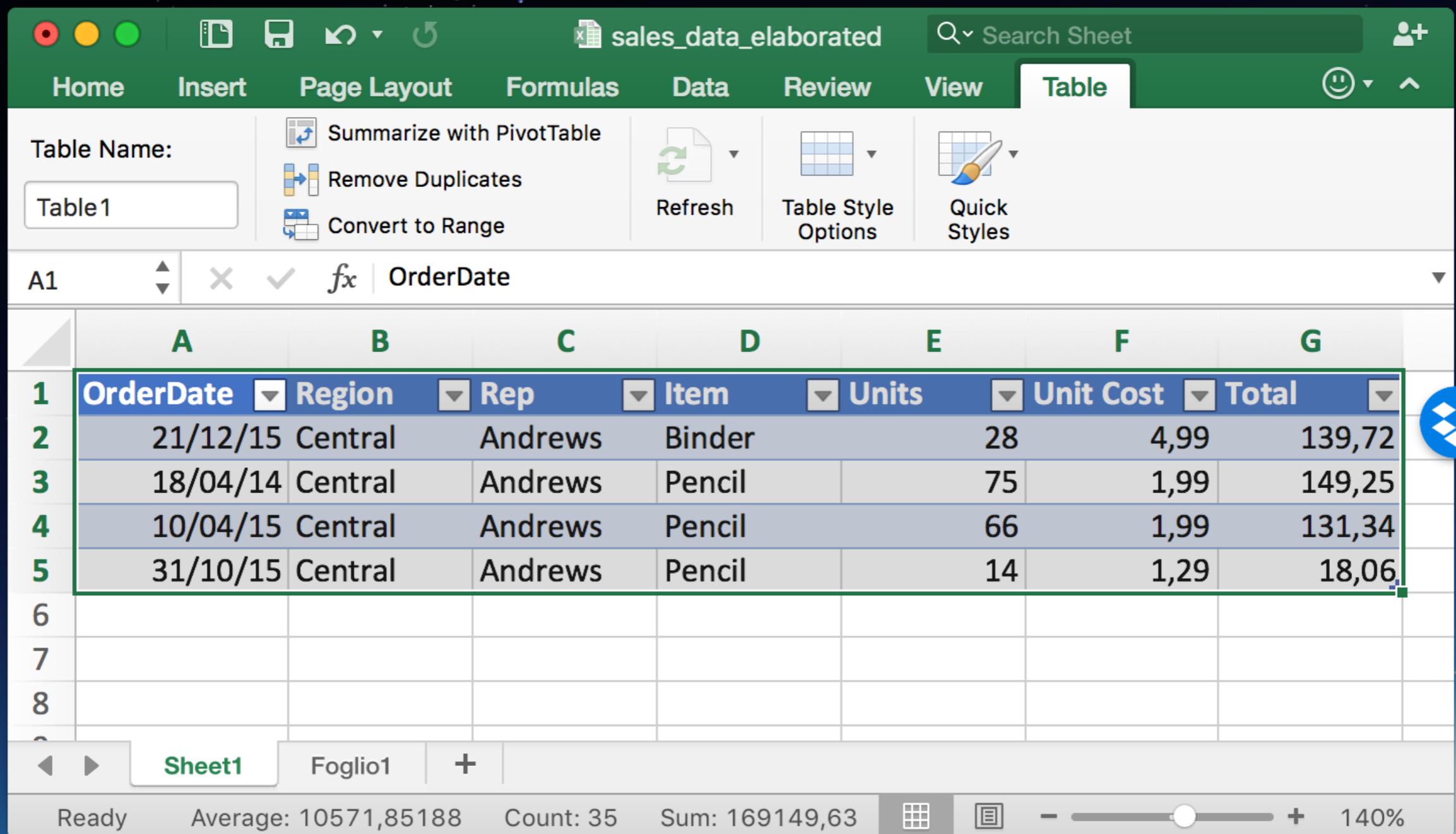
The screenshot shows the Microsoft Excel interface with the 'Table' ribbon selected. The table data is as follows:

OrderDate	Region	Rep	Item	Units	Unit Cost	Total
21/12/15	Central	Andrews	Binder	28	4,99	139,72
18/04/14	Central	Andrews	Pencil	75	1,99	149,25
10/04/15	Central	Andrews	Pencil	66	1,99	131,34
31/10/15	Central	Andrews	Pencil	14	1,29	18,06

The status bar at the bottom shows: Ready, Average: 10571,85188, Count: 35, Sum: 169149,63, and a zoom level of 140%.

A problem of sales analytics

We now see that Andrews did four sales, all in the Central region.



The screenshot shows the Microsoft Excel interface with the 'Table' ribbon selected. The table 'Table1' is displayed with the following data:

OrderDate	Region	Rep	Item	Units	Unit Cost	Total
21/12/15	Central	Andrews	Binder	28	4,99	139,72
18/04/14	Central	Andrews	Pencil	75	1,99	149,25
10/04/15	Central	Andrews	Pencil	66	1,99	131,34
31/10/15	Central	Andrews	Pencil	14	1,29	18,06

The status bar at the bottom indicates: Ready, Average: 10571,85188, Count: 35, Sum: 169149,63, and a zoom level of 140%.

A problem of sales analytics

We now see that Andrews did four sales, all in the Central region.

What about Parent? Go back and double click on the Grand Total for Parent....

OrderDate	Region	Rep	Item	Units	Unit Cost	Total
21/12/15	Central	Andrews	Binder	28	4,99	139,72
18/04/14	Central	Andrews	Pencil	75	1,99	149,25
10/04/15	Central	Andrews	Pencil	66	1,99	131,34
31/10/15	Central	Andrews	Pencil	14	1,29	18,06

A problem of sales analytics

Parent one sale less, but he focused on a more expensive type of Pen and on Binders.

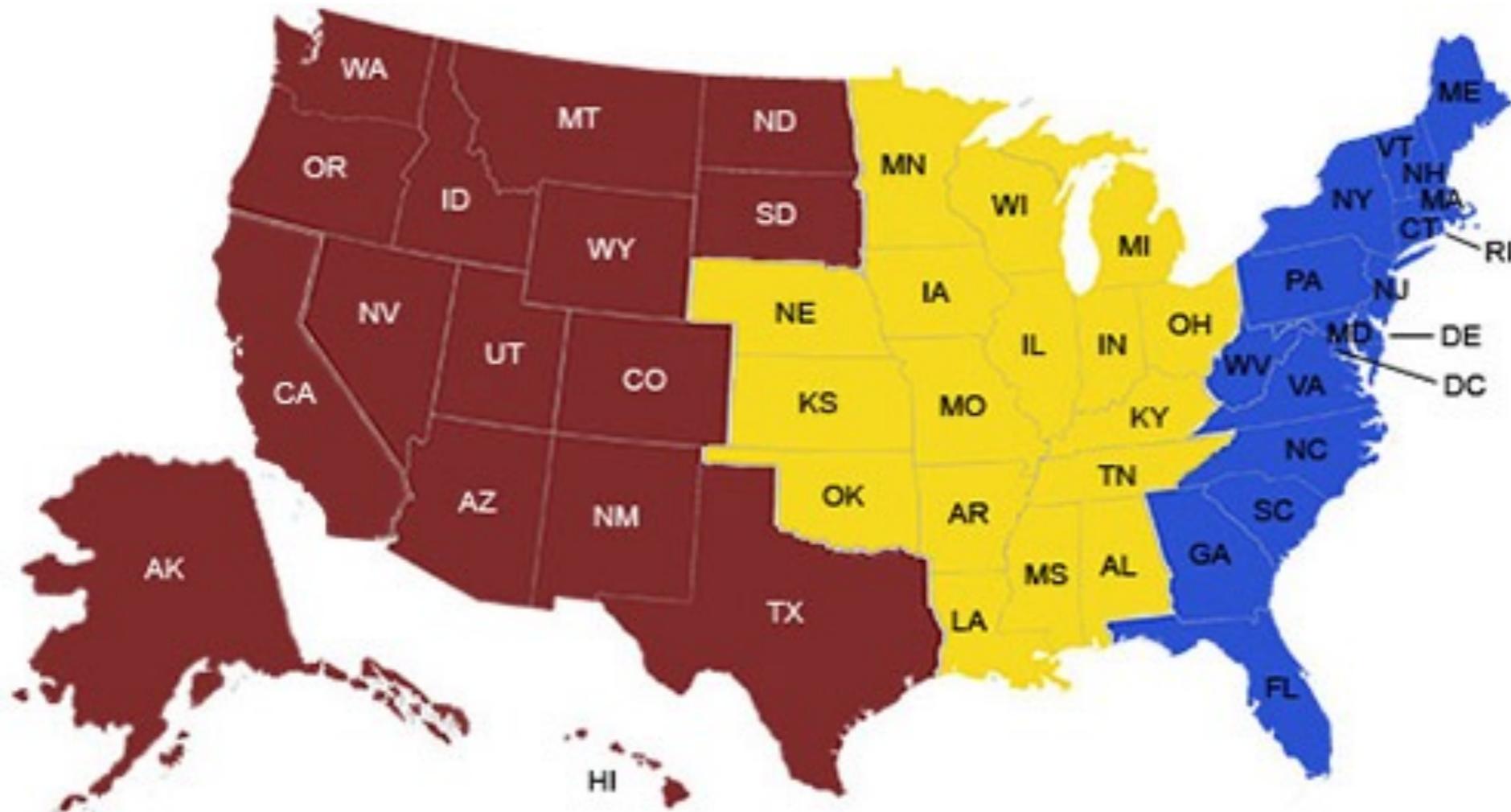
The screenshot shows the Microsoft Excel interface with the 'Table' ribbon selected. The table 'Table2' is displayed with the following data:

OrderDate	Region	Rep	Item	Units	Unit Cost	Total
29/07/14	East	Parent	Binder	81	19,99	1619,19
08/11/14	East	Parent	Pen	15	19,99	299,85
29/12/14	East	Parent	Pen Set	74	15,99	1183,26

The status bar at the bottom indicates: Average: 10760,85583 Count: 28 Sum: 129130,27 and the zoom level is 180%.

A problem of sales analytics

How many times was each region visited?



A problem of sales analytics

How many times was each region visited?

The screenshot shows the PivotTable Builder interface with the following configuration:

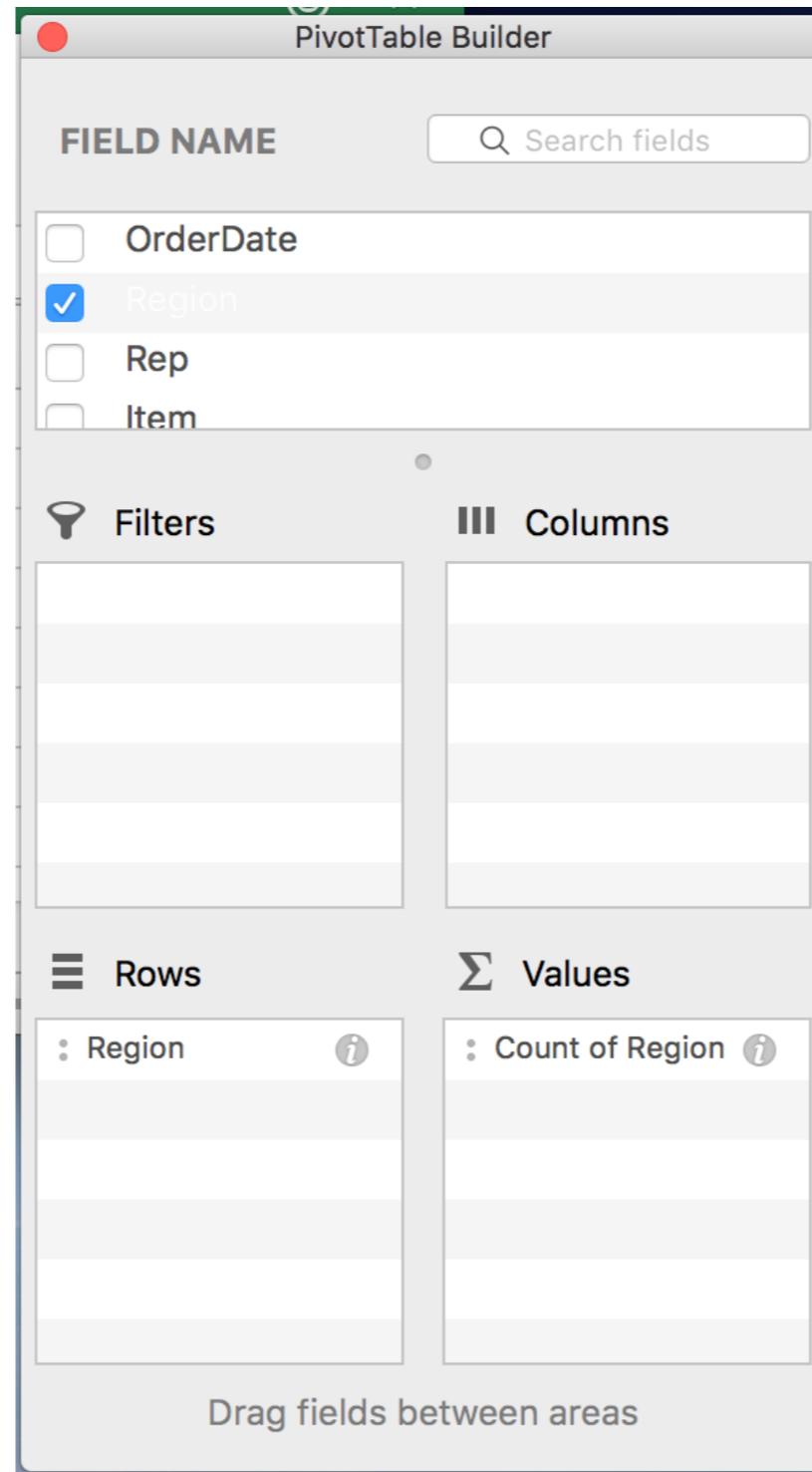
- FIELD NAME:** A search bar labeled "Search fields".
- Field List:** A list of fields with checkboxes: OrderDate (unchecked), Region (checked), Rep (unchecked), and Item (unchecked).
- Filters:** An empty area for filter fields.
- Columns:** An empty area for column fields.
- Rows:** An empty area for row fields.
- Values:** A field named "Count of Region" with a summary function icon (Σ) and an information icon (i).

At the bottom of the interface, it says "Drag fields between areas".

Drag and drop
Region in the
Values

A problem of sales analytics

How many times was each region visited?



Do the same for
Rows...

Row Labels



Count of Region

Central

24

East

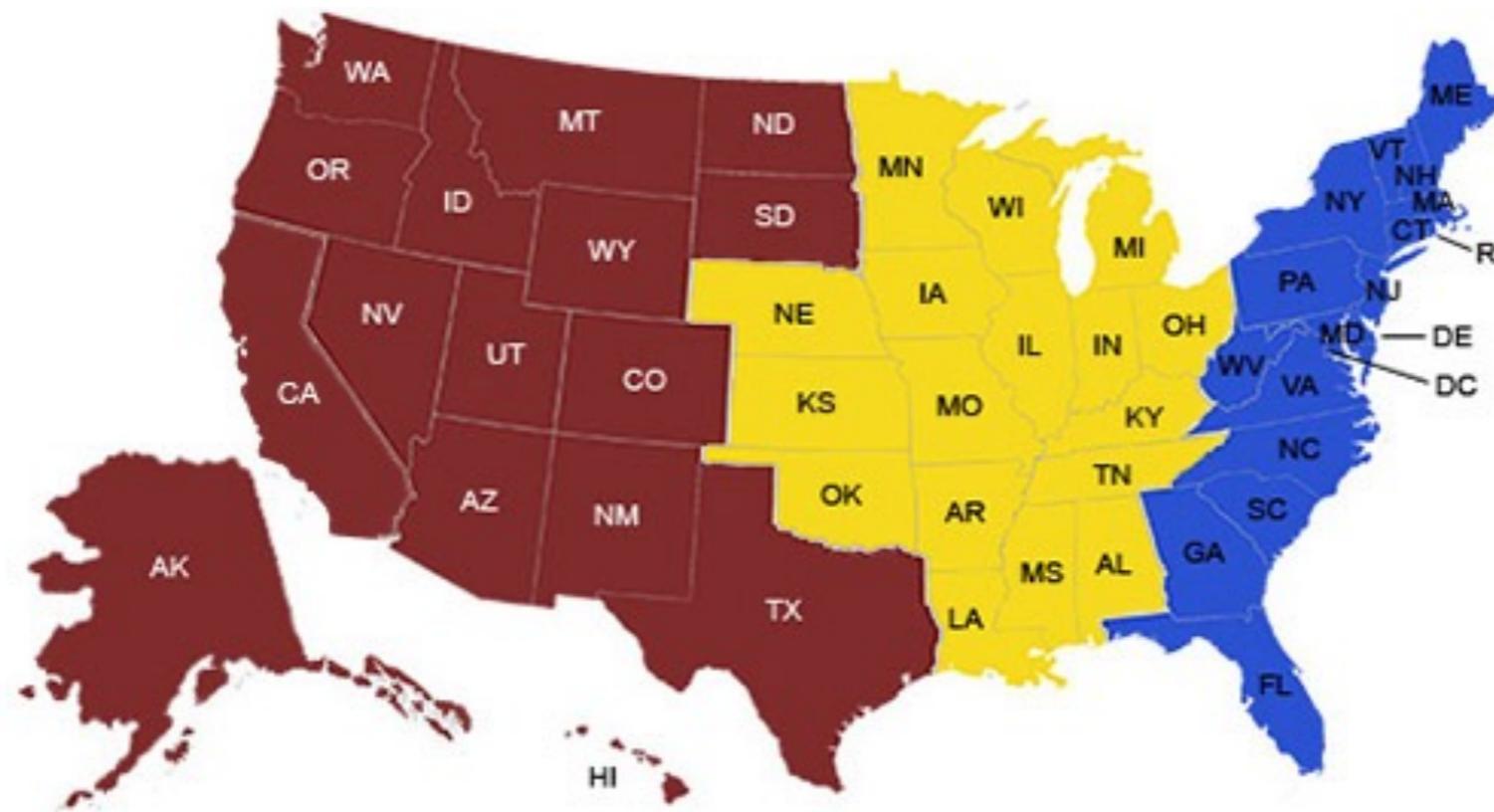
13

West

6

Grand Total

43



Row Labels



Count of Region

Central

24

East

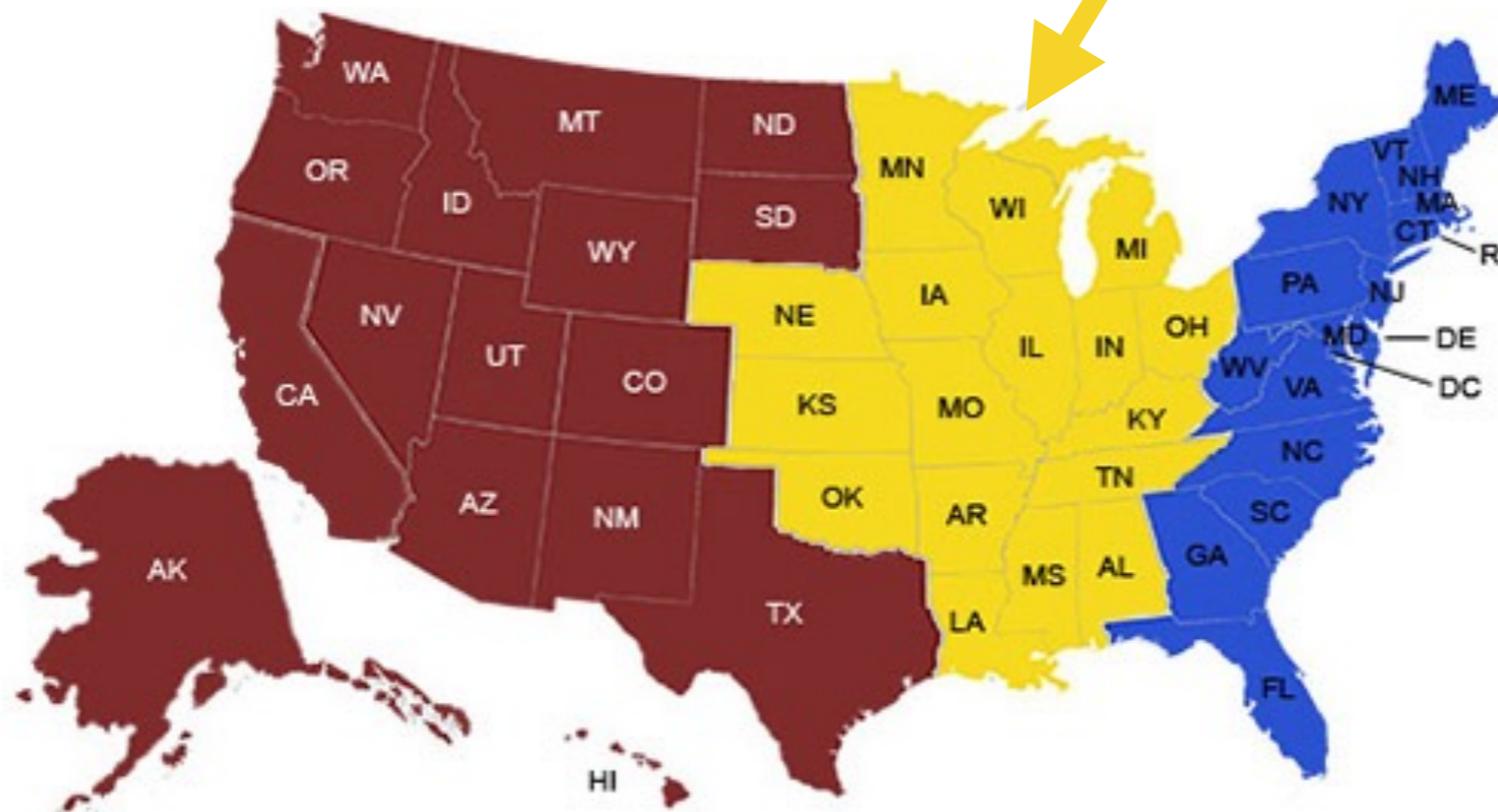
13

West

6

Grand Total

43



Row Labels



Count of Region

Central

24

East

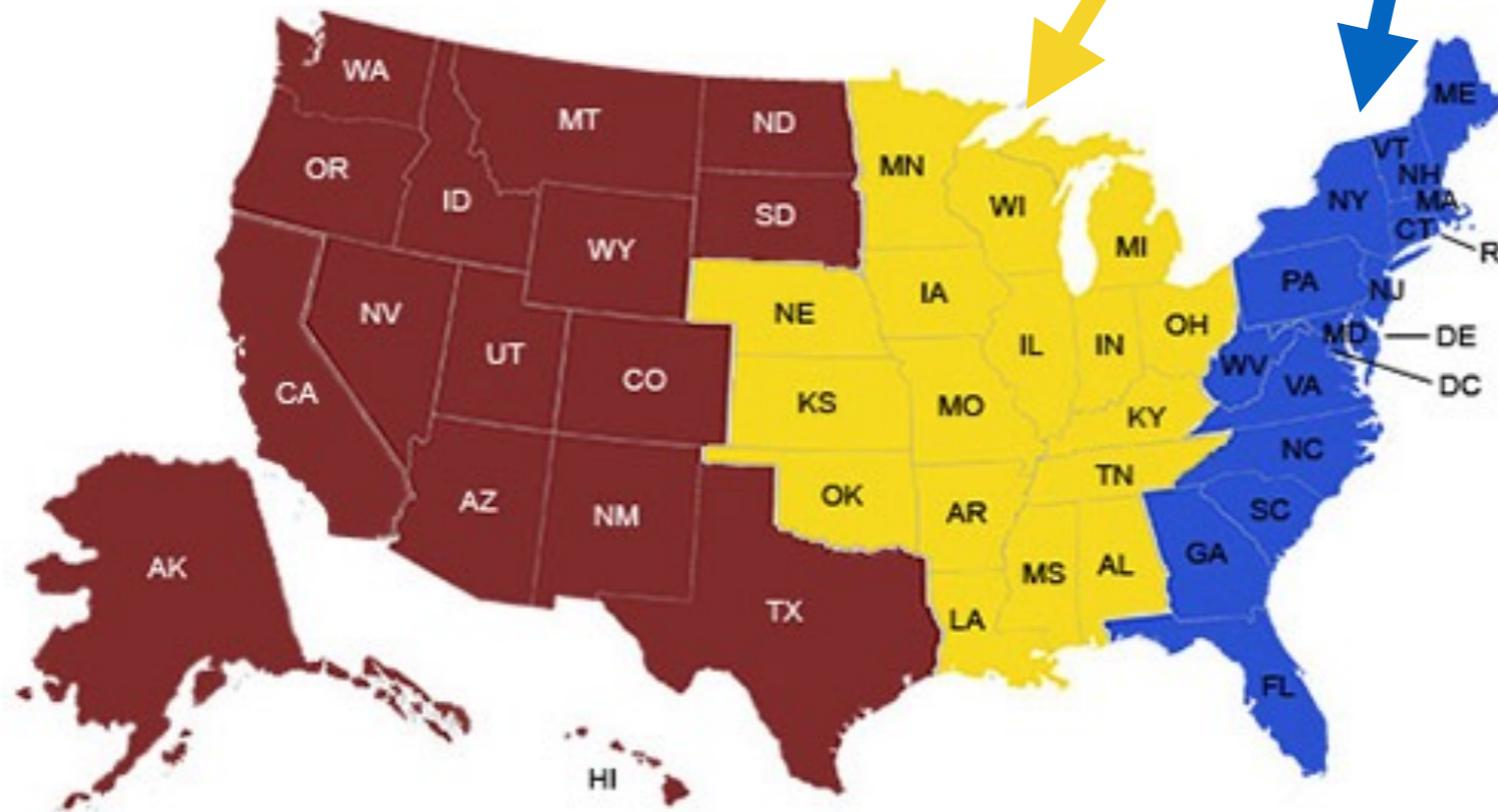
13

West

6

Grand Total

43



Row Labels



Count of Region

Central

24

East

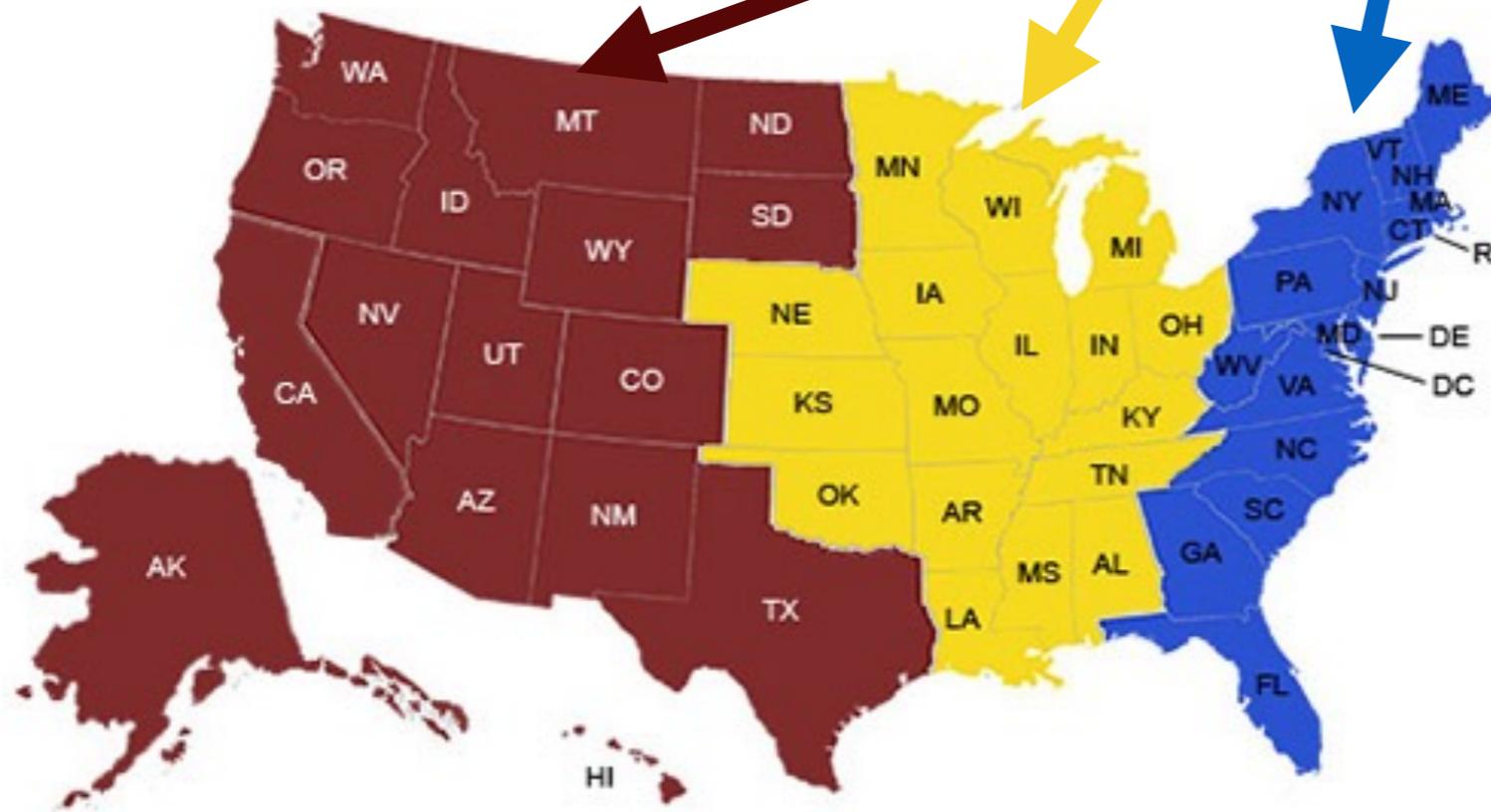
13

West

6

Grand Total

43



A problem of sales analytics

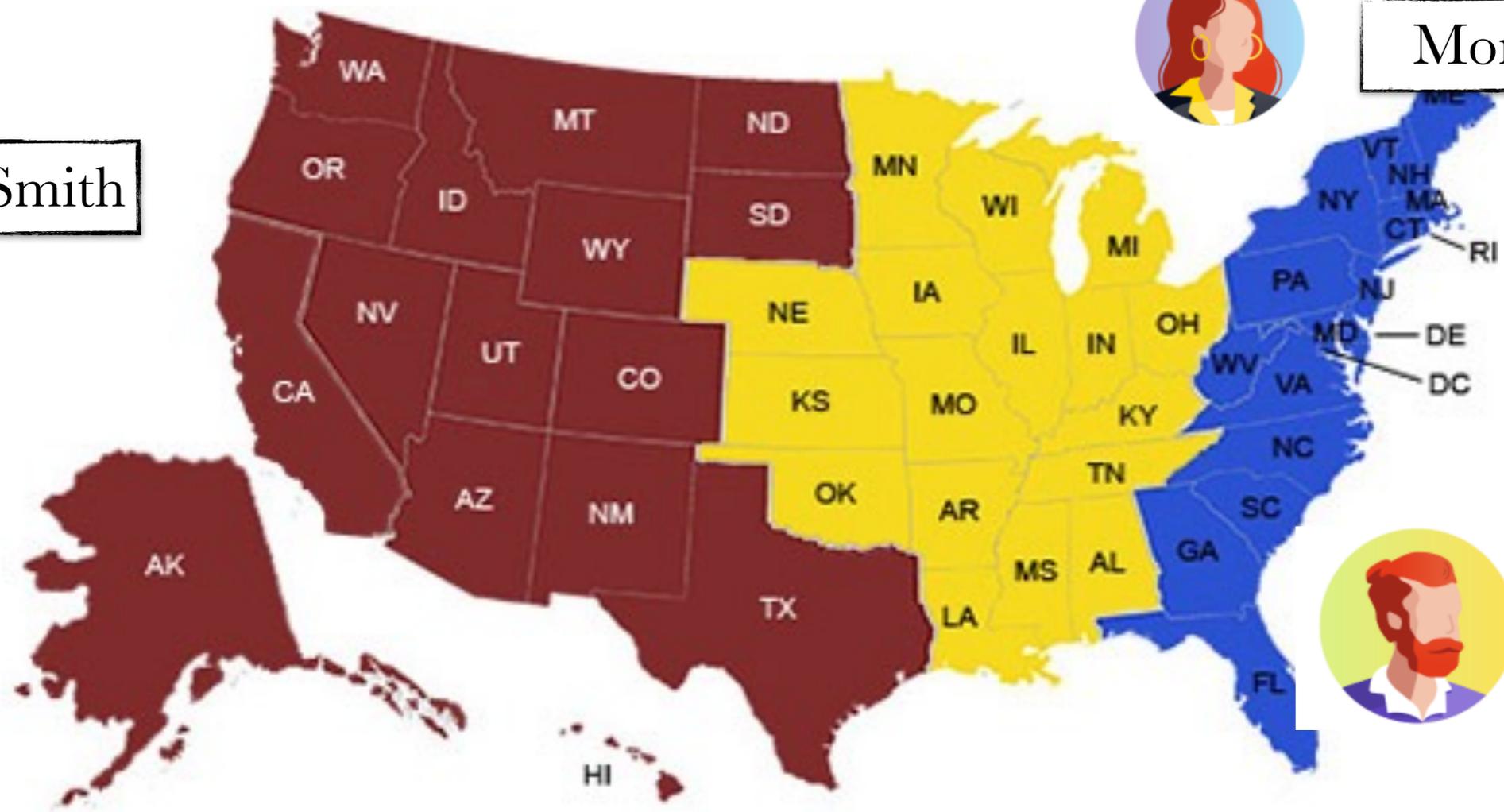
Which Representative visited which regions?



Smith



Morgan



Kivell



Parent



Andrews

PivotTable Builder

FIELD NAME

- OrderDate
- Region
- Rep
- Item

Filters

Columns

- : Region *i*

Rows

- : Rep *i*

Values

- : Count of Region *i*

Drag fields between areas

Drag and drop
Region in the
Values and
Columns

PivotTable Builder

FIELD NAME

- OrderDate
- Region
- Rep
- Item

Filters

Columns
: Region *i*

Rows
: Rep *i*

Values
: Count of Region *i*

Drag fields between areas

Drag and drop
Region in the
Values and
Columns

Then Rep in the
rows...

Count of Region		Column Labels		
Row Labels	Central	East	West	Grand Total
Andrews	4			4
Gill	5			5
Howard		2		2
Jardine	5			5
Jones		8		8
Kivell	4			4
Morgan	3			3
Parent		3		3
Smith	3			3
Sorvino			4	4
Thompson			2	2
Grand Total	24	13	6	43

Subtotals Grand Totals Report Layout Blank Rows

Row Headers Banded Rows

Column Headers Banded Columns

I15 fx 3

	G	H	I	J	K	L
3	625,00					
4	9,03					
5	54,89	Count of Region	Column Labels			
6	18,06	Row Labels	Central	East	West	Grand Total
7	539,73	Andrews	4			4
8	251,72	Gill	5			5
9	139,72	Howard		2		2
10	179,64	Jardine	5			5
11	1.005,90	Jones		8		8
12	413,54	Kivell	4			4
13	999,50	Morgan	3			3
14	249,50	Parent		3		3
15	68,37	Smith	3			3
16	686,95	Sorvino			4	4
17	131,34	Thompson			2	2
18	86,43	Grand Total	24	13	6	43
19	149,25					
20	719,20					
21	1.305,00					
22	449,10					
23	449,10					
24	1.879,06					
25	479,04					

PivotTable Builder

FIELD NAME Search fields

OrderDate

Region

Rep

Item

Filters

Columns

- Region

Rows

- Rep

Values

- Count of Region

Drag fields between areas

sales_data_elaborated

Home Insert Page Layout Formulas Data Review View PivotTable Analyze Design

Subtotals Grand Totals Report Layout Blank Rows

Row Headers Banded Rows

Column Headers Banded Columns

PivotTable Builder

FIELD NAME Search fields

OrderDate

Region

Rep

Item

Filters Columns

Rows Values

Rep

Count of Region

Drag fields between areas

	G	H	I	J	K	L
3	625,00					
4	9,03					
5	54,89	Count of Region	Column Labels			
6	18,06	Row Labels	Central	East	West	Grand Total
7	539,73	Andrews	4			4
8	251,72	Gill	5			5
9	139,72	Howard				
10	179,64	Jardine				
11	1.005,90	Jones				
12	413,54	Kivell	4			4
13	999,50	Morgan	3			3
14	249,50	Parent		3		3
15	68,37	Smith	3			3
16	686,95	Sorvino		4		4
17	131,34	Thompson		2		2
18	86,43	Grand Total	24	13	6	43
19	149,25					
20	719,20					
21	1.305,00					
22	449,10					
23	449,10					
24	1.879,06					
25	479,04					

Which are the original labels?

Subtotals Grand Totals Report Layout Blank Rows

Row Headers Banded Rows

Column Headers Banded Columns



Click on Design

	G	H	I	J	K	L
3	625,00					
4	9,03					
5	54,89	Count of Region	Column Labels			
6	18,06	Row Labels	Central	East	West	Grand Total
7	539,73	Andrews	4			4
8	251,72	Gill	5			5
9	139,72	Howard		2		2
10	179,64	Jardine	5			5
11	1.005,90	Jones		8		8
12	413,54	Kivell	4			4
13	999,50	Morgan	3			3
14	249,50	Parent		3		3
15	68,37	Smith	3			3
16	686,95	Sorvino		4		4
17	131,34	Thompson		2		2
18	86,43	Grand Total	24	13	6	43
19	149,25					
20	719,20					
21	1.305,00					
22	449,10					
23	449,10					
24	1.879,06					
25	479,04					

OrderDate

Region

Rep

Item

Filters

Columns

: Region

Rows

: Rep

Values

: Count of Region

Drag fields between areas

Subtotals Grand Totals **Report Layout** Blank Rows

- Row Headers
- Banded Rows
- Column Headers
- Banded Columns

PivotTable Builder

FIELD NAME Search fields

- OrderDate
- Region
- Rep
- Item

Filters Columns

: Region

Rows Values

: Rep : Count of Region

Drag fields between areas

Then click on "Report Layout"

	G	H	I	J	K	L	
3	625,00						
4							
5							
6	18,06	Row Labels	Central	East	West	Grand Total	
7	539,73	Andrews		4		4	
8	251,72	Gill		5		5	
9	139,72	Howard			2	2	
10	179,64	Jardine		5		5	
11	1.005,90	Jones			8	8	
12	413,54	Kivell		4		4	
13	999,50	Morgan		3		3	
14	249,50	Parent			3	3	
15	68,37	Smith		3		3	
16	686,95	Sorvino			4	4	
17	131,34	Thompson			2	2	
18	86,43	Grand Total		24	13	6	43
19	149,25						
20	719,20						
21	1.305,00						
22	449,10						
23	449,10						
24	1.879,06						
25	479,04						

Subtotals Grand Totals Report Layout Blank Rows

Row Headers Banded Rows

Column Headers Banded Columns

PivotTable Builder

FIELD NAME Search fields

- OrderDate
- Region
- Rep
- Item

Filters Columns

Region

Rows Values

Rep Count of Region

Drag fields between areas

	G	H	I	J	K	L
3	625,00					
4	9,03					
5	54,89	Count of Region	Region			
6	18,06	Rep	Central	East	West	Grand Total
7	539,73	Andrews	4			4
8	251,72	Gill	5			5
9	139,72	Howard		2		2
10	179,64	Jardine	5			
11	1.005,90	Jones		8		
12	413,54	Kivell	4			
13	999,50	Morgan	3			3
14	249,50	Parent		3		3
15	68,37	Smith	3			3
16	686,95	Sorvino			4	4
17	131,34	Thompson			2	2
18	86,43	Grand Total	24	13	6	43
19	149,25					
20	719,20					
21	1.305,00					
22	449,10					
23	449,10					
24	1.879,06					
25	479,04					

Now labels are informative

A problem of sales analytics

What about the average sale per representative?
And the maximum sale?
And the standard deviation of sales?

The screenshot displays an Excel spreadsheet with a PivotTable summarizing sales data by representative and region. The PivotTable is structured as follows:

	Sum of Total	Region			
Rep	Central	East	West	Grand Total	
Andrews	438,37			438,37	
Gill	1749,87			1749,87	
Howard		536,75		536,75	
Jardine	2812,19			2812,19	
Jones		2363,04		2363,04	
Kivell	3109,44			3109,44	
Morgan	1387,77			1387,77	
Parent		3102,3		3102,3	
Smith	1641,43			1641,43	
Sorvino			1283,61	1283,61	
Thompson			1203,11	1203,11	
Grand Total	11139,07	6002,09	2486,72	19627,88	

The PivotTable Builder dialog box is open, showing the following configuration:

- FIELD NAME:** Search fields
- Fields:** Total (checked)
- Filters:** (Empty)
- Columns:** Region
- Rows:** Rep
- Values:** Sum of Total

At the bottom of the dialog box, it says "Drag fields between areas". The status bar at the bottom of the Excel window shows "Ready" and "140%".

A problem of sales analytics

Put:
“Region” in “Columns”
“Rep” in “Rows”
“Total” in “Values”

The screenshot shows an Excel PivotTable with the following data:

Rep	Central	East	West	Grand Total
Andrews	438,37			438,37
Gill	1749,87			1749,87
Howard		536,75		536,75
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Kivell	3109,44			3109,44
Morgan	1387,77			1387,77
Parent		3102,3		3102,3
Smith	1641,43			1641,43
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Grand Total	11139,07	6002,09	2486,72	19627,88

The PivotTable Analyze task pane is configured as follows:

- FIELD NAME:** Region, Rep, Total (checked); OrderDate, Item, Units, Unit Cost (unchecked).
- Columns:** Region
- Rows:** Rep
- Values:** Sum of Total

A problem of sales analytics

The screenshot shows an Excel spreadsheet with a PivotTable summarizing sales data by region and representative. The PivotTable is located in the range L5:L18. The PivotTable Builder task pane is open on the right, showing the current configuration: Rep is in the Rows area, Region is in the Columns area, and Sum of Total is in the Values area. An information icon (i) is visible next to the Sum of Total field in the Values area, which is circled in red. A red arrow points from a callout box to this icon.

Rep	Central	East	West	Grand Total
Andrews	438,37			438,37
Gill	1749,87			1749,87
Howard		536,75		536,75
Jardine	2812,19			2812,19
Jones		2363,04		2363,04
Kivell	3109,44			3109,44
Morgan	1387,77			1387,77
Parent		3102,3		3102,3
Smith	1641,43			1641,43
Sorvino			1283,61	1283,61
Thompson			1203,11	1203,11
Grand Total	11139,07	6002,09	2486,72	19627,88

A problem of sales analytics

The screenshot displays an Excel spreadsheet with a PivotTable summarizing sales data. The PivotTable is structured as follows:

Sum of Total	Region	Grand Total		
Rep	Central	West		
Andrews	438,37	438,37		
Gill	1749,87	1749,87		
Howard	536,75	536,75		
Jardine	2812,19	2812,19		
Jones	2363,04	2363,04		
Kivell	3109,44	3109,44		
Morgan	1387,77	1387,77		
Parent	3102,3	3102,3		
Smith	1641,43	1641,43		
Sorvino	1283,61	1283,61		
Thompson	1203,11	1203,11		
Grand Total	11139,07	6002,09	2486,72	19627,88

The PivotTable Field task pane is open, showing the following configuration:

- FIELD NAME:** OrderDate, Region, Rep, Item, Units, Unit Cost, Total (checked)
- Source field:** Total
- Field name:** Sum of Total
- Summarize by:** Average (circled in red)
- Show data as:** (empty)
- Filters:** (empty)
- Rows:** Rep
- Values:** Sum of Total

The status bar at the bottom indicates 'Ready' and a zoom level of 140%.

A problem of sales analytics

Now the average of total sales per each representative is displayed.
Do the same for max, min,

	Average of Total	Region	East	West	Grand Total	
7	Andrews	Central	109,5925		109,5925	
8	Gill	Central	349,974		349,974	
9	Howard	Central		268,375	268,375	
10	Jardine	Central	562,438		562,438	
11	Jones	Central		295,38	295,38	
12	Kivell	Central	777,36		777,36	
13	Morgan	Central	462,59		462,59	
14	Parent	Central		1034,1	1034,1	
15	Smith	Central	547,1433333		547,1433333	
16	Sorvino	Central		320,9025	320,9025	
17	Thompson	Central		601,555	601,555	
18	Grand Total		464,1279167	461,6992308	414,4533333	456,4623256

Item

Units

Unit Cost

Total

Filters

Columns

- Region

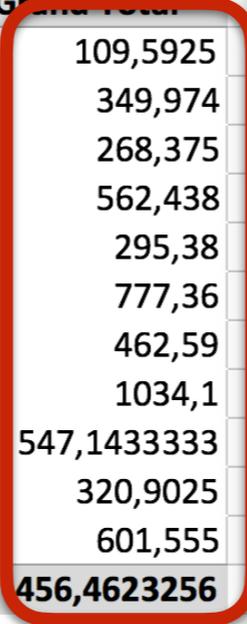
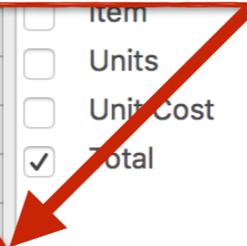
Rows

- Rep

Values

- Average of Total

Drag fields between areas



Coffee  Time

Sub-groups

CLASS1_sales_data_elaborated

Home Insert Draw Page Layout Formulas Data Review View PivotTable Analyze Design Share

Office Update To keep up-to-date with security updates, fixes, and improvements, choose Check for Updates. Check for Updates

H5

	G	H	I	J
2	250,00			
3	625,00			
4	9,03			
5	54,89			
6	18,06			
7	539,73			
8	251,72			
9	139,72			
10	179,64			
11	1.005,90			
12	413,54			
13	999,50			
14	249,50			
15	68,37			
16	686,95			
17	131,34			
18	86,43			
19	149,25			
20	719,20			
21	1.305,00			
22	449,10			
23	449,10			
24	1.879,06			

PivotTable1

To build a report, choose fields from the PivotTable Field List

PivotTable Fields

FIELD NAME Search fields

- OrderDate
- Region
- Rep
- Item
- Units
- Unit Cost
- Total

Filters Columns

Rows Values

Drag fields between areas

Foglio1 + 190%

Sub-groups

The screenshot shows the Microsoft Excel interface with the 'PivotTable Analyze' ribbon selected. The main worksheet displays a PivotTable named 'PivotTable1' with the following data:

	G	H	I	J
2	250,00			
3	625,00			
4	9,03			
5	54,89			
6	18,06			
7	539,73			
8	251,72			
9	139,72			
10	179,64			
11	1.005,90			
12	413,54			
13	999,50			
14	249,50			
20	719,20			
21	1.305,00			
22	449,10			
23	449,10			
24	1.879,06			

The PivotTable Fields task pane on the right shows the following fields:

- OrderDate
- Region
- Rep
- Item
- Units
- Unit Cost
- Total

The task pane is divided into four areas: Filters, Columns, Rows, and Values. The Values area is currently empty and highlighted with a blue border. A text box with arrows points to the task pane, indicating the process of emptying all fields to return to a raw PivotTable.

Empty all the fields to get back to the raw PivotTable

Sub-groups

The screenshot displays an Excel PivotTable with the following data:

	Sum of Total	Rep	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
1	54,89	Central	438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,07
2	18,06	East			536,75		2363,04			3102,3				6002,09
3	539,73	West										1283,61	1203,11	2486,72
4	251,72	Grand Total	438,37	1749,87	536,75	2812,19	2363,04	3109,44	1387,77	3102,3	1641,43	1283,61	1203,11	19627,88

The PivotTable Fields task pane on the right shows the following configuration:

- Field Name: Search fields
- OrderDate:
- Region:
- Rep:
- Item:
- Units:
- Unit Cost:
- Total:

Filters: (Empty)

Columns: Rep

Values: Region (Sum of Total)

A callout box with the text "Add Items->Rows" and an arrow points from the "Region" field in the Values area to the "Rep" field in the Columns area.

Sub-groups

Sum of Total		Rep											
Region	Item	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
Central		438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,07
	Binder	139,72	1132,74		1933,95		999,5	251,72		1305			5762,63
	Desk						625			250			875
	Pen		539,73										539,73
	Pen Set				249,5		1484,94	686,95					2421,39
	Pencil	298,65	77,4		628,74			449,1		86,43			1540,32
East				536,75		2363,04			3102,3				6002,09
	Binder			57,71		858,76			1619,19				2535,66
	Pen			479,04		575,36			299,85				1354,25
	Pen Set					565,22			1183,26				1748,48
	Pencil					363,7							363,7
West											1283,61	1203,11	2486,72
	Binder										139,93	1139,43	1279,36
	Desk										825		825
	Pen										151,24		151,24
	Pencil										167,44	63,68	231,12
Grand Total		438,37	1749,87	536,75	2812,19	2363,04	3109,44	1387,77	3102,3	1641,43	1283,61	1203,11	19627,88

Sub-groups

Rows are now sliced into Item-classes

Sum of Total		Rep											
Region	Item	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
Central		438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,07
	Binder	139,72	1132,74		1933,95		999,5	251,72		1305			5762,63
	Desk						625			250			875
	Pen		539,73										539,73
	Pen Set				249,5		1484,94	686,95					2421,39
	Pencil	298,65	77,4		628,74			449,1		86,43			1540,32
East				536,75		2363,04			3102,3				6002,09
	Binder			57,71		858,76			1619,19				2535,66
	Pen			479,04		575,36			299,85				1354,25
	Pen Set					565,22			1183,26				1748,48
	Pencil					363,7							363,7
West											1283,61	1203,11	2486,72
	Binder										139,93	1139,43	1279,36
	Desk										825		825
	Pen										151,24		151,24
	Pencil										167,44	63,68	231,12
Grand Total		438,37	1749,87	536,75	2812,19	2363,04	3109,44	1387,77	3102,3	1641,43	1283,61	1203,11	19627,88

Sub-groups

Sum of Total		Rep											
Region	Item	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	Grand Total
Central		438,37	1749,87		2812,19		3109,44	1387,77		1641,43			11139,07
	Binder	139,72	1132,74		1933,95		999,5	251,72		1305			5762,63
	Desk						625			250			875
	Pen		539,73										539,73
	Pen Set				249,5		1484,94	686,95					2421,39
	Pencil	298,65	77,4		628,74			449,1		86,43			1540,32
East				536,75		2363,04			3102,3				6002,09
	Binder			57,71		858,76			1619,19				2535,66
	Pen			479,04		575,36			299,85				1354,25
	Pen Set					565,22			1183,26				1748,48
	Pencil					363,7							363,7
West											1283,61	1203,11	2486,72
	Binder										139,93	1139,43	1279,36
	Desk										825		825
	Pen										151,24		151,24
	Pencil										167,44	63,68	231,12
Grand Total		438,37	1749,87	536,75	2812,19	2363,04	3109,44	1387,77	3102,3	1641,43	1283,61	1203,11	19627,88

For example now we see clearly that Andrews has sold a total of 139,72\$ of Binders in the Central region.

From the course website download and open the file:

» **US Election**



Exercise: election data in USA

The screenshot shows the Microsoft Excel interface with the following data:

	A	B	C	D	E	F	G
1	VOTER	PARTY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
2	1012	REPUBLICAN	2408	71 +	08/2006	51	PERM
3	1013	REPUBLICAN	2411	71 +	08/2006	50	PERM
4	1014	DEMOCRAT	2424	71 +	08/2006	50	PERM
5	1015	DEMOCRAT	2418	71 +	08/2006	50	POLL
6	1016	REPUBLICAN	2411	71 +	08/2006	50	PERM
7	1017	REPUBLICAN	2419	71 +	08/2006	50	PERM
8	1018	REPUBLICAN	2417	71 +	08/2006	48	PERM
9	1019	REPUBLICAN	2417	71 +	08/2006	48	PERM
10	1023	DEMOCRAT	2424	71 +	08/2006	46	POLL
11	1024	REPUBLICAN	2411	71 +	08/2006	46	PERM
12	1025	REPUBLICAN	2416	71 +	06/2006	46	POLL
13	1026	DEMOCRAT	2405	71 +	08/2006	46	PERM
14	1027	REPUBLICAN	2405	71 +	08/2006	3	PERM

Exercise: election data in USA



Class_1_Exercise_1 Search Sheet

Page Layout Formulas Data Review View

Body) 11 A A Alignment Number Conditional Formatting Format as Table Cell Styles Cells Editing

PERM

Voter identifier

	VOTER	PARTY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
1							
2	1012	REPUBLICAN	2408	71 +	08/2006	51	PERM
3	1013	REPUBLICAN	2411	71 +	08/2006	50	PERM
4	1014	DEMOCRAT	2424	71 +	08/2006	50	PERM
5	1015	DEMOCRAT	2418	71 +	08/2006	50	POLL
6	1016	REPUBLICAN	2411	71 +	08/2006	50	PERM
7	1017	REPUBLICAN	2419	71 +	08/2006	50	PERM
8	1018	REPUBLICAN	2417	71 +	08/2006	48	PERM
9	1019	REPUBLICAN	2417	71 +	08/2006	48	PERM
10	1023	DEMOCRAT	2424	71 +	08/2006	46	POLL
11	1024	REPUBLICAN	2411	71 +	08/2006	46	PERM
12	1025	REPUBLICAN	2416	71 +	06/2006	46	POLL
13	1026	DEMOCRAT	2405	71 +	08/2006	46	PERM
14	1027	REPUBLICAN	2405	71 +	08/2006	3	PERM

Voters

Ready 180%

Exercise: election data in USA

The screenshot shows a Microsoft Excel spreadsheet titled "Class_1_Exercise_1". The spreadsheet contains a table of election data. The columns are labeled: VOTER, PARTY, PRECINCT, AGE GROUP, LAST VOTED, YEARS REG, and BALLOT STATUS. A red box highlights the 'PARTY' column, and a red callout box points to it with the text "Voter party affiliation". An image of a donkey and an elephant is overlaid on the bottom right of the spreadsheet.

	VOTER	PARTY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
1							
2	1012	REPUBLICAN	2408	71 +	08/2006	51	PERM
3	1013	REPUBLICAN	2411	71 +	08/2006	50	PERM
4	1014	DEMOCRAT					RM
5	1015	DEMOCRAT					OLL
6	1016	REPUBLICAN					RM
7	1017	REPUBLICAN					RM
8	1018	REPUBLICAN					RM
9	1019	REPUBLICAN					RM
10	1023	DEMOCRAT					OLL
11	1024	REPUBLICAN					RM
12	1025	REPUBLICAN					OLL
13	1026	DEMOCRAT					RM
14	1027	REPUBLICAN					RM

Exercise: election data in USA

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1		CITY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
2		REPUBLICAN	2408	71 +	08/2006	51	PERM
3		REPUBLICAN	2411	71 +	08/2006	50	PERM
4		DEMOCRAT	2424	71 +	08/2006	50	PERM
5		DEMOCRAT	2418	71 +	08/2006	50	POLL
6		REPUBLICAN	2411	71 +	08/2006	50	PERM
7	101	REPUBLICAN	2419	71 +	08/2006	50	PERM
8	1018	REPUBLICAN	2417	71 +	08/2006	48	PERM
9	1019	REPUBLICAN	2417	71 +	08/2006	48	PERM
10	1023	DEMOCRAT	2424	71 +	08/2006	46	POLL
11	1024	REPUBLICAN	2411	71 +	08/2006	46	PERM
12	1025	REPUBLICAN	2416	71 +	06/2006	46	POLL
13	1026	DEMOCRAT	2405	71 +	08/2006	46	PERM
14	1027	REPUBLICAN	2405	71 +	08/2006	3	PERM

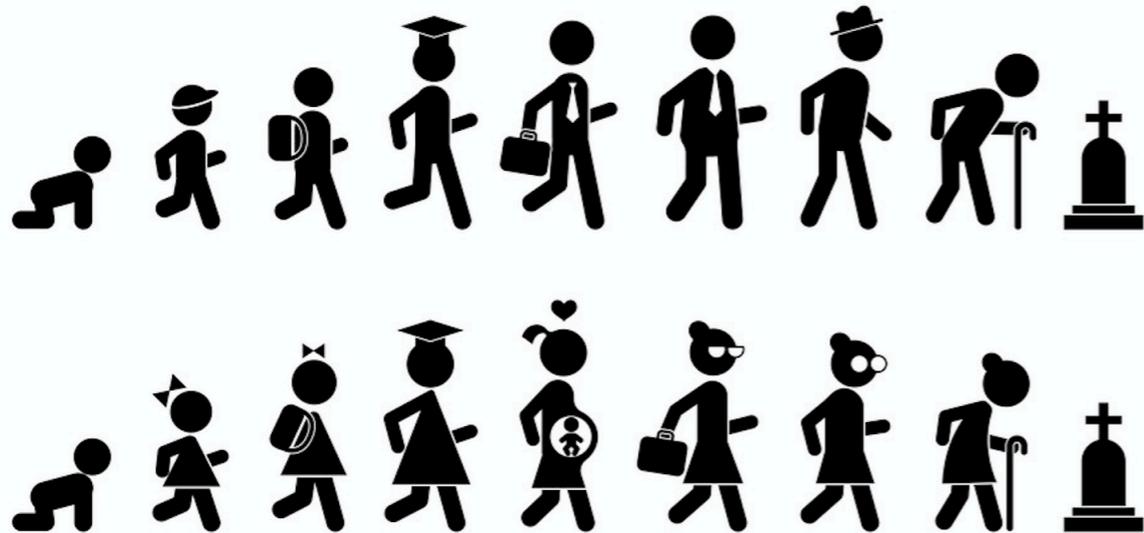
The 'PRECINCT' column (C) is highlighted with a red box. A callout box with the text 'Electoral district identifier' points to this column. A magnifying glass icon is positioned over the first column (A).

Exercise: election data in USA

The screenshot shows an Excel spreadsheet titled "Class_1_Exercise_1" with the following data:

	A	B	C	D	E	F	G
1	VOTER	PARTY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
				2408 71 +	08/2006	51	PERM
				2411 71 +	08/2006	50	PERM
				2424 71 +	08/2006	50	PERM
				2418 71 +	08/2006	50	POLL
				2411 71 +	08/2006	50	PERM
				2419 71 +	08/2006	50	PERM
				2417 71 +	08/2006	48	PERM
				2417 71 +	08/2006	48	PERM
				2424 71 +	08/2006	46	POLL
11	1024	REPUBLICAN		2411 71 +	08/2006	46	PERM
12	1025	REPUBLICAN		2416 71 +	06/2006	46	POLL
13	1026	DEMOCRAT		2405 71 +	08/2006	46	PERM
14	1027	REPUBLICAN		2405 71 +	08/2006	3	PERM

A red box highlights the "AGE GROUP" column (D). A callout box labeled "Age" points to the "AGE GROUP" header. A red arrow also points from the callout box to the "AGE GROUP" header. A blue icon is visible on the right side of the spreadsheet.



Exercise: election data in USA

Class_1_Exercise_1

Search Sheet

Home Insert Page Layout Formulas Data Review View

Paste Calibri (Body) 11 A A Alignment Number Cell Styles

G6 fx PERM

	A	B	C	D	E	F	G
1	VOTER	PARTY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
2	1012	REPU			08/2006	51	PERM
3	1013	REPU			08/2006	50	PERM
4	1014	DEMO			08/2006	50	PERM
5	1015	DEMO			08/2006	50	POLL
6	1016	REPU			08/2006	50	PERM
7	1017	REPU			08/2006	50	PERM
8	1018	REPU			08/2006	48	PERM
9	1019	REPU			08/2006	48	PERM
10	1023	DEMO			08/2006	46	POLL
11	1024	REPU			08/2006	46	PERM
12	1025	REPU			06/2006	46	POLL
13	1026	DEMOCRAT		2405 71 +	08/2006	46	PERM
14	1027	REPUBLICAN		2405 71 +	08/2006	3	PERM

Ready

180%

Exercise: election data in USA

The image shows a screenshot of an Excel spreadsheet titled "Class_1_Exercise_1". The spreadsheet contains a table of voter data. A red box highlights the "YEARS REG" column, and a red arrow points from the text "Years they've been registered" to this column. The spreadsheet has a ribbon with tabs for Home, Insert, Page Layout, Formulas, Data, Review, and View. The active cell is G6, containing the formula =PERM. The data table has columns for VOTER, PARTY, PRECINCT, AGE GROUP, LAST VOTED, YEARS REG, and BALLOT STATUS. The data rows are numbered 1 through 14.

	A	B	C	D	E	F	G
1	VOTER	PARTY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
2	1012	REPUBLICAN	2408	71 +	08/2006	51	PERM
3	1013	REPUBLICAN	2411	71 +	08/2006	50	PERM
4	1014	DEMOCRAT	2424	71 +	08/2006	50	PERM
5	1015	DEMOCRAT	2418	71 +	08/2006	50	POLL
6	1016	REPUBLICAN	2411	71 +	08/2006	50	PERM
7	1017	REPUBLICAN	2419	71 +	08/2006	50	PERM
8	1018	REPUBLICAN	2417	71 +	08/2006	48	PERM
9	1019	REPUBLICAN	2417	71 +	08/2006	48	PERM
10	1023	DEMOCRAT	2424	71 +	08/2006	46	POLL
11	1024	REPUBLICAN	2411	71 +	08/2006	46	PERM
12	1025	REPUBLICAN	2416	71 +	06/2006	46	POLL
13	1026	DEMOCRAT	2405	71 +	08/2006	46	PERM
14	1027	REPUBLICAN	2405	71 +	08/2006	3	PERM

Exercise: election data in USA

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1	VOTER	PARTY				YEARS	BALLOT
2	1012	REPUBLICAN				REG	STATUS
3	1013	REPUBLICAN				51	PERM
4	1014	DEMOCRAT				50	PERM
5	1015	DEMOCRAT				50	PERM
6	1016	REPUBLICAN				50	POLL
7	1017	REPUBLICAN				50	PERM
8	1018	REPUBLICAN				50	PERM
9	1019	REPUBLICAN				48	PERM
10	1023	DEMOCRAT				48	PERM
11	1024	REPUBLICAN				46	POLL
12	1025	REPUBLICAN				46	PERM
13	1026	DEMOCRAT				46	POLL
14	1027	REPUBLICAN				46	PERM
						3	PERM

The 'Ballot Status' column (G) is highlighted with a red box. A red arrow points from the text 'Ballot Status' to the 'STATUS' header in cell G2. A large ballot icon is overlaid on the spreadsheet, centered over the data.

Question #1.

How many voters have a **PERMANENT** Ballot ?

Question #1.

How many voters have a **PERMANENT** Ballot ?

Solution.

Create a PivotTable with “BALLOT STATUS”
in “Values” and in “Rows”

Question #1.

How many voters have a **PERMANENT** Ballot ?

Solution.

Create a PivotTable with “BALLOT STATUS” in “Values” and in “Rows”

Drop Report Filter Fields Here	
Count of BALLOT STATUS	
BALLOT STATUS	Total
ABT	54
PERM	2033
POLL	1913
Grand Total	4000

Question #2.

In which PRECINCT did the democrats get more voters?

Question #2.

In which PRECINCT did the democrats get more voters?

Solution.

- 1) PARTY —————>Columns
- 2) PRECINCT—>Rows
- 3) VOTERS————>Values + Display Count and not Sum.

Count of VOTER	PARTY					Grand Total	
PRECINCT	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total	
2401			23	106	2	31	162
2402	6		33	128	5	55	227
2403	2		17	72	4	28	123
2404	3		17	9		1	151
2405	3		31	8		0	176
2406	3		24	90	2	51	170
2407	3		19	72	2	22	118
2408	1		24	89	1	43	158
2409			32	92	2	53	179
2411	1		26	76		42	145
2412	1		26	83	2	38	150
2413	5		26	95		63	189
2414	4		21	83	4	42	154
2415	2		26	96	5	54	183
2416	2		24	111	3	59	199
2417	2		14	136	2	69	223
2418	6		40	135		87	268
2419	4		38	108	1	92	238
2420	2		11	75	1	26	116
2421	2		19	94		64	175
2422	3		16	66		42	127
2423	6		30	87		74	197
2424			2	89		62	172
Grand Total	61		550	2157	41	1191	4000

Sort this column



Count of VOTER	PARTY						Grand Total
PRECINCT	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN		Grand Total
2417	2		14	136	2	69	223
2418	6		40	135		87	268
2402	6		33	128	5	55	227
2416	2		24	111	3	59	199
2419	4		33	108	1	92	238
2401			23	106	2	31	162
2415	2		26	96	5	54	183
2413	5		26	95		63	189
2421							175
2404							151
2409			32	92	2	53	179
2406	3		24	90	2	51	170
2424			21	89		62	172
2408	1		24	89	1	43	158
2423	6		30	87		74	197
2412	1		26	83	2	38	150
2414	4		21	83	4	42	154
2405	3		31	80	2	60	176
2411	1		26	76		42	145
2420	2		12	75	1	26	116
2403	2		17	72	4	28	123
2407	3		19	72	2	22	118
2422	3		16	66		42	127
Grand Total	61		550	2157	41	1191	4000

The answer is the PRECINCT number 2417

Question #2.

Which is the percentage of voters the democrats get in the PRECINCT in which they had the worst performance?

Question #2.

Which is the percentage of voters the democrats get in the PRECINCT in which they had the worst performance?

Solution.

- 1) PARTY —————>Columns
- 2) PRECINCT—>Rows
- 3) VOTERS————>Values
- 4) next slide

Filters **Columns**

Rows **Values**

: PARTY

: PRECINCT

: Count of VOTER

Drag fields between areas

200%

PivotTable Field

Source field: VOTER

Field name:

Summarize by **Show data as**

- Count
- Average
- Max
- Min
- Product
- Count Numbers
- StdDev
- StdDevp

Number... **Cancel** **OK**

Filters Columns

Rows Values

: PARTY

: PRECINCT

: Count of VOTER

Drag fields between areas

200%

PivotTable Field

Source field: VOTER

Field name: Count of VOTER

Summarize by Show data as

No Calculation

Base field: VOTER, PARTY, PRECINCT, AGE, LAST

Base item:

Number... Cancel OK

Filters Columns

Rows Values

: PARTY

: PRECINCT

: Count of VOTER

Drag fields between areas

200%

PivotTable Field

Source field: VOTER

Field name: Count of VOTER

Summarize by Show data as

No Calculation

Base field: VOTER
PARTY
PRECINCT
AGE
LAST

Base item:

Number... Cancel OK

Filters

Columns

: PARTY

Rows

: PRECINCT

Values

: Count of VOTER

Drag fields between areas

PivotTable Field

Source field: VOTER

Field name:

Summarize by

- No Calculation
- Difference From
- % Of
- % Difference From
- Running Total In
- % of Row Total
- % of Column Total
- % of Grand Total
- Index
- % of Parent Row Total
- % of Parent Column Total
- % of Parent Total
- % Running Total In
- Rank Smallest to Largest
- Rank Largest to Smallest

Count of VOTER	PARTY						Grand Total
PRECINCT	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total	
2417	0,05%	0,35%	3,40%	0,05%	1,73%	5,58%	
2418	0,15%	1,00%	3,38%	0,00%	2,18%	6,70%	
2402	0,15%	0,83%	3,20%	0,13%	1,38%	5,68%	
2416	0,05%	0,60%	2,78%	0,08%	1,48%	4,98%	
2419	0,10%	0,83%	2,70%	0,03%	2,30%	5,95%	
2401	0,00%	0,58%	2,65%	0,05%	0,78%	4,05%	
2415	0,05%	0,65%	2,40%	0,13%	1,35%	4,58%	
2413	0,13%	0,65%	2,38%	0,00%	1,58%	4,73%	
2421	0,05%	0,38%	2,35%	0,00%	1,60%	4,38%	
2404	0,08%	0,43%	2,35%	0,08%	0,85%	3,78%	
2409	0,00%	0,80%	2,30%	0,05%	1,33%	4,48%	
2406	0,08%	0,60%	2,25%	0,05%	1,28%	4,25%	
2424	0,00%	0,53%	2,23%	0,00%	1,55%	4,30%	
2408	0,03%	0,60%	2,23%	0,03%	1,08%	3,95%	
2423	0,15%	0,75%	2,18%	0,00%	1,85%	4,93%	
2412	0,03%	0,65%	2,08%	0,05%	0,95%	3,75%	
2414	0,10%	0,53%	2,08%	0,10%	1,05%	3,85%	
2405	0,08%	0,78%	2,00%	0,05%	1,50%	4,40%	
2411	0,03%	0,65%	1,90%	0,00%	1,05%	3,63%	
2420	0,05%	0,30%	1,88%	0,03%	0,65%	2,90%	
2403	0,05%	0,43%	1,80%	0,10%	0,70%	3,08%	
2407	0,08%	0,48%	1,80%	0,05%	0,55%	2,95%	
2422	0,08%	0,40%	1,65%	0,00%	1,05%	3,18%	
Grand Total	1,53%	13,75%	53,93%	1,03%	29,78%	100,00%	

Count of VOTER	PARTY						Grand Total
PRECINCT	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN		Grand Total
2417	0,05%	0,35%	3,40%	0,05%	1,73%		5,58%
2418	0,15%	1,00%	3,38%	0,00%	2,18%		6,70%
2402	0,15%	0,83%	3,20%	0,13%	1,38%		5,68%
2416	0,05%	0,60%	2,78%	0,08%	1,48%		4,98%
2419	0,10%	0,83%	2,70%	0,03%	2,30%		5,95%
2401	0,00%	0,58%	2,65%	0,05%	0,78%		4,05%
2415	0,05%	0,65%	2,40%	0,13%	1,35%		4,58%
2413	0,13%	0,65%	2,38%	0,00%	1,58%		4,73%
2421	0,05%	0,38%	2,35%	0,00%	1,60%		4,38%
2404	0,08%	0,43%	2,35%	0,08%	0,85%		3,78%
2409	0,00%	0,80%	2,30%	0,05%	1,33%		4,48%
2406	0,08%	0,60%	2,25%	0,05%	1,28%		4,25%
2424	0,00%	0,53%	2,23%	0,00%	1,55%		4,30%
2408	0,03%	0,60%	2,23%	0,03%	1,08%		3,95%
2423	0,15%	0,75%	2,18%	0,00%	1,85%		4,93%
2412	0,03%	0,65%	2,08%	0,05%	0,95%		3,75%
2414	0,10%	0,53%	2,08%	0,10%	1,05%		3,85%
2405	0,08%	0,78%	2,00%	0,05%	1,50%		4,40%
2411	0,03%	0,65%	1,90%	0,00%	1,05%		3,63%
2420	0,05%	0,30%	1,88%	0,03%	0,65%		2,90%
2403	0,05%	0,43%	1,80%	0,10%	0,70%		3,08%
2407	0,08%	0,48%	1,80%	0,05%	0,55%		2,95%
2422	0,08%	0,40%	1,65%	0,00%	1,05%		3,18%
Grand Total	1,53%	13,75%	55,95%	1,03%	29,78%		100,00%

Question #3.

How many more votes did **all the parties** have compared to the Republicans?

☰ Rows

Σ Values

: PRECINCT ⓘ

: Count of VOTER ⓘ



Drag fields between areas

☐ ☐ ☐ - [Slider] + 200%

Rows

PRECINCT

Values

Count of VOTER

Drag fields between areas

200%

PivotTable Field

Source field: VOTER

Field name: Count of VOTER

Summarize by: Show data as

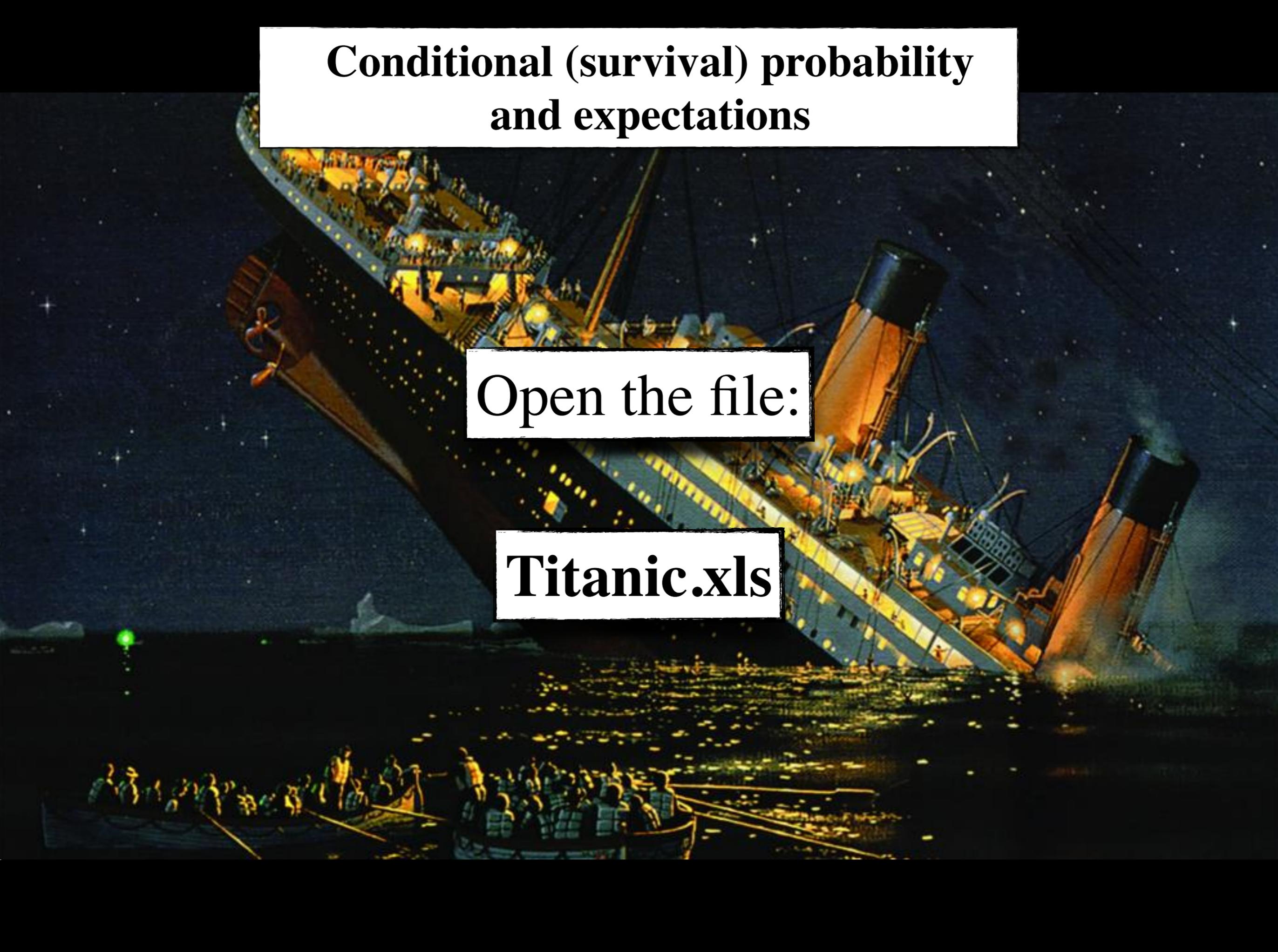
Difference From

Base field: PARTY

Base item: REPUBLICAN

Number... Cancel OK

Count of VOTER	PARTY <input type="text"/>					
PRECINCT <input type="text"/>	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total
2417	-67	-55	67	-67		
2418	-81	-47	48	-87		
2402	-49	-22	73	-50		
2416	-57	-35	52	-56		
2419	-88	-59	16	-91		
2401	-31	-8	75	-29		
2415	-52	-28	42	-49		
2413	-58	-37	32	-63		
2421	-62	-49	30	-64		
2404	-31	-17	60	-31		
2409	-53	-21	39	-51		
2406	-48	-27	39	-49		
2424	-62	-41	27	-62		
2408	-42	-19	46	-42		
2423	-68	-44	13	-74		
2412	-37	-12	45	-36		
2414	-38	-21	41	-38		
2405	-57	-29	20	-58		
2411	-41	-16	34	-42		
2420	-24	-14	49	-25		
2403	-26	-11	44	-24		
2407	-19	-3	50	-20		
2422	-39	-26	24	-42		
Grand Total	-1130	-641	966	-1150		

A dramatic illustration of the Titanic sinking at night. The ship is tilted at a steep angle, with its bow high and stern low. The ship's lights are on, and the sea is dark with some icebergs visible in the distance. In the foreground, several lifeboats are filled with people, some of whom are looking towards the sinking ship. The sky is dark with some stars visible.

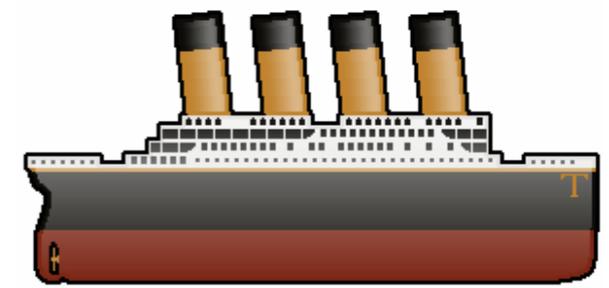
Conditional (survival) probability and expectations

Open the file:

Titanic.xls

	A	B	C	D	E	F	G	H	I	J
1	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
2	0	3	male	22	1	0	7,25	man	TRUE	Southampton
3	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
4	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
5	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
6	0	3	male	35	0	0	8,05	man	TRUE	Southampton
7	0	3	male		0	0	8,4583	man	TRUE	Queenstown
8	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
9	0	3	male	2	3	1	21,08	child	FALSE	Southampton
10	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
11	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
12	1	3	female	4	1	1	16,7	child	FALSE	Southampton
13	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
14	0	3	male	20	0	0	8,05	man	TRUE	Southampton
15	0	3	male	39	1	5	31,28	man	TRUE	Southampton
16	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
17	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

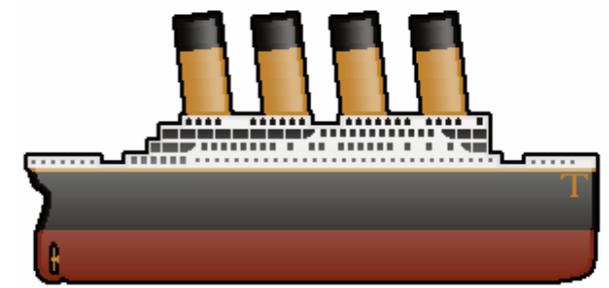
1 = survived
0 = not survived



Excel interface showing the Titanic dataset. The 'survived' column (A) is highlighted with a red box. A red arrow points from the legend to the 'survived' column.

	A	B	C	D	E	F	G	H	I	J
	survived	class	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	22	1	0	7,25	man	TRUE	Southampton
2	1	1	female	58	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
5	0	3	male	35	0	0	8,05	man	TRUE	Southampton
6	0	3	male		0	0	8,4583	man	TRUE	Queenstown
7	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
8	0	3	male	2	3	1	21,08	child	FALSE	Southampton
9	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
10	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
11	1	3	female	4	1	1	16,7	child	FALSE	Southampton
12	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
13	0	3	male	20	0	0	8,05	man	TRUE	Southampton
14	0	3	male	39	1	5	31,28	man	TRUE	Southampton
15	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
16	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

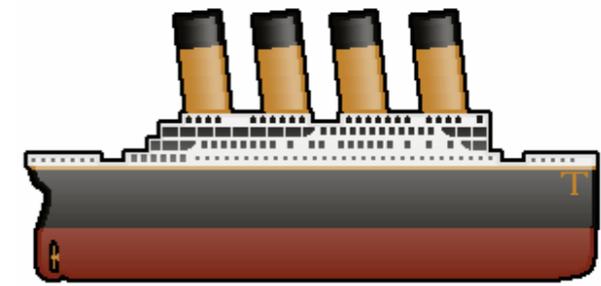
The class of the cabin owned by the passenger



Excel spreadsheet showing the Titanic dataset. The 'pclass' column (B) is highlighted with a red box, and an arrow points to the value '3' in row 9.

	A	B	C	D	E	F	G	H	I	J
	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	29	1	0	7,25	man	TRUE	Southampton
2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
5	0	3	male	35	0	0	8,05	man	TRUE	Southampton
6	0	3	male		0	0	8,4583	man	TRUE	Queenstown
7	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
8	0	3	male	2	3	1	21,08	child	FALSE	Southampton
9	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
10	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
11	1	3	female	4	1	1	16,7	child	FALSE	Southampton
12	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
13	0	3	male	20	0	0	8,05	man	TRUE	Southampton
14	0	3	male	39	1	5	31,28	man	TRUE	Southampton
15	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
16	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

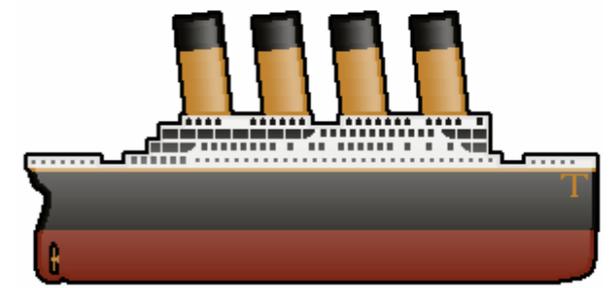
Sex of the passenger



Excel spreadsheet showing passenger data for the Titanic. The 'sex' column (C) is highlighted with a red box, and an arrow points from the title to this column.

	A	B	C	D	E	F	G	H	I	J
	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	22	1	0	7,25	man	TRUE	Southampton
2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
5	0	3	male	35	0	0	8,05	man	TRUE	Southampton
6	0	3	male		0	0	8,4583	man	TRUE	Queenstown
7	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
8	0	3	male	2	3	1	21,08	child	FALSE	Southampton
9	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
10	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
11	1	3	female	4	1	1	16,7	child	FALSE	Southampton
12	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
13	0	3	male	20	0	0	8,05	man	TRUE	Southampton
14	0	3	male	39	1	5	31,28	man	TRUE	Southampton
15	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
16	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

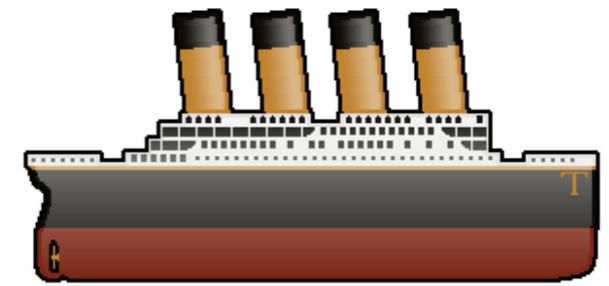
Age of the passenger



Excel interface showing the Titanic dataset. The 'Data' tab is active. The 'age' column (D) is highlighted with a red box, and an arrow points from the title 'Age of the passenger' to this column.

	A	B	C	D	E	F	G	H	I	J
1	survived	pclass	sex	age	sibs	parch	fare	who	adult_male	embark_town
2	0	3	male	22	1	0	7,25	man	TRUE	Southampton
3	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
4	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
5	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
6	0	3	male	35	0	0	8,05	man	TRUE	Southampton
7	0	3	male		0	0	8,4583	man	TRUE	Queenstown
8	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
9	0	3	male	2	3	1	21,08	child	FALSE	Southampton
10	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
11	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
12	1	3	female	4	1	1	16,7	child	FALSE	Southampton
13	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
14	0	3	male	20	0	0	8,05	man	TRUE	Southampton
15	0	3	male	39	1	5	31,28	man	TRUE	Southampton
16	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
17	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

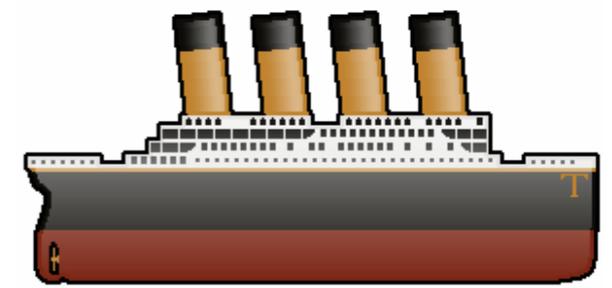
Number of Siblings/Spouses aboard



Excel interface showing the Titanic dataset. The 'sibsp' column (E) is highlighted with a red box, and an arrow points from the title to it.

	A	B	C	D	E	F	G	H	I	J
	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	22	1	0	7,25	man	TRUE	Southampton
2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
5	0	3	male	35	0	0	8,05	man	TRUE	Southampton
6	0	3	male		0	0	8,4583	man	TRUE	Queenstown
7	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
8	0	3	male	2	3	1	21,08	child	FALSE	Southampton
9	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
10	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
11	1	3	female	4	1	1	16,7	child	FALSE	Southampton
12	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
13	0	3	male	20	0	0	8,05	man	TRUE	Southampton
14	0	3	male	39	1	5	31,28	man	TRUE	Southampton
15	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
16	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

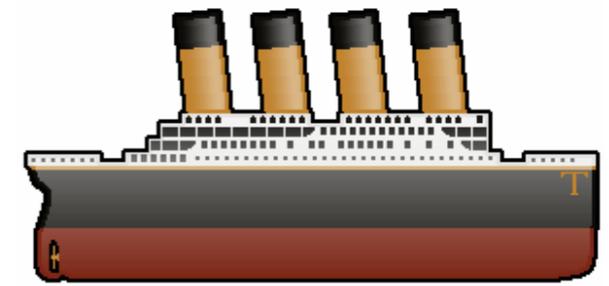
Fare (in £) payed



Excel interface showing the Titanic dataset. The 'fare' column (G) is highlighted with a red box. An arrow points from the text 'Fare (in £) payed' to the 'fare' column header.

	A	B	C	D	E	F	G	H	I	J
	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	22	1	0	7,25	man	TRUE	Southampton
2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
5	0	3	male	35	0	0	8,05	man	TRUE	Southampton
6	0	3	male		0	0	8,4583	man	TRUE	Queenstown
7	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
8	0	3	male	2	3	1	21,08	child	FALSE	Southampton
9	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
10	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
11	1	3	female	4	1	1	16,7	child	FALSE	Southampton
12	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
13	0	3	male	20	0	0	8,05	man	TRUE	Southampton
14	0	3	male	39	1	5	31,28	man	TRUE	Southampton
15	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
16	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

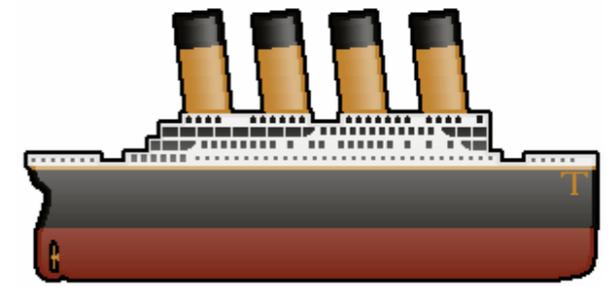
Sex + Age synthetic descriptor



Excel spreadsheet showing Titanic data with a synthetic descriptor column 'who' highlighted in a red box. The spreadsheet includes columns for 'survived', 'pclass', 'sex', 'age', 'sibsp', 'parch', 'fare', 'who', 'adult_male', and 'embark_town'.

	A	B	C	D	E	F	G	H	I	J
	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	22	1	0	7,25	man	TRUE	Southampton
2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
5	0	3	male	35	0	0	8,05	man	TRUE	Southampton
6	0	3	male		0	0	8,4583	man	TRUE	Queenstown
7	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
8	0	3	male	2	3	1	21,08	child	FALSE	Southampton
9	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
10	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
11	1	3	female	4	1	1	16,7	child	FALSE	Southampton
12	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
13	0	3	male	20	0	0	8,05	man	TRUE	Southampton
14	0	3	male	39	1	5	31,28	man	TRUE	Southampton
15	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
16	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

Adult male dummy variable



Excel spreadsheet showing the Titanic dataset with a new column 'adult_male' derived from 'sex'.

	A	B	C	D	E	F	G	H	I	J
	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	22	1	0	7,25	man	TRUE	Southampton
2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
5	0	3	male	35	0	0	8,05	man	TRUE	Southampton
6	0	3	male		0	0	8,4583	man	TRUE	Queenstown
7	0	1	male	54	0	0	51,8625	man	TRUE	Southampton
8	0	3	male	2	3	1	21,08	child	FALSE	Southampton
9	1	3	female	27	0	2	11,1333	woman	FALSE	Southampton
10	1	2	female	14	1	0	30,0708	child	FALSE	Cherbourg
11	1	3	female	4	1	1	16,7	child	FALSE	Southampton
12	1	1	female	58	0	0	26,55	woman	FALSE	Southampton
13	0	3	male	20	0	0	8,05	man	TRUE	Southampton
14	0	3	male	39	1	5	31,28	man	TRUE	Southampton
15	0	3	female	14	0	0	7,8542	child	FALSE	Southampton
16	1	2	female	55	0	0	16,00	woman	FALSE	Southampton

Scroll down until the end of the dataset

	A	B	C	D	E	F	G	H	I	J
1	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
877	1	3	female	15	0	0	7,23	child	FALSE	Cherbourg
878	0	3	male	20	0	0	9,85	man	TRUE	Southampton
879	0	3	male	19	0	0	7,90	man	TRUE	Southampton
880	0	3	male		0	0	7,90	man	TRUE	Southampton
881	1	1	female	56	0	1	83,16	woman	FALSE	Cherbourg
882	1	2	female	25	0	1	26,00	woman	FALSE	Southampton
883	0	3	male	33	0	0	7,90	man	TRUE	Southampton
884	0	3	female	22	0	0	10,52	woman	FALSE	Southampton
885	0	2	male	28	0	0	10,50	man	TRUE	Southampton
886	0	3	male	25	0	0	7,05	man	TRUE	Southampton
887	0	3	female	39	0	5	29,13	woman	FALSE	Queenstown
888	0	2	male	27	0	0	13,00	man	TRUE	Southampton
889	1	1	female	19	0	0	30,00	woman	FALSE	Southampton
890	0	3	female		1	2	23,45	woman	FALSE	Southampton
891	1	1	male	26	0	0	30,00	man	TRUE	Cherbourg
892	0	3	male	32	0	0	7,75	man	TRUE	Queenstown
893										
894										
895										

891 passengers in the dataset

The Titanic disaster.

- 1) Calculate the conditional probability that a person survives given their sex and passenger-class.

$$\text{Prob}(A = 1 | C = \text{female}, B = 1)$$

$$\text{Prob}(A = 1 | C = \text{female}, B = 2)$$

$$\text{Prob}(A = 1 | C = \text{female}, B = 3)$$

$$\text{Prob}(A = 1 | C = \text{male}, B = 1)$$

$$\text{Prob}(A = 1 | C = \text{male}, B = 2)$$

$$\text{Prob}(A = 1 | C = \text{male}, B = 3)$$

Pivot table in position K3

The screenshot displays an Excel spreadsheet with a PivotTable and the PivotTable Fields task pane. A red box highlights the text "Pivot table in position K3" with an arrow pointing to the cell K3, which contains the text "Sum of survived". The PivotTable is located in the range K3:N8. The PivotTable Fields task pane on the right shows the following configuration:

- FIELD NAME:** Search fields
- Fields:** survived, pclass, sex, age, sibsp, parch, fare, who
- Filters:** (Empty)
- Columns:** sex
- Rows:** pclass
- Values:** Sum of survived

The PivotTable data is as follows:

Row Labels	female	male	Grand Total	
1		91	45	136
2		70	17	87
3		72	47	119
Grand Total		233	109	342

Sex in columns

The screenshot shows an Excel PivotTable with the following data:

	Sum of survived	Column Labels		
Row Labels	female	male	Grand Total	
1	91	45	136	
2	70	17	87	
3	72	47	119	
Grand Total	233	109	342	

The PivotTable Fields task pane on the right shows the following configuration:

- Columns:** sex
- Rows:** pclass
- Values:** Sum of survived

The 'Columns' section in the task pane is highlighted with a red box, and a red arrow points from the text 'Sex in columns' to it.

Sex in columns

class in Rows

survived in Values

	A	K	L	M	N	
1	survived					
2	0					
3	1	Sum of survived	Column Labels			
		Row Labels	female	male	Grand Total	
1				91	45	136
2	0			70	17	87
3	0			72	47	119
Grand Total	0			233	109	342

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare
- who

Filters

Columns

- sex

Rows

- pclass

Values

- Sum of survived

Drag fields between areas

Sex in columns

class in Rows

survived in Values

	A	K	L	M	N
1	survived				
2	0				
3	1	Sum of survived	Column Labels		
		Row Labels	female	male	Grand Total
		1		91 45	136
6	0	2		70 17	87
7	0	3		72 47	119
	0	Grand Total		233 109	342

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare
- who

Filters

Columns

- sex

Rows

- pclass

Values

- Sum of survived

Drag fields between areas

Titanic_elaborated

Home Insert Draw Page Layout Formulas Data Review View Developer Pivot Table Analyse Design

Helvetica 10 A A General Conditional Formatting Insert Delete Format Sort & Filter Find & Select

K6 fx 2

	A	K	L	M	N
1	survived				
2	0				
3	1	Sum of survived	Column Labels		
4	1	Row Labels	female	male	Grand Total
5	1	1	91	45	136
6	0	2	70	17	87
7	0	3	72	47	119
8	0	Grand Total	233	109	342
9	0				
10	1				
13	1				
14	0				
15	0				
16	0				
17	1				
18	0				
19	1				

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare
- who

Filters

Columns

- sex

Rows

- pclass

Values

- Sum of survived

Drag fields between areas

We know that there are 891 passengers...

Microsoft Excel interface showing a PivotTable analysis of Titanic passenger data. The PivotTable is structured as follows:

	A	K	L	M	N	
1	survived					
2	0					
3	1	Sum of survived	Column Labels			
4	1	Row Labels	female	male	Grand Total	
5	1	1		91	45	136
6	0	2		70	17	87
7	0	3		72	47	119
8	0	Grand Total		233	109	342
9	0					
10	1					
13	1					
16	0					
17	1					
18	0					
19	1					

The PivotTable Fields task pane on the right shows the following configuration:

- FIELD NAME:** Search fields
- Selected Fields:** survived, pclass, sex, age, sibsp, parch, fare, who
- Filters:** (Empty)
- Columns:** sex
- Rows:** pclass
- Values:** Sum of survived

Two red-bordered text boxes are overlaid on the spreadsheet:

We know that there are 891 passengers...

Is it correct to divide all numbers by 891?

Excel interface showing a PivotTable analysis of Titanic passenger data. The PivotTable is structured as follows:

	A	K	L	M	N	
1	survived					
2	0					
3	1	Sum of survived	Column Labels			
4	1	Row Labels	female	male	Grand Total	
5	1	1		91	45	136
6	0	2		70	17	87
7	0	3		72	47	119
8	0	Grand Total		233	109	342
9	0					
10	1					
13	1					

The PivotTable Fields task pane on the right shows the following configuration:

- FIELD NAME:** Search fields
- Selected Fields:** survived, pclass, sex
- Filters:** (empty)
- Columns:** sex
- Rows:** pclass
- Values:** Sum of survived

We know that there are 891 passengers...

Is it correct to divide all numbers by 891?

$$\text{Prob}(A = 1 | C = \text{female}, B = 1) = \frac{91}{891} \approx 10\%$$

Titanic_elaborated

Home Insert Draw Page Layout Formulas Data Review View Developer Pivot Table Analyse Design

Helvetica 10 A A General Conditional Formatting Insert Delete Format Sort & Filter Find & Select

K6 fx 2

	A	K	L	M	N	
1	survived					
2	0					
3	1	Sum of survived	Column Labels			
4	1	Row Labels	female	male	Grand Total	
5	1	1		91	45	136
6	0	2		70	17	87
7	0	3		72	47	119
8	0	Grand Total		233	109	342
9	0					
10	1					

PivotTable Fields

FIELD NAME Search fields

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare
- who

Filters Columns

sex

Rows Values

pclass Sum of survived

We know that there are 891 passengers...

Is it correct to divide all numbers by 891?

$$\text{Prob}(A = 1 | C = \text{female}, B = 1) = \frac{91}{891} \approx 10\%$$

$$\text{Prob}(A = 1 | C = \text{female}, B = 3) = \frac{72}{891} \approx 8\%$$

The screenshot shows an Excel PivotTable with the following data:

	A	K	L	M	N
1	survived				
2	0				
3	1	Sum of survived	Column Labels		
4	1	Row Labels	female		Total
5	1	1		45	136
6	0	2		70	87
7	0	3		72	119
8	0			233	342
9					
10	1				
13	1				

The PivotTable Fields task pane on the right shows the following configuration:

- FIELD NAME:** Search fields
- Checked fields:** survived, pclass
- Filters:** (empty)
- Columns:** sex
- Rows:** pclass
- Values:** Sum of survived

Something is wrong!

We know that there are 891 passengers...

Is it correct to divide all numbers by 891?

$$\text{Prob}(A = 1 | C = \text{female}, B = 1) = \frac{91}{891} \approx 10\%$$

$$\text{Prob}(A = 1 | C = \text{female}, B = 3) = \frac{72}{891} \approx 8\%$$

New pivot table in position K10

Sum of survived	Column Labels		
Row Labels	female	male	Grand Total
1	91	45	136
2	70	17	87
3	72	47	119
Grand Total	233	109	342

Count of pclass	Column Labels		
Row Labels	female	male	Grand Total
1	94	122	216
2	76	108	184
3	144	347	491
Grand Total	314	577	891

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare
- who

Filters

Columns
: sex

Rows
: pclass

Values
Σ : Count of pclass

Drag fields between areas

Sex in columns

class in Rows

count of pclass or
count of sex in Values

Sum of survived		Column Labels		
Row Labels	female	male	Grand Total	
1	91	45	136	
	70	17	87	
	72	47	119	
Grand Total	233	109	342	

		Column Labels		
		male	Grand Total	
1		94	122	216
2		76	108	184
3		144	347	491
Grand Total		314	577	891

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare
- who

Filters

Columns

- sex

Rows

- pclass

Values

- Count of pclass

Drag fields between areas

Now we know, for each sub-category, the number of passengers that belonged to.

Sum of survived	Column Labels		
Row Labels	female	male	Grand Total
1	91	45	136
2	70	17	87
3	72	47	119
Grand Total	233	109	342

Count of pclass	Column Labels		
Row Labels	female	male	Grand Total
1	94	122	216
2	76	108	184
3	144	347	491
Grand Total	314	577	891

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare
- who

Filters

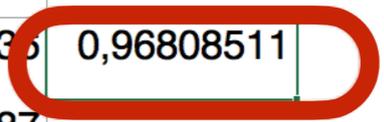
Columns
: sex

Rows
: pclass

Values
: Count of pclass

Drag fields between areas

	A	J	K	L	M	N	O	P
1	survived	embark_town						
3	1	Cherbourg	Sum of survived	Column Labels				
4	1	Southampton	Row Labels	female	male	Grand Total		
5	1	Southampton	1	91	45	136	0,96808511	
6	0	Southampton	2	70	17	87		
7	0	Queenstown	3	72	47	119		
8	0	Southampton	Grand Total	233	109	342		
9	0	Southampton						
10	1	Southampton	Count of pclass	Column Labels				
11	1	Cherbourg	Row Labels	female	male	Grand Total		
12	1	Southampton	1	94	122	216		
13	1	Southampton	2	76	108	184		
14	0	Southampton	3	144	347	491		
15	0	Southampton	Grand Total	314	577	891		
	0	Southampton						

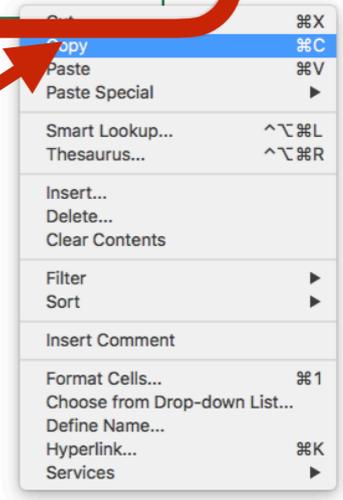
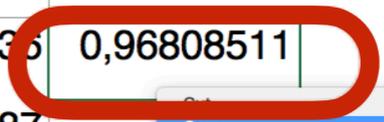


=L5/L12



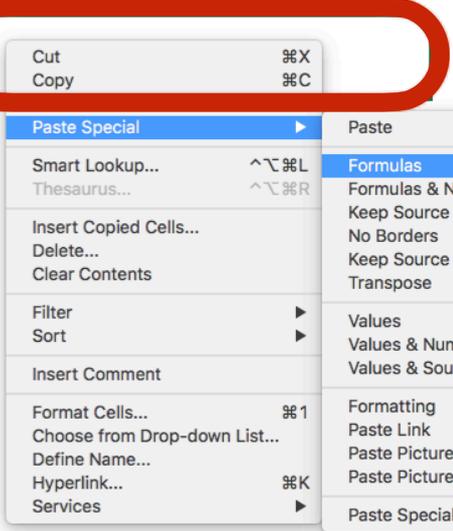
	A	J	K	L	M	N	O	P
1	survived	embark_town						
3	1	Cherbourg	Sum of survived	Column Labels				
4	1	Southampton	Row Labels	female	male	Grand Total		
5	1	Southampton	1	91	45	136	0,96808511	
6	0	Southampton	2	70	17	87		
7	0	Queenstown	3	72	47	119		
8	0	Southampton	Grand Total			342		
9	0	Southampton						
10	1	Southampton	Count of pclass	Col				
11	1	Cherbourg	Row Labels	female	male	Grand Total		
12	1	Southampton	1	94	122	216		
13	1	Southampton	2	76	108	184		
14	0	Southampton	3	144	347	491		
15	0	Southampton	Grand Total	314	577	891		
	0	Southampton						

Right-click.
Select "Copy"



	A	J	K	L	M	N	O	P
1	survived	embark_town						
3	1	Cherbourg	Sum of survived	Column Labels				
4	1	Southampton	Row Labels	female	male	Grand Total		
5	1	Southampton	1	91	45	136	0,96808511	
6	0	Southampton	2	70	17	87		
7	0	Queenstown	3	70	17	110		
8	0	Southampton	Grand Total					
9	0	Southampton						
10	1	Southampton	Count of pclass	C				
11	1	Cherbourg	Row Labels	fe				
12	1	Southampton	1	94	122	216		
13	1	Southampton	2	76	108	184		
14	0	Southampton	3	144	347	491		
15	0	Southampton	Grand Total	314	577	891		
	0	Southampton						

Right-click.
Go to "Paste-Special".
Then select "Formulas".



	A	J	K	L	M	N	O	P
1	survived	embark_town						
3	1	Cherbourg	Sum of survived	Column Labels				
4	1	Southampton	Row Labels	female	male	Grand Total		
5	1	Southampton	1	91	45	136	0,96808511	0,368852459
6	0	Southampton	2	70	17	87		
7	0	Queenstown	3	72	47	119		
8	0	Southampton	Grand Total	233	109	342		
9	0	Southampton						
10	1	Southampton	Count of pclass	Column Labels				
11	1	Cherbourg	Row Labels	female	male	Grand Total		
12	1	Southampton	1	94	122	216		
13	1	Southampton						
14	0	Southampton						
15	0	Southampton						

The formulas is moved and updated to the new cell.
 Now the cell P5 reports the formula
 =M5/M12

	A	J	K	L	M	N	O	P
1	survived	embark_town						
3	1	Cherbourg	Sum of survived	Column Labels				
4	1	Southampton	Row Labels	female	male	Grand Total		
5	1	Southampton	1	91	45	136	0,96808511	0,368852459
6	0	Southampton	2	70	17	87	0,92105263	0,157407407
7	0	Queenstown	3	72	47	119	0,5	0,135446686
8	0	Southampton	Grand Total	233	109	342		
10	1	Southampton	Count of pclass	Column Labels				
11	1	Cherbourg	Row Labels	female	male	Grand Total		
12	1	Southampton	1	94	122	216		
13	1	Southampton	2	76	108	184		
14	0	Southampton	3	144	347	491		
15	0	Southampton						

0,96808511	0,368852459
0,92105263	0,157407407
0,5	0,135446686

Replicate the procedure to have the six probabilities we are looking for.

Excel interface showing a pivot table analysis of Titanic survival data. The pivot table is structured as follows:

Survived	Embark Town	Sum of survived	Column Labels	Grand Total			
		female	male				
1	Cherbourg	1	91	45	136	0,96808511	0,368852459
1	Southampton	2	70	17	87	0,92105263	0,157407407
0	Southampton	3	72	47	119	0,5	0,135446686
0	Queenstown	Grand Total	233	109	342		
0	Southampton						

Survived	Embark Town	Count of pclass	Column Labels	Grand Total	
		female	male		
1	Southampton	1	94	122	216
1	Cherbourg	2	76	108	184
1	Southampton	3	144	347	491
0	Southampton	Grand Total	314	577	891
0	Southampton				

Below the pivot tables is a movie still from Titanic showing Jack and Rose in the water. A purple box highlights Rose's face in the still.

Rich women had the highest probability!

	A	J	K	L	M	N	O	P
1	survived	embark_town						
3	1	Cherbourg	Sum of survived	Column Labels				
4	1	Southampton	Row Labels	female	male	Grand Total		
5	1	Southampton	1	91	45	136	0,96808511	0,368852459
6	0	Southampton	2	70	17	87	0,92105263	0,157407407
7	0	Queenstown	3	72	47	119	0,5	0,135446686
8	0	Southampton	Grand Total	233	109	342		
9	0	Southampton						
10	1	Southampton	Count of pclass	Column Labels				
11	1	Cherbourg	Row Labels	female	male	Grand Total		
12	1	Southampton	1	94	122	216		
13	1	Southampton	2					
14	0	Southampton	3					
15	0	Southampton	Grand Total	314	577	891		

Poor men had the lowest!



Rich women had the highest probability!

The Titanic disaster.

2) How much did people pay, on average, to be on the ship?
Calculate the average of fare conditioned on passenger-class.

Pivot Table Name: PivotTable8

Active Field: Average of fare

Options: Expand Field, Collapse Field, Group Selection, Insert Slicer, Insert Timeline, Filter Settings, Refresh, Change Data Source, Clear, Select, Move Pivot Table, Fields, Items & Sets, Pivot Chart, Field List, +/- Buttons, Field Headers

	A	J	K	L	M
1	survived	rk_town			
12	1	hampton	1	94	1
13	1	hampton	2	76	1
14	0	hampton	3	144	3
15	0	hampton	Grand Total	314	5
16	0	hampton			
17	1	hampton			
18	0	enstown			
19	1	hampton			
20	0	hampton			
21	1	rbourg			
22	0	hampton			
23	1	hampton			
24	1	enstown			

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch

Columns

Rows

Values

pclass

fare

Filters

Drag fields between areas

Titanic_elaborated

Pivot Table Name: PivotTable8

Active Field: Average of fare

	A	J	K	L	M
1	survived	rk_town			
12	1	hampton	1	94	1
13	1	hampton	2	76	1
14	0	hampton	3	144	3
15	0	hampton	Grand Total	314	5
16	0	hampton			
17	1	hampton			
18	0	enstown			
19	1	hampton			
20	0	hampton			
21	1	rbourg			
22	0	hampton			
23	1	hampton			
24	1	enstown			

Pivot Table Field

Source field: fare

Field name:

Summarise by: **Average**

Show data as:

- Sum
- Count
- Average**
- Max.
- Min.
- Product
- Count Numbers
- StdDev

Number... Cancel OK

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch

Filters

Rows

pclass

Values

fare

Drag fields between areas

Pivot Table Name: PivotTable8 Active Field: Average of fare

Options: Expand Field, Collapse Field, Group Selection, Insert Slicer, Insert Timeline, Filter Connections, Refresh, Change Data Source, Clear, Select, Move Pivot Table, Fields, Items & Sets, Pivot Chart, Field List, +/- Buttons, Field Headers

L19 fx 20,6621831521739

	A	J	K	L	M
1	survived	rk_town			
12	1	hampton	1	94	1
13	1	hampton	2	76	1
14	0	hampton	3	144	3
15	0	hampton	Grand Total	314	5
16	0	hampton			
17	1	hampton	Row Labels	Average of fare	
18	0	enstown	1	84,1546875	
19	1	hampton	2	20,66218315	
20	0	hampton	3	13,6755501	
21	1	rbourg	Grand Total	32,20420797	
22	0	hampton			
23	1	hampton			
24	1	enstown			

PivotTable Fields

FIELD NAME

- survived
- pclass
- sex
- age
- sibsp
- parch
- fare

Filters

Columns

Rows

- pclass

Values

- Average of fare

Drag fields between areas