

PIVOT TABLES

From the course website download and open the file:

» **Sales representative**



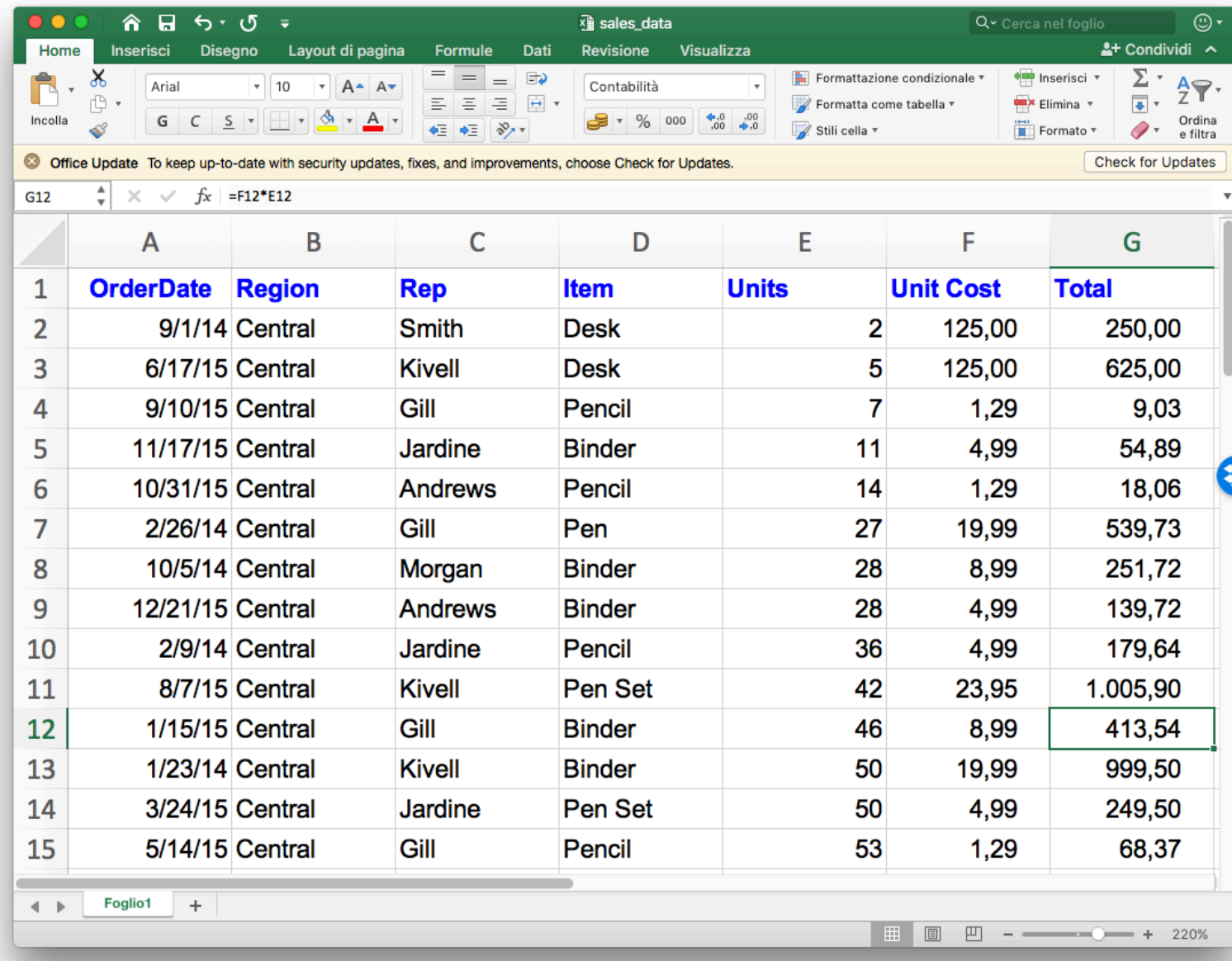
Main differences between tables and pivot tables:

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

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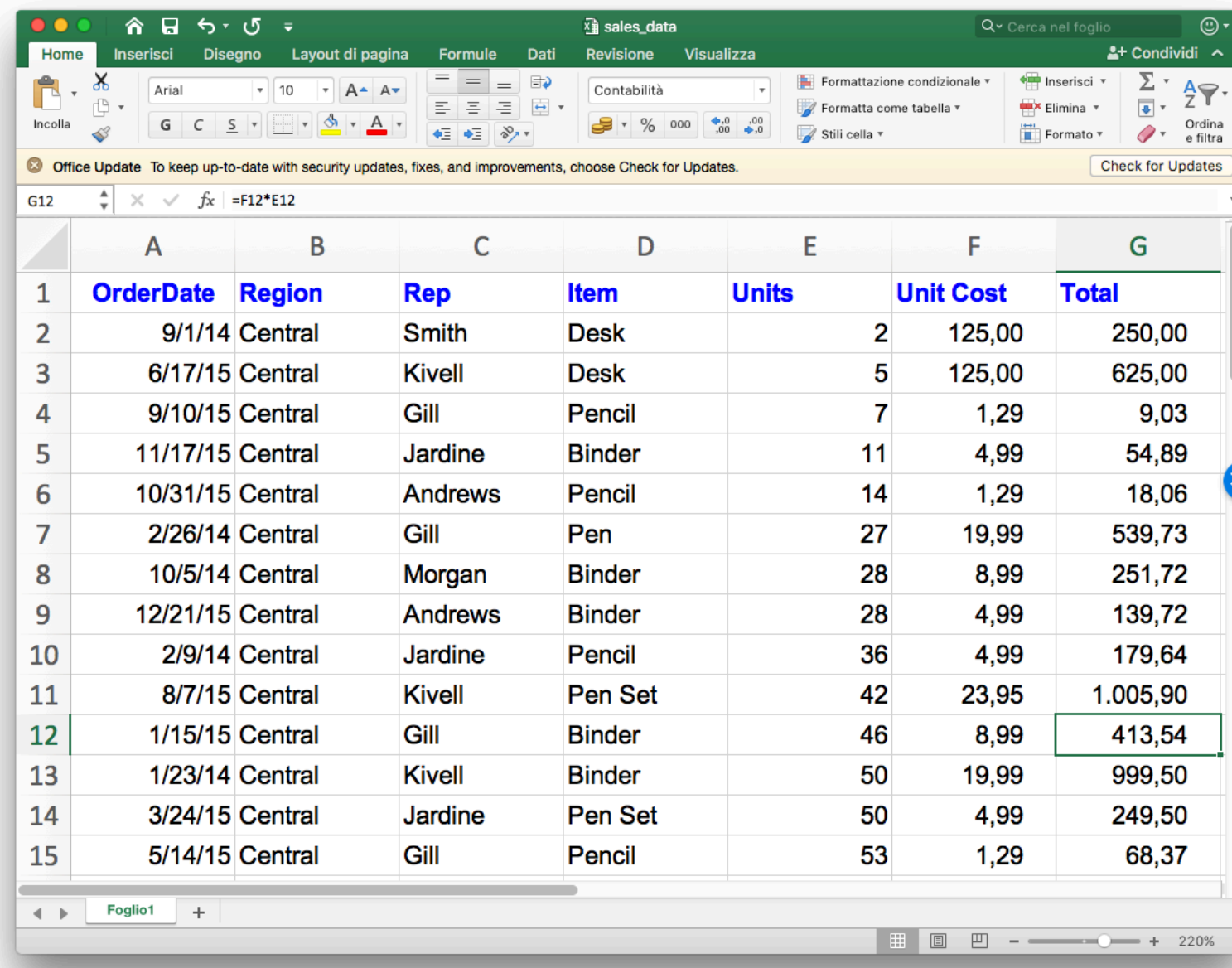
Normal tables provides all the data.



	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:

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



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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
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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

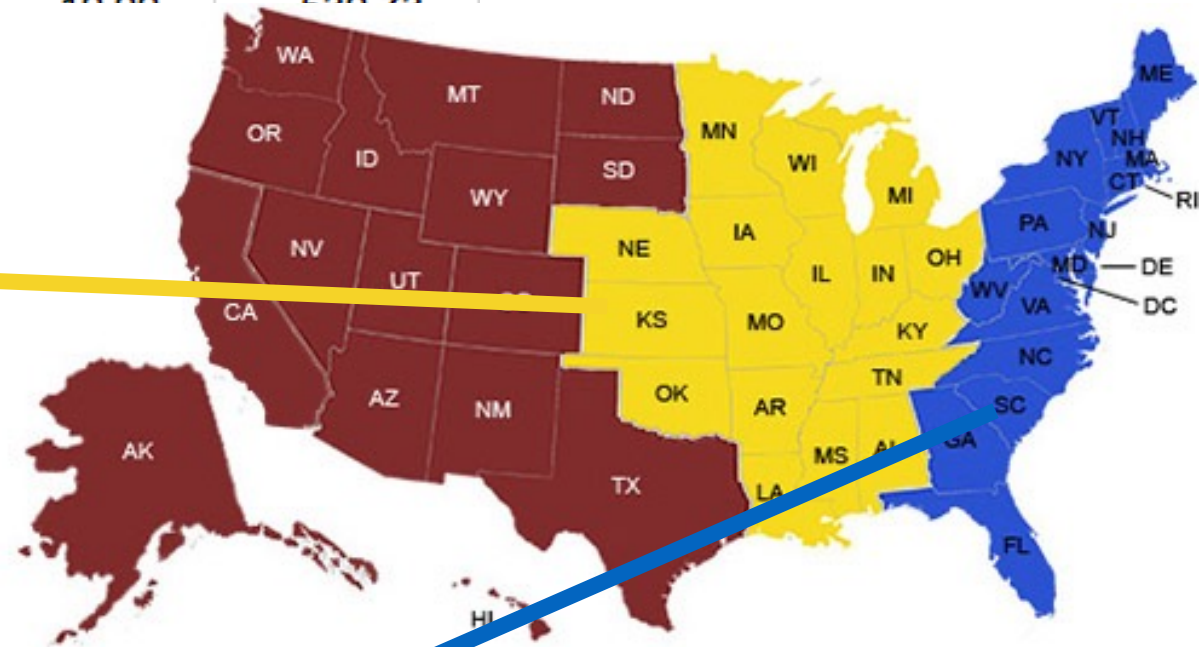
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4/18/14	Central	Andrews	Pencil	75	1,99	149,25
5/31/15	Central	Gill	Binder	80	8,99	719,20
2/1/15	Central	Smith	Binder	87	15,00	1.305,00
5/5/14	Central	Jardine	Pencil	90	4,99	449,10
6/25/14	Central	Morgan	Pencil	90	4,99	449,10
12/4/15	Central	Jardine	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
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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	131,34
12/12/14	Central	Smith	Pencil	67	1,29	86,43
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7/12/14	East	Howard	Binder	29	1.99	57.71

Region in which the item has been sold.




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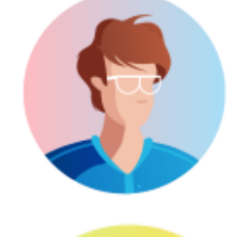
The surname of the representative that sold the item to the customer.




Smith




Kivell



Parent



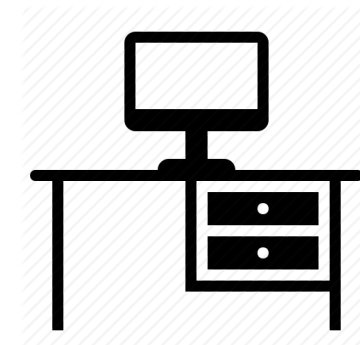
Andrews



Morgan

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7/12/14	East	Howard	Binder	29	1.99	57.71

The name of the item sold.



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9/18/14	East	Jones	Pen Set	16	15,99	255,84
7/12/14	East	Howard	Binder	29	1.99	57.71

How many item did the Rep sold?

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9/18/14	East	Jones	Pen Set	16	15,99	255,84
7/12/14	East	Howard	Binder	29	1.99	57.71

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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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 'sales_data' workbook open. The 'Home' tab is selected in the ribbon. The formula bar shows 'H5'. A black arrow points from the text 'Select the location of the Pivot table.' to cell H5, which is highlighted with a green border. 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			
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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 in the ribbon. A red box highlights the 'Insert' tab, and a black arrow points to it from a text box that says 'Click on "Insert" tab.' Another black arrow points from the top text box 'Select the location of the Pivot table.' to a green-bordered cell in column H, row 5, which is the intended location for the pivot table.

	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	33	5,44	179,64			
11	8/7/15	Central	Kivell	Pencil	34	3,12	105,90			
12	1/15/15	Central	Gill	Pencil	35	12,38	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			

Microsoft Excel interface showing a spreadsheet titled "sales_data". The ribbon includes Home, Insert, Draw, Page Layout, Formulas, Data, Review, and View. The spreadsheet displays a table with columns: OrderDate, Region, Rep, Item, Units, Unit Cost, and Total. The data is organized by date and region (Central). The current selection is cell 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			

sales_data

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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	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			

Foglio1

Ready

200%

Click on the PivotTable button.

HomeInsertDrawPage LayoutFormulasDataReviewView

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fx

	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%

sales_data

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

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%

Two questions:

1) Where are source data?

sales_data

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	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

Two questions:

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

sales_data

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

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%

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 workbook named "sales_data". The "Insert" tab is active, and a "Create PivotTable" dialog box is open. The dialog box shows the data range "Foglio1!\$A\$1:\$G\$17".

The data table in the background is as follows:

	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
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 a workbook named 'sales_data'. The 'Insert' tab is active. A table of sales data is displayed, with columns A through G selected. A 'Create PivotTable' pop-up is visible, showing the data range 'Foglio1!\$A\$1:\$G\$17'. An arrow points from the text 'Once done click on this button to get back to the pop-up' to the 'OK' button in the pop-up.

	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
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

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

Microsoft Excel interface showing a PivotTable creation dialog box. The background displays a worksheet named "Foglio1" with data from columns A to G, rows 30 to 44. The data includes dates, locations, names, product types, and numerical values. The "Create PivotTable" dialog box is open, showing the "Choose the data that you want to analyze" section with "Select a table or range" chosen. The "Table/Range" field contains the formula "Foglio1!\$A\$1:\$G\$44". The "Choose where to place the PivotTable" section has "Existing worksheet" selected, and the "Table/Range" field contains "Foglio1!\$H\$5". An arrow points from the text box at the bottom to the "Table/Range" field in the dialog box.

	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										

Microsoft Excel - sales_data

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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

The range of data selected now appears here.

sales_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
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

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

sales_data

Home Insert Draw Page Layout Formulas Data Review View

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	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

Finally click on “Ok” to finalize the creation

A blank PivotTable is created.

The screenshot shows the Microsoft Excel interface with the 'PivotTable Analyze' tab selected. A PivotTable is created with the following 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
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 task pane is divided into four sections: Filters, Columns, Rows, and Values. A text box in the center of the worksheet reads: "To build a report, choose fields from the PivotTable Field List".

All fields have been correctly recognized!



sales_data

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

PivotTable Name: PivotTable1 Active Field: Options Expand Field Collapse Field Field Settings 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

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	86,43			
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

PivotTable Fields

FIELD NAME Search fields

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

Filters Columns

Rows Values

Drag fields between areas

Foglio1

Ready

200%

Select the “Region” and drag it into the “Rows”.

sales_data

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

PivotTable Name: PivotTable1 Active Field: Region

Options Field Settings 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

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	Unit	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	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	

PivotTable Fields

FIELD NAME Search fields

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

Filters Columns

Rows Values

Region

Drag fields between areas

Foglio1 200%

HomeInsertDrawPage LayoutFormulasDataReviewViewPivotTable AnalyzeDesign

PivotTable Name: PivotTable1

Options

Active Field: Region

Field Settings

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

H5

fx

Row Labels

	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

OrderDate

Region

Rep

Item

Units

Unit Cost

Filters

Columns

Rows

Region

Values

Drag fields between areas

Now “Regions” appear as row headings!

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.

PivotTable Fields

FIELD NAME

OrderDate
☒ Region
☒ Rep
☐ Item
☐ Units
☐ Unit Cost

Columns

Rep

Rows

Region

Values

Drag fields between areas

	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**”.

sales_data

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

PivotTable Name: PivotTable1 Active Field: Sum of Total

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

Check for Updates

PivotTable Fields

FIELD NAME Search fields

- ☒ Grand Total
- ☒ Region
- ☒ Rep
- ☐ Item
- ☐ Units
- ☐ Unit Cost
- ☒ Total

Filters Columns

Rep

Rows Values

Region Sum of Total

Drag fields between areas

	Sum of Total	Column Labels												
Row 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		

Foglio1

160%

A problem of sales analytics

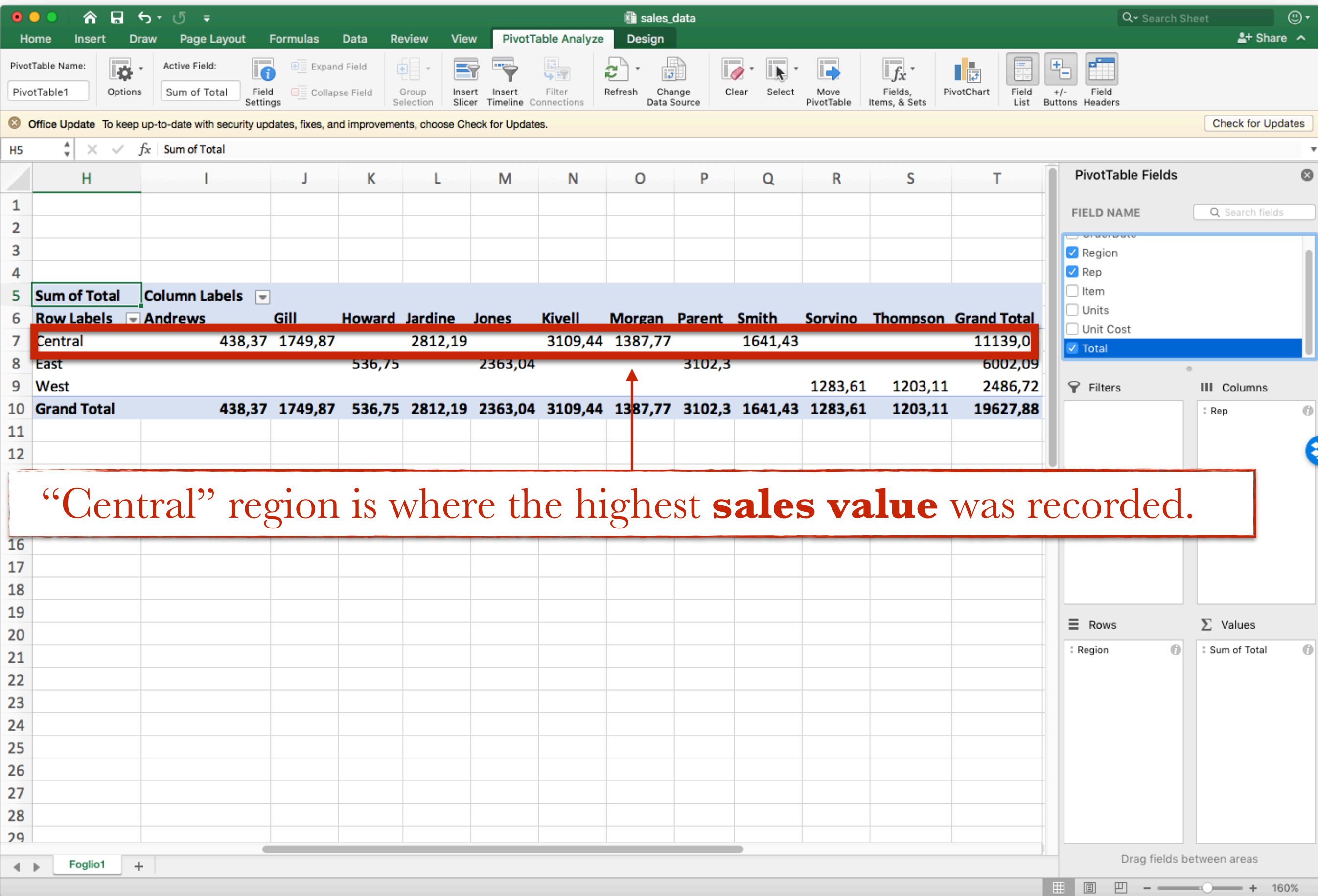
The screenshot displays the Microsoft Excel interface with the 'PivotTable Analyze' tab selected. A PivotTable is set up with 'Region' and 'Rep' as row labels, and 'Sum of Total' as the column labels. The data is summarized by region and representative. The 'PivotTable Fields' task pane on the right shows the fields 'Region', 'Rep', 'Item', 'Units', 'Unit Cost', and 'Total'. The 'Total' field is selected for the 'Values' area.

PivotTable 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	19627,88

Now we see the total value sold by each representative in each region.

A problem of sales analytics



A problem of sales analytics

The screenshot shows an Excel PivotTable named 'PivotTable1' 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
- Fields: Region, Rep, Item, Units, Unit Cost, Total (checked)
- Filters: (empty)
- Columns: Rep
- Rows: Region
- Values: Sum of Total

Which Representative did the best job? Difficult to see here!

A problem of sales analytics

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PivotTable Fields

FIELD NAME

☐ OrderDate
☒ Region
☒ Rep
☐ Item

Filters

Columns
: Region

Rows
: Rep

Values
Σ Sum of Total

Drag fields between areas

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

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

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable Fields task pane on the right shows 'Rep' in the Rows area and 'Sum of Total' in the Values area. The PivotTable data is as follows:

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

The screenshot displays the Microsoft Excel interface with a PivotTable and the PivotTable Fields task pane. The PivotTable is structured with 'Row Labels' (names), 'Column Labels' (regions: Central, East, West), and a 'Grand Total' column. The 'Grand Total' column is highlighted with a green border, and a text box with the instruction 'Drag and select all the elements in the last column' has an arrow pointing to it. The PivotTable Fields task pane on the right shows the fields 'OrderDate', 'Region', and 'Rep'. 'Region' and 'Rep' are checked and placed in the 'Columns' and 'Rows' areas respectively. The 'Sum of Total' is placed in the 'Values' area. The status bar at the bottom shows the average, count, and sum of the 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	

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

Click on the Sort&Filter button

PivotTable Fields

FIELD NAME

☐ OrderDate
☒ Region
☒ Rep

Filters

Columns
: Region

Rows
: Rep

Values
: Sum of Total

Drag fields between areas

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

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

A problem of sales analytics

From Largest to Smallest

The screenshot displays the Microsoft Excel interface with a PivotTable and the Sort menu open. The PivotTable is titled 'Sum of Total' and shows sales data categorized by Region (Central, East, West) and Rep (Andrews, Gill, Howard, Jardine, Jones, Kivell, Morgan, Parent, Smith, Sorvino, Thompson). The Grand Total for all regions and reps is 19627,88. The Sort menu is open, showing options to sort the data by the 'Grand Total' column. The 'Sort Largest to Smallest' option is selected, indicated by a black arrow pointing from the title 'From Largest to Smallest'.

PivotTable Fields

FIELD NAME

- ☐ OrderDate
- ☒ Region
- ☒ Rep

Filters

Columns

- Region

Rows

- Rep

Values

- Sum of Total

Drag fields between areas

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

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

A problem of sales analytics

The screenshot displays the Microsoft Excel interface with a PivotTable and the PivotTable Fields task pane. The PivotTable is set to show the sum of total sales by region and representative. The task pane shows the fields 'Region' and 'Rep' selected for the Rows area, and 'Sum of Total' selected for the Values area. The PivotTable data is as follows:

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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fx 2812,19

	H	I	J	K	L	M
3						
4						
5	Sum of Total	Column Labels				
6	Row Labels	Central	East	West	Grand Total	
7	Kivell	3109,44			3109,44	
8	Parent		3102,3		3102,3	
9	Jardine	2812,19			2812,19	
10	Jones		2363,04		2363,04	
11	Gill	1749,87			1749,87	
12	Smith	1641,43			1641,43	
13	Morgan	1387,77			1387,77	
14	Sorvino			1283,61	1283,61	
15	Thompson			1203,11	1203,11	
16	Howard		536,75		536,75	
17	Andrews	438,37			438,37	
18	Grand Total	11139,07	6002,09	2486,72	19627,88	


Foglio1

Drag fields between areas

160%



Kivell



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

A problem of sales analytics

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


fx 2812,19

	H	I	J	K	L	M
3						
4						
5	Sum of Total	Column Labels				
6	Row Labels	Central	East	West	Grand Total	
7	Kivell	3109,44			3109,44	
8	Parent		3102,3		3102,3	
9	Jardine	2812,19			2812,19	
10	Jones		2363,04		2363,04	
11	Gill	1749,87			1749,87	
12	Smith	1641,43			1641,43	
13	Morgan	1387,77			1387,77	
14	Sorvino			1283,61	1283,61	
15	Thompson			1203,11	1203,11	
16	Howard		536,75		536,75	
17	Andrews	438,37			438,37	
18	Grand Total	11139,07	6002,09	2486,72	19627,88	


Foglio1

Drag fields between areas


160%




Kivell



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



Parent



Also Parent did quite well.

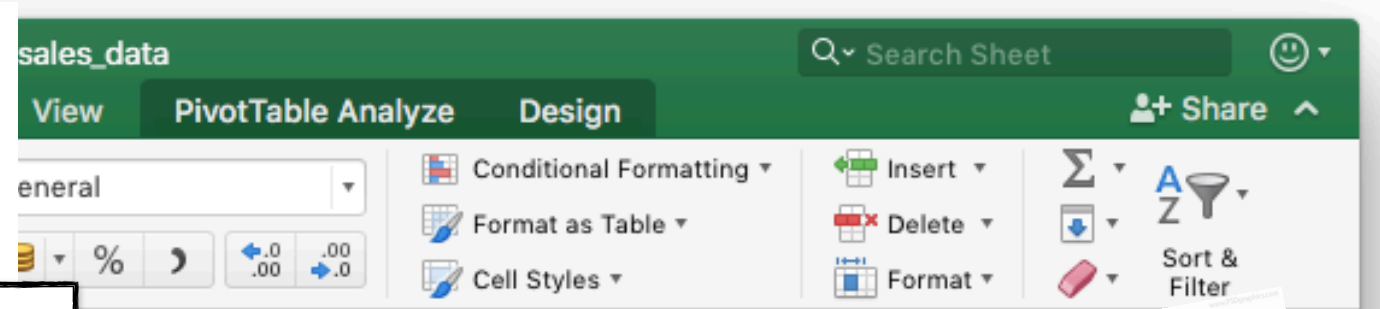
A problem of sales analytics



Andrews



Why Andrews is performing so badly?



Kivell



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



Parent



Also Parent did quite well.

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

sales_data_elaborated

Home Insert Page Layout Formulas Data Review View PivotTable Analyze Design

Calibri (Body) 12 A A

Paste B I U Alignment Number Conditional Formatting Format as Table Cell Styles

K14 fx 15

	H	I	J	K	L	M	N
1							
2							
3							
4							
5	Somma di Units Column Labels						
6	Row Labels	Binder	Desk	Pen	Pen Set	Pencil	Grand Total
7	Andrews		28			155	183
8	Gill		126	27		60	213
9	Howard		29	96			125
10	Jardine		105		50	126	281
11	Jones		124	64	78	130	396
12	Kivell		50	5	138		193
13	Morgan		28		55	90	173
14	Parent		81	15	74		170
15	Smith		87	2		67	156
16	Sorvino		7	3	76	56	142
17	Thompson		57			32	89
18	Grand Total		722	10	278	395	716
19							
20							
21							
22							

PivotTable Builder

FIELD NAME Search fields

☐ OrderDate
☐ Region
☒ Rep
☒ Item

Filters

Columns
: Item

Rows
: Rep

Values
: Somma di Units

Drag fields between areas

Item->Columns

A problem of sales analytics

sales_data_elaborated

Home Insert Page Layout Formulas Data Review View PivotTable Analyze Design

Calibri (Body) 12 A A % Alignment Number Conditional Formatting Format as Table Cell Styles Cells Editing

K14 fx 15

	H	I	J	K	L	M	N
1							
2							
3							
4							
5	Somma di Units	Column Labels					
6	Row Labels	Binder	Desk	Pen	Pen Set	Pencil	Grand Total
7	Andrews		28			155	183
8	Gill		126	27		60	213
9	Howard		29	96			125
10	Jardine		105		50	126	281
11	Jones		124	64	78	130	396
12	Kivell		50	5	138		193
13	Morgan		28		55	90	173
14	Parent		81	15	74		170
15	Smith		87	2		67	156
16	Sorvino		7	3	76	56	142
17	Thompson		57			32	89
18	Grand Total		722	10	278	395	716
19							
20							
21							
22							

PivotTable Builder

FIELD NAME Search fields

☐ OrderDate
☐ Region
☒ Rep
☒ Item

Filters

Columns
: Item

Rows
: Rep

Values
: Somma di Units

Drag fields between areas

Item->Columns

Rep->Rows

A problem of sales analytics

sales_data_elaborated

Home Insert Page Layout Formulas Data Review View PivotTable Analyze Design

Calibri (Body) 12 A A % Alignment Number Conditional Formatting Format as Table Cell Styles

K14 fx 15

	H	I	J	K	L	M	N
1							
2							
3							
4							
5	Somma di Units	Column Labels					
6	Row Labels	Binder	Desk	Pen	Pen Set	Pencil	Grand Total
7	Andrews		28			155	183
8	Gill		126	27		60	213
9	Howard		29	96			125
10	Jardine		105		50	126	281
11	Jones		124	64	78	130	396
12	Kivell		50	5	138		193
13	Morgan		28		55	90	173
14	Parent		81	15	74		170
15	Smith		87	2		67	156
16	Sorvino		7	3	76	56	142
17	Thompson		57			32	89
18	Grand Total		722	10	278	395	716
19							
20							
21							
22							

PivotTable Builder

FIELD NAME Search field

☐ OrderDate
☐ Region
☒ Rep
☒ Item

Filters

Columns
: Item

Rows
: Rep

Values
Σ Somma di Units

Drag fields between areas

Item->Columns

Rep->Rows

Sum of Units->Values

A problem of sales analytics

The screenshot shows an Excel spreadsheet with a PivotTable and the PivotTable Builder task pane. The PivotTable is titled 'Somma di Units' and has 'Rep' as the Row Label and 'Item' as the Column Label. The data is summarized by representative (Rep) and product category (Item). The PivotTable Builder task pane is open, showing the 'Rep' field in the Rows area. A callout box points to the Rows area with the text 'Put it in ascending order!'.

Rep	Item	Somma di Units
Andrews	Desk	28
Gill	Pen	27
Howard	Pen Set	96
Jardine	Pencil	126
Jones	Grand Total	124
Kivell	Desk	50
Morgan	Pen	28
Parent	Pen Set	81
Smith	Pencil	87
Sorvino	Grand Total	7
Thompson	Desk	57
Grand Total	Item	722

A problem of sales analytics

The screenshot displays the Microsoft Excel interface with a PivotTable and the PivotTable Builder task pane open.

Excel Interface:

- File Name:** sales_data_elaborated
- Search Sheet:** Search Sheet
- Formulas Bar:** N11, fx, 183
- Formulas Bar Content:** =SUMIFS(Sheet1!\$M\$5:\$M\$17, Sheet1!\$H\$5:\$H\$17, "Andrews", Sheet1!\$I\$5:\$I\$17, "Pencil", Sheet1!\$J\$5:\$J\$17, "Binder")
- Formulas Bar Text:** 183

PivotTable:

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

PivotTable Builder:

- FIELD NAME:** Search fields
- Filters:** OrderDate, Region, Rep, Item
- Columns:** Item
- Rows:** Rep
- Values:** Somma di Units

Drag fields between areas

A problem of sales analytics

Andrew sold even more items than Parent!

The screenshot shows a PivotTable in Excel with the following data:

Rep	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	2121

The PivotTable is configured with 'Rep' in the Rows area and 'Item' in the Columns area. The values are summed. The data shows that Andrew sold more items (183) than Parent (170), which is highlighted with a green circle and a callout box.

A problem of sales analytics

Nevertheless Andrews focused on the cheapest item: Pencil.

The screenshot shows an Excel window with a PivotTable and the PivotTable Builder. The PivotTable has 'Rep' as the row label and 'Item' as the column labels. The values are summed. The value 155 for Andrews under the Pencil column is highlighted with a green circle. The PivotTable Builder on the right shows 'Rep' in the Rows area and 'Item' in the Columns area. The 'Values' area shows 'Somma di Units'.

	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

A problem of sales analytics

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

The screenshot shows a Google Sheets interface with a PivotTable. The PivotTable is titled "Somma di Units" and has "Row Labels" as "Binder" and "Column Labels" as "Desk", "Pen", "Pen Set", "Pencil", and "Grand Total". The data is as follows:

	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:

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

The value 183 in the PivotTable is highlighted with a green box, and an arrow points to it from the text box above.

A problem of sales analytics

New sheet open on the left

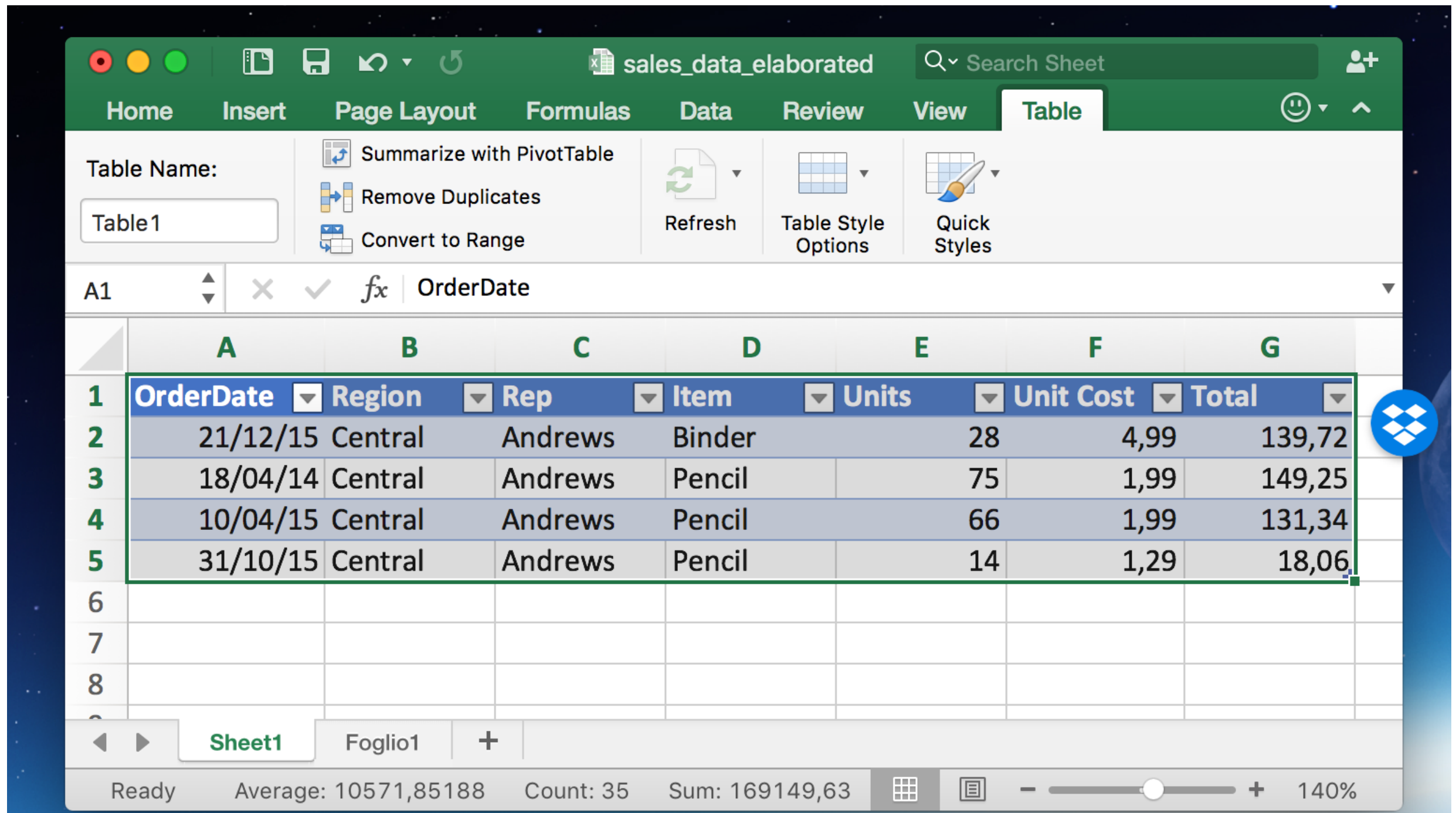
The screenshot displays the Microsoft Excel interface. The title bar shows the file name 'sales_data_elaborated'. The ribbon is set to the 'Table' tab. The 'Table Name' field shows 'Table1'. The table data is as follows:

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

At the bottom, the sheet tabs are visible: 'Sheet1' (highlighted in green), 'Foglio1', and a '+' icon for a new sheet. 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' tab selected in the ribbon. The table is named 'Table1' and is located in the range A1:G5. The table has the following data:

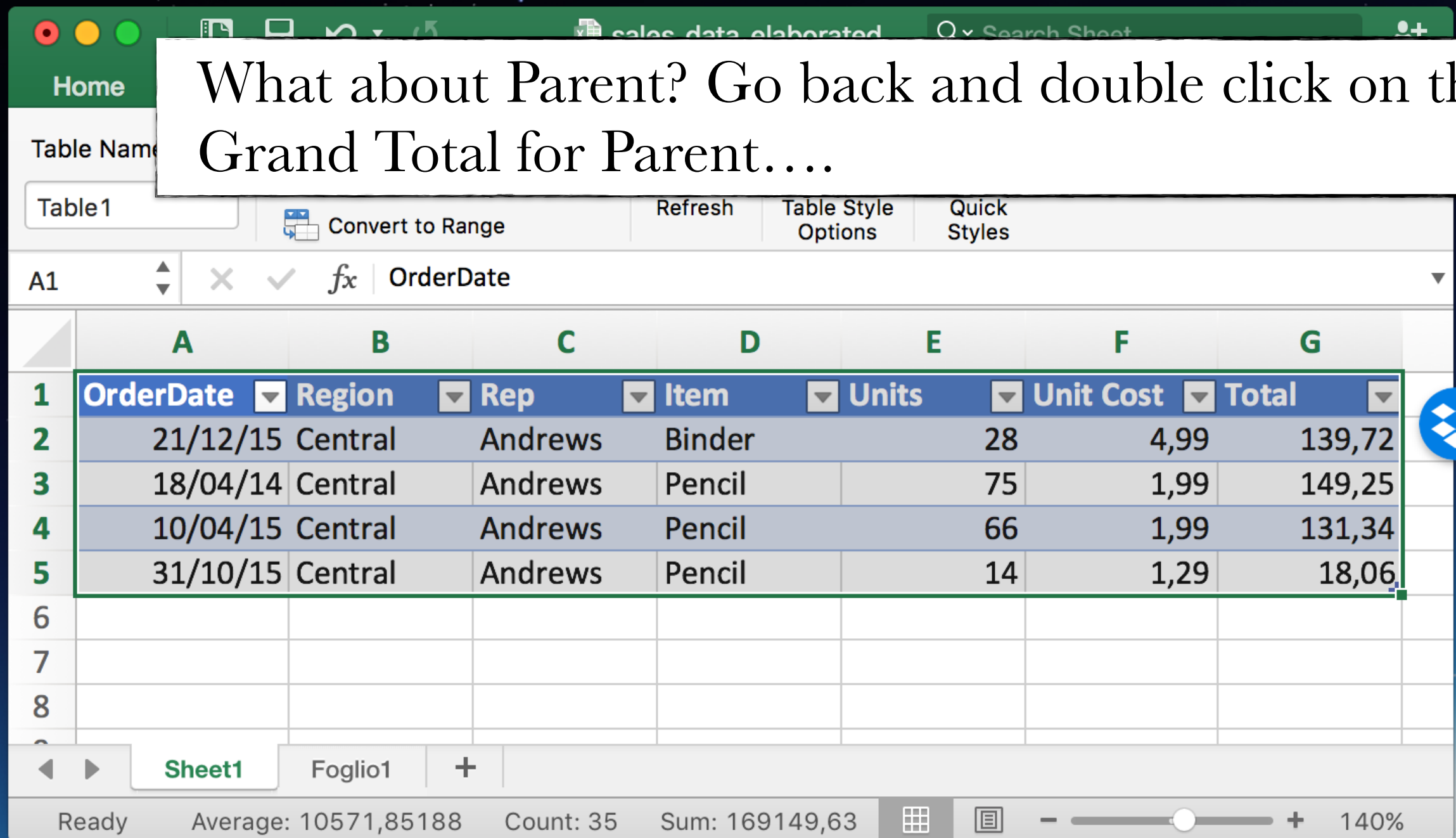
OrderDate	Region	Rep	Item	Units	Unit Cost	Total
21/12/15	Central	Andrews	Binder	28	4,99	139,72
18/04/14	Central	Andrews	Pencil	75	1,99	149,25
10/04/15	Central	Andrews	Pencil	66	1,99	131,34
31/10/15	Central	Andrews	Pencil	14	1,29	18,06

The status bar at the bottom shows the following statistics: Ready, Average: 10571,85188, Count: 35, Sum: 169149,63. The zoom level is set to 140%.

A problem of sales analytics

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

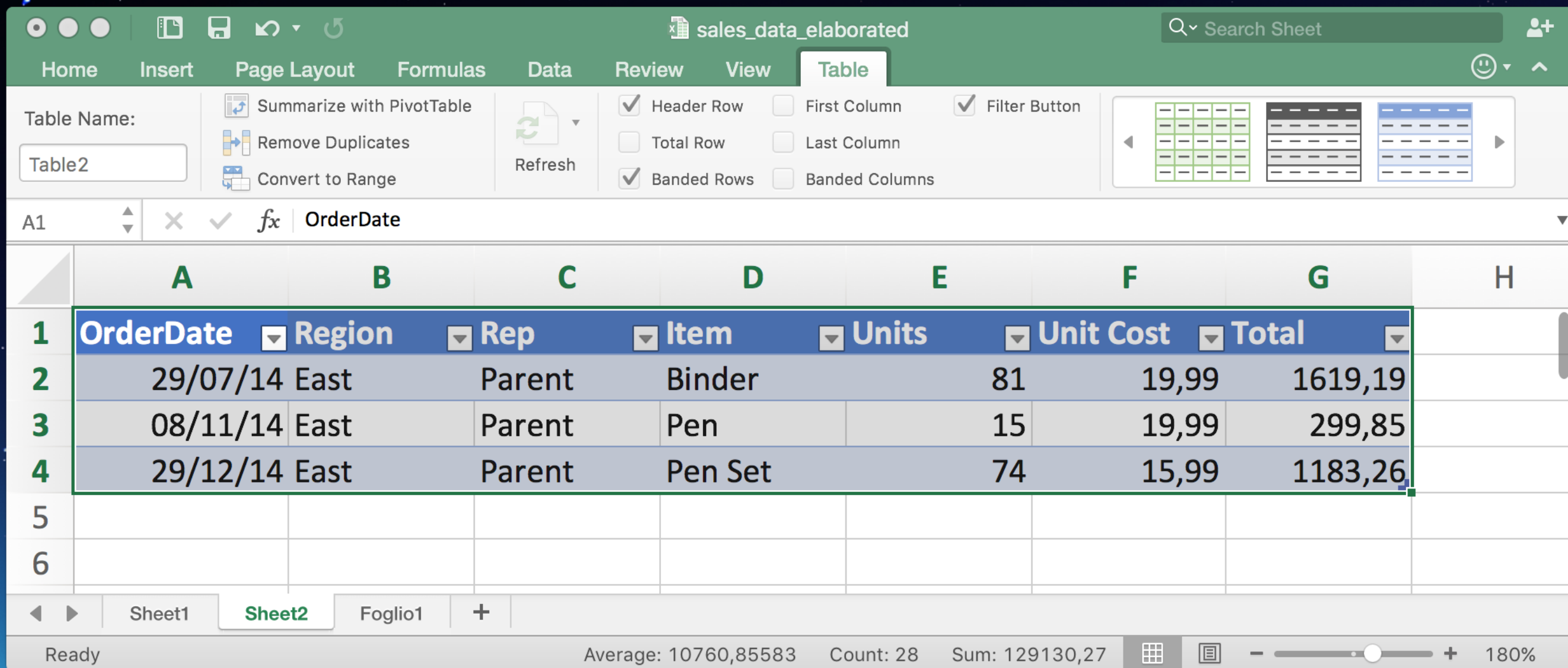
What about Parent? Go back and double click on the Grand Total for Parent....



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.



sales_data_elaborated

Search Sheet

Home Insert Page Layout Formulas Data Review View Table

Table Name: Table2

Summarize with PivotTable
Remove Duplicates
Convert to Range

Refresh

☒ Header Row ☐ First Column ☒ Filter Button
☐ Total Row ☐ Last Column
☒ Banded Rows ☐ Banded Columns

A1 fx OrderDate

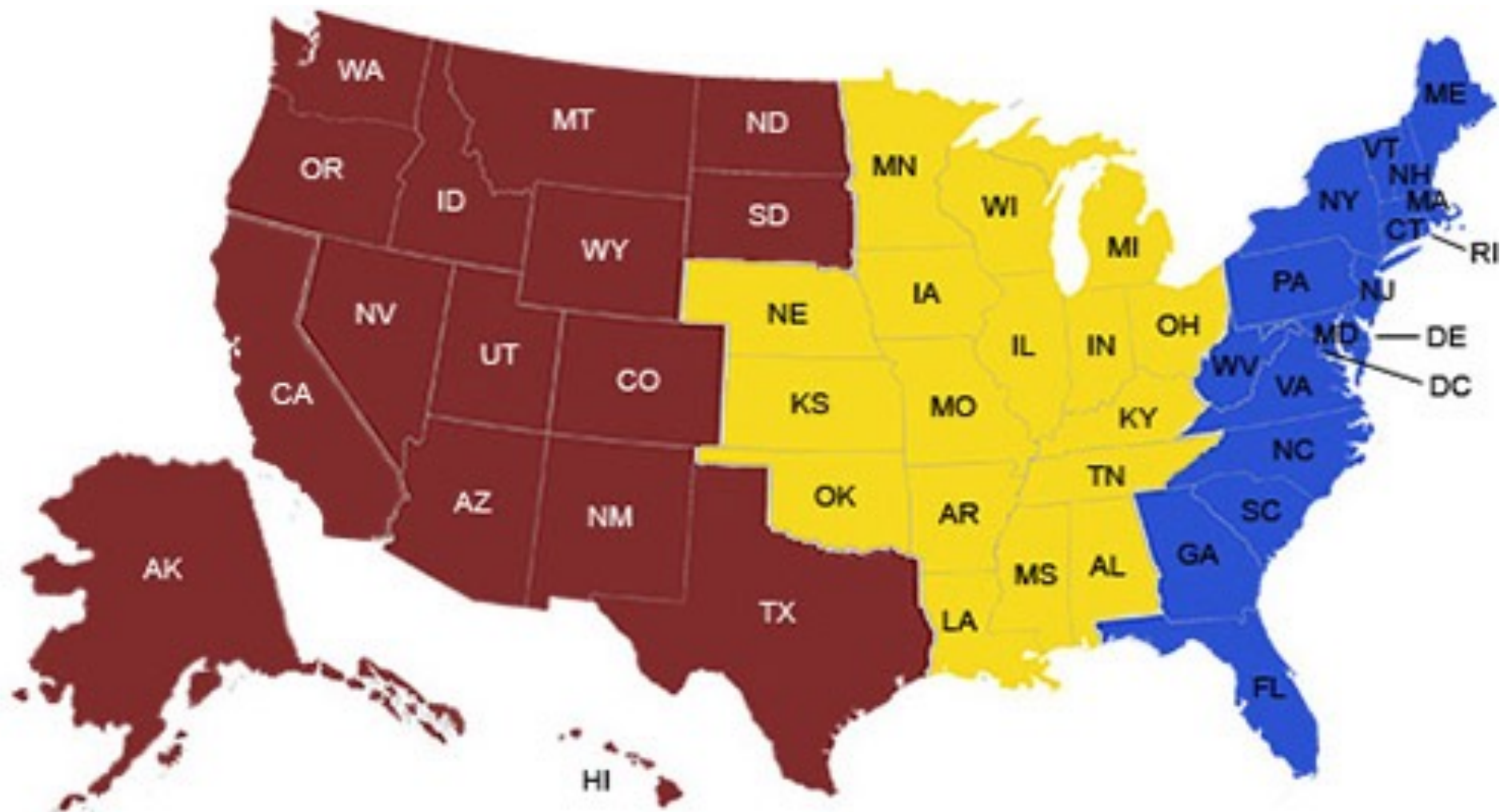
	A	B	C	D	E	F	G	H
1	OrderDate	Region	Rep	Item	Units	Unit Cost	Total	
2	29/07/14	East	Parent	Binder	81	19,99	1619,19	
3	08/11/14	East	Parent	Pen	15	19,99	299,85	
4	29/12/14	East	Parent	Pen Set	74	15,99	1183,26	
5								
6								

Sheet1 Sheet2 Foglio1 +

Ready Average: 10760,85583 Count: 28 Sum: 129130,27 180%

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' window. At the top, there's a 'FIELD NAME' section with a search bar. Below it, a list of fields includes 'OrderDate', 'Region' (checked), 'Rep', and 'Item'. The main area is divided into four quadrants: 'Filters' (empty), 'Columns' (empty), 'Rows' (empty), and 'Values' (containing 'Count of Region'). A footer instruction says 'Drag fields between areas'.

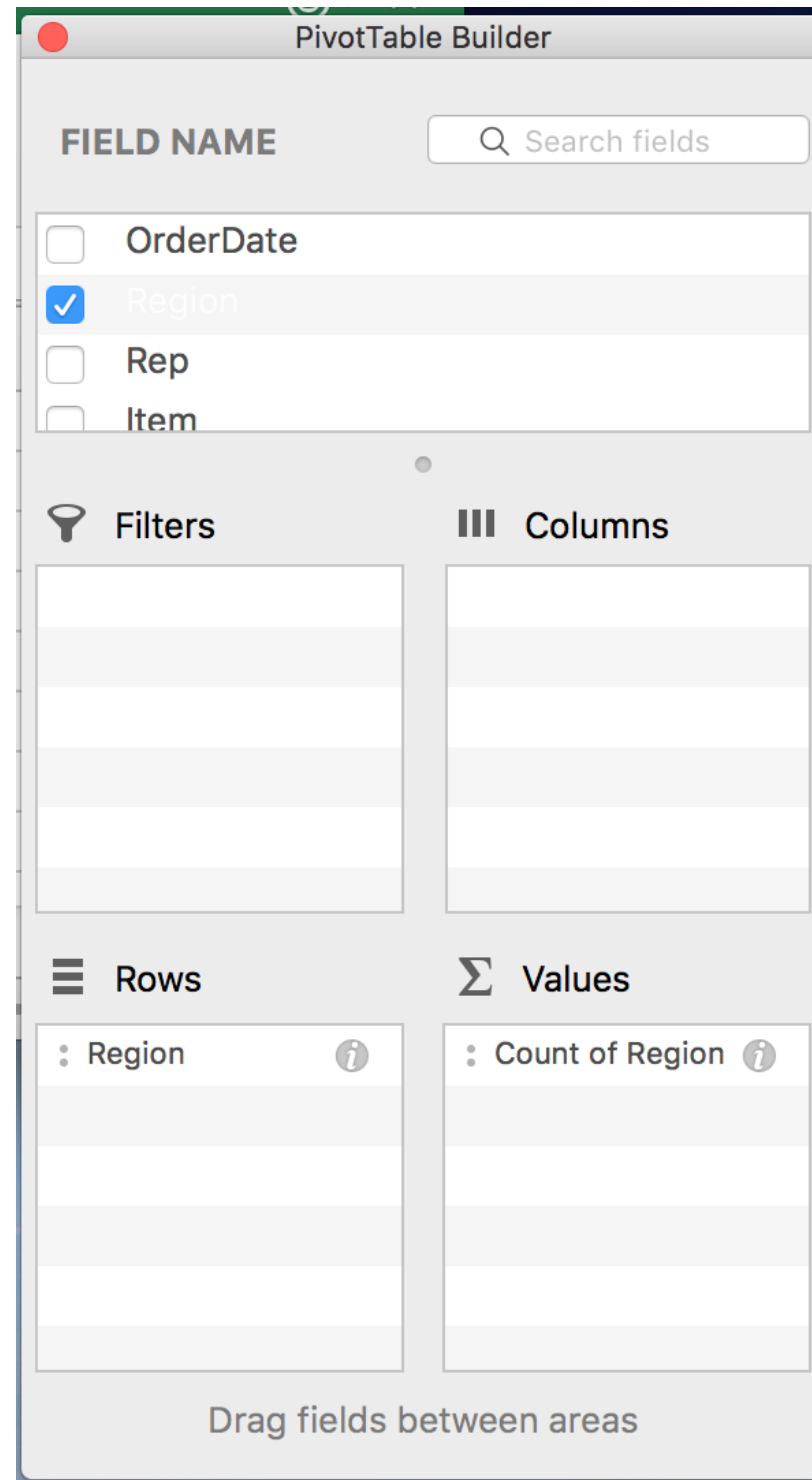
Field Name	Selected
OrderDate	<input type="checkbox"/>
Region	<input checked="" type="checkbox"/>
Rep	<input type="checkbox"/>
Item	<input type="checkbox"/>

Area	Fields
Filters	
Columns	
Rows	
Values	Count of Region

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

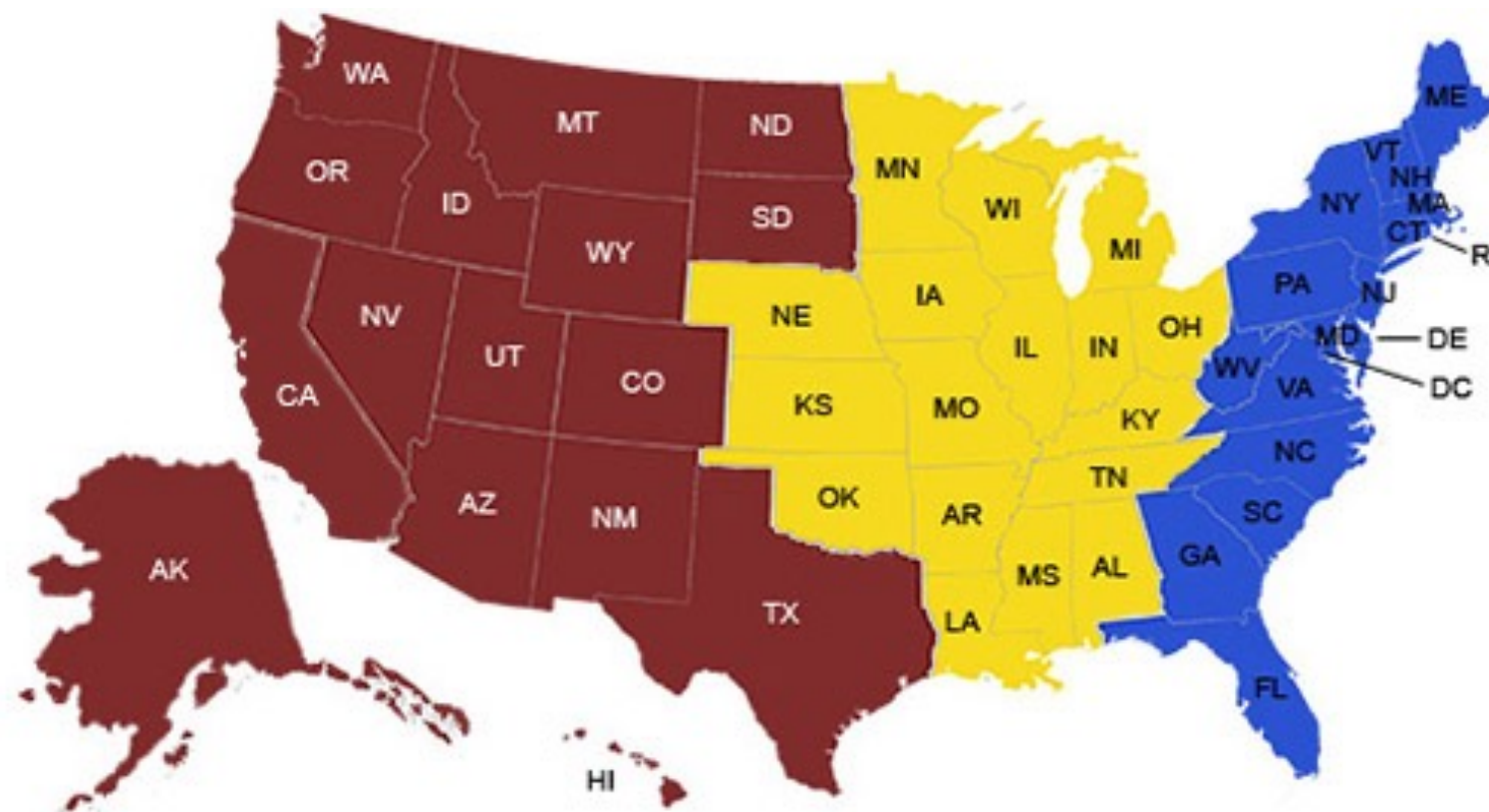
13

West

6

Grand Total

43



Row Labels



Count of Region

Central

24

East

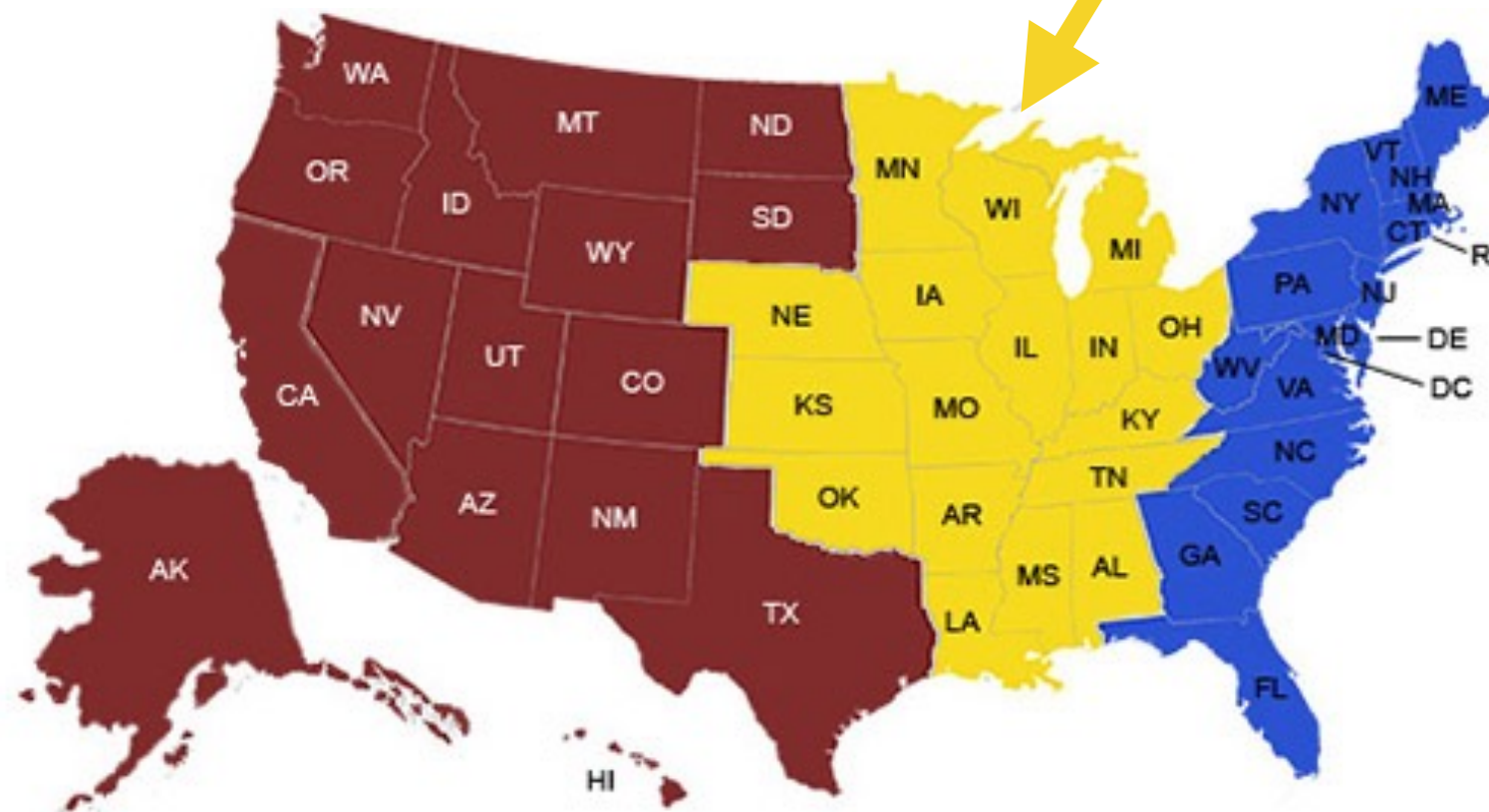
13

West

6

Grand Total

43



Row Labels



Count of Region

Central

24

East

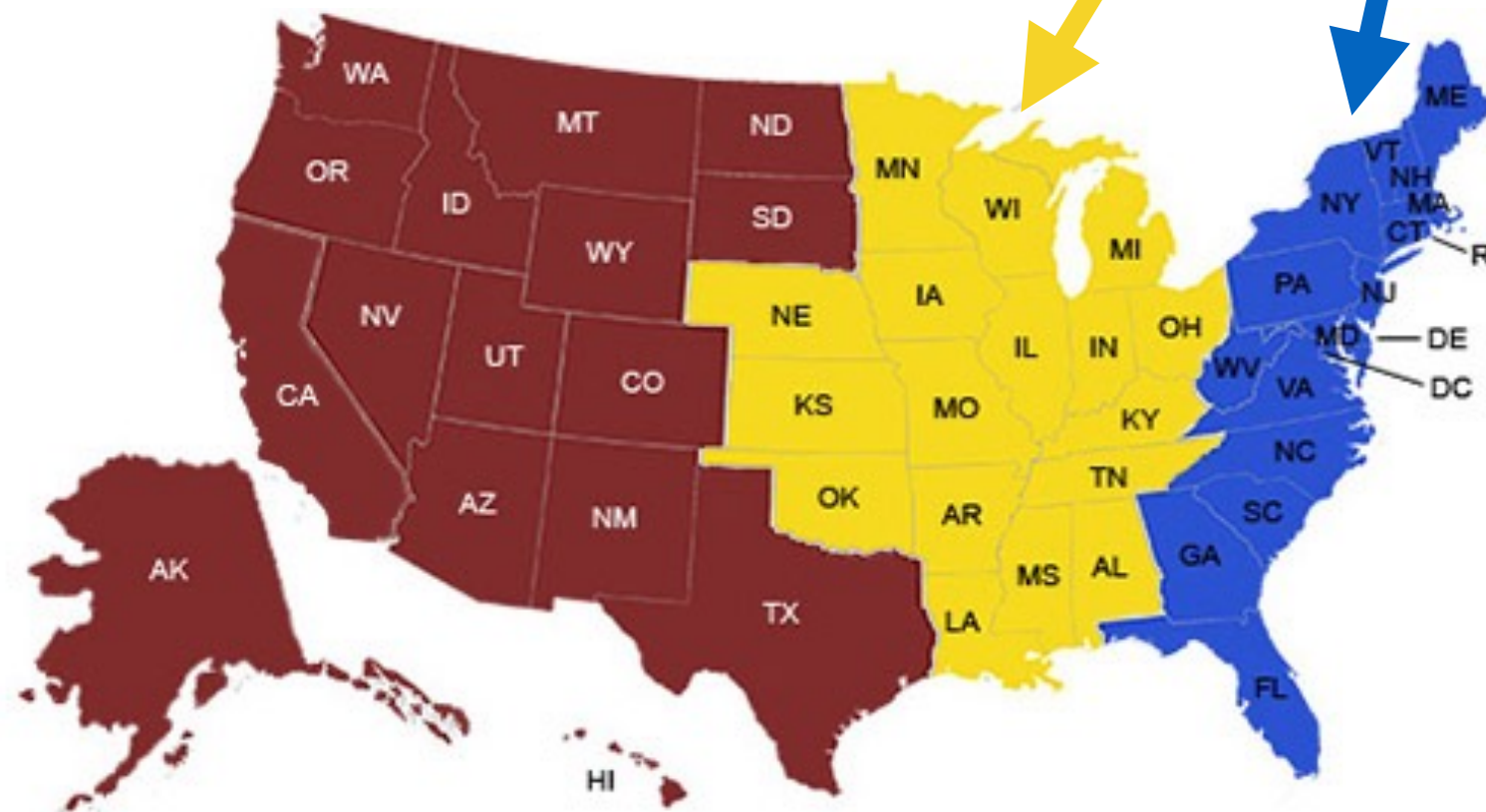
13

West

6

Grand Total

43



Row Labels



Count of Region

Central

24

East

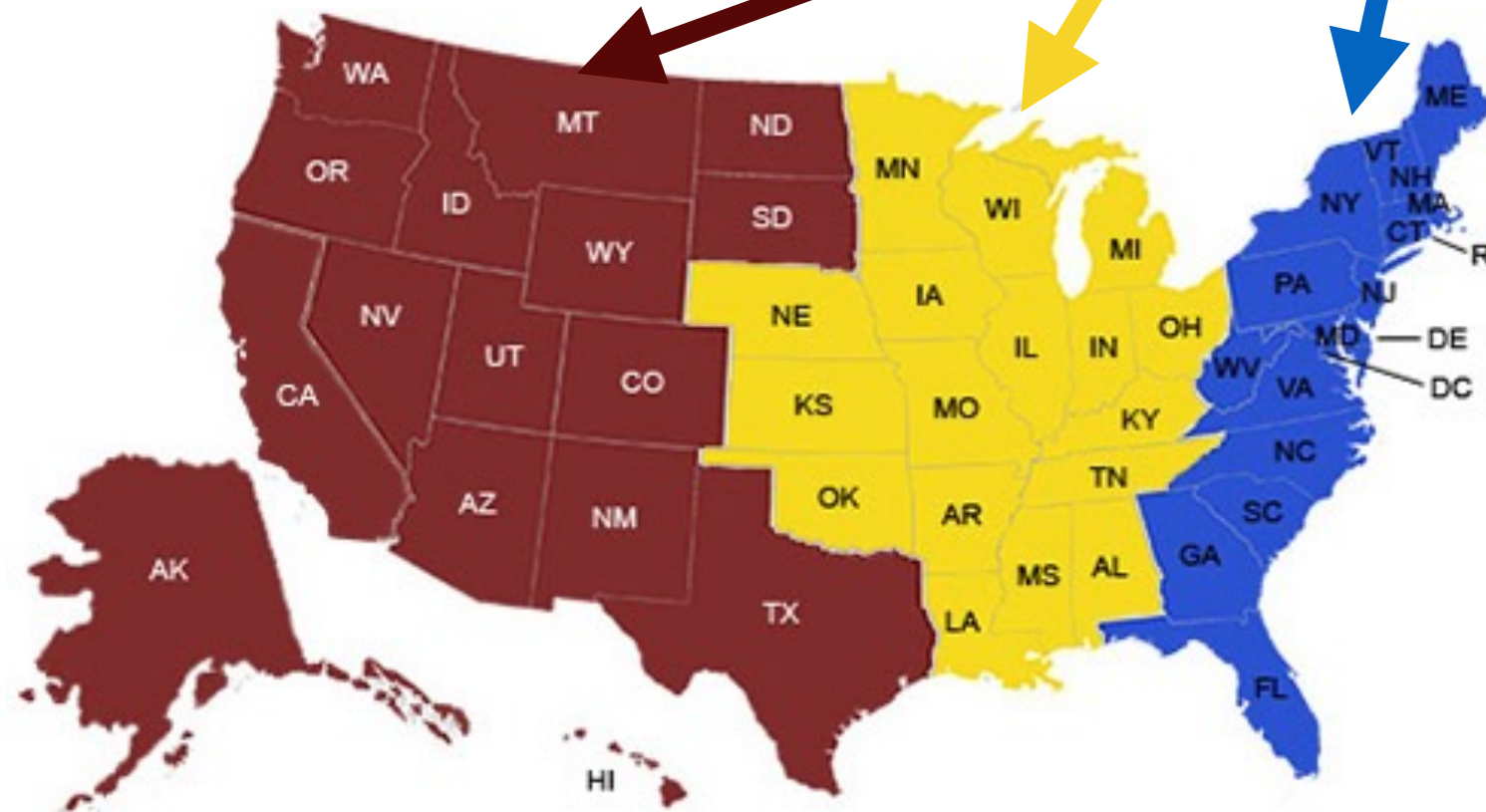
13

West

6

Grand Total

43



A problem of sales analytics

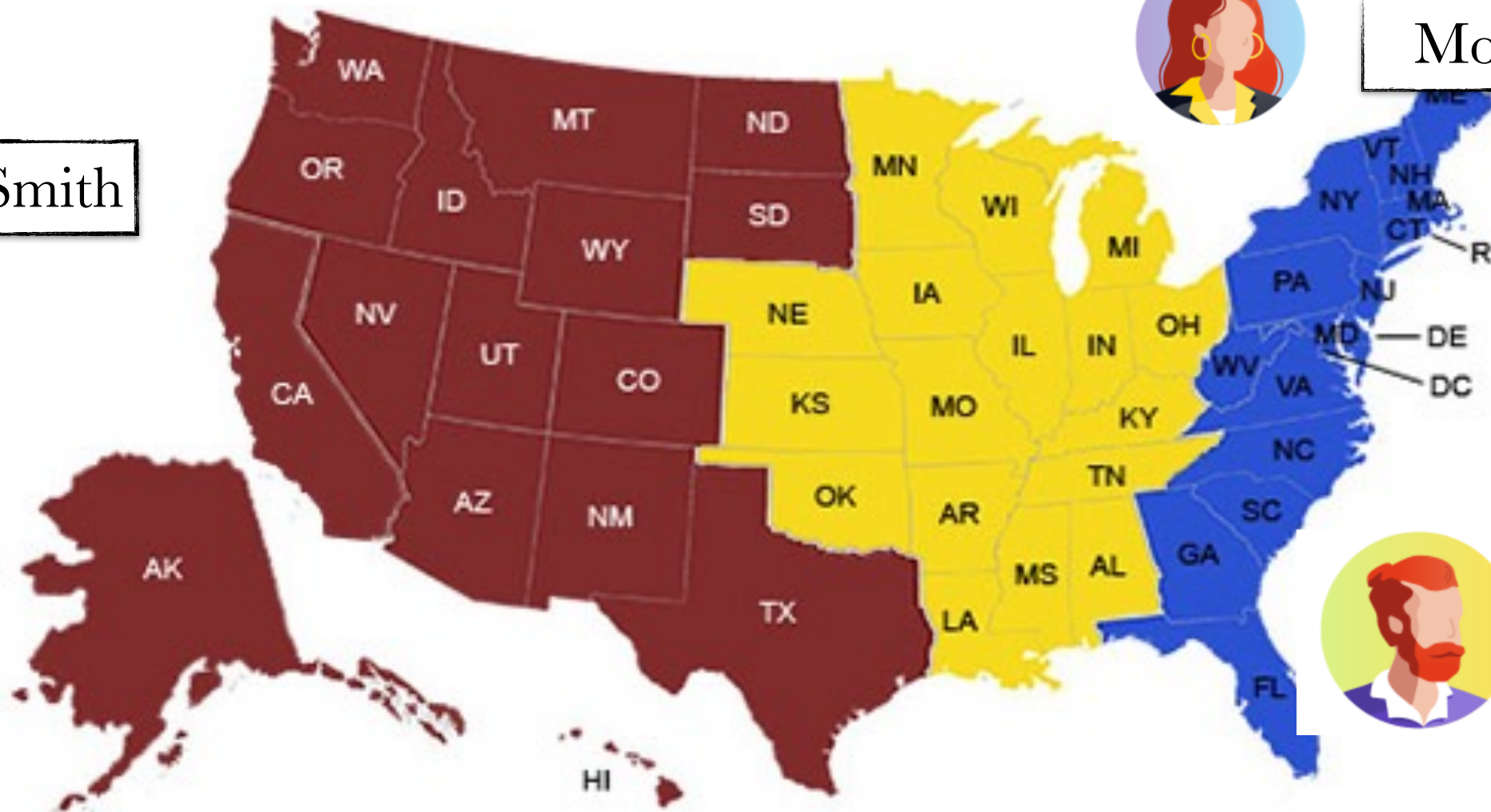
Which Representative visited which regions?



Smith



Morgan



Kivell



Parent



Andrews

PivotTable Builder

FIELD NAME

<input type="checkbox"/>	OrderDate
<input checked="" type="checkbox"/>	Region
<input checked="" type="checkbox"/>	Rep
<input type="checkbox"/>	Item

Filters

Columns

: Region <i>i</i>

Rows

: Rep <i>i</i>

Values

: Count of Region <i>i</i>

Drag fields between areas

Drag and drop
Region in the
Values and
Columns

PivotTable Builder

FIELD NAME

<input type="checkbox"/>	OrderDate
<input checked="" type="checkbox"/>	Region
<input checked="" type="checkbox"/>	Rep
<input type="checkbox"/>	Item

Filters

Columns

: Region <i>i</i>

Rows

: Rep <i>i</i>

Values

: Count of Region <i>i</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

sales_data_elaborated

Search Sheet

HomeInsertPage LayoutFormulasDataReviewViewPivotTable AnalyzeDesign

SubtotalsGrand TotalsReport LayoutBlank Rows

☒ Row Headers☐ Banded Rows☒ Column Headers☐ Banded Columns

I15fx3

	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					

FIELD NAME

Search fields

☐ OrderDate☒ Region☒ Rep☐ Item

Filters

Columns

: Region

Rows

: Rep

Values

: Count of Region

Drag fields between areas

Sheet1Sheet2Foglio1+Ready

140%

sales_data_elaborated

Search Sheet

Home Insert Page Layout Formulas Data Review View PivotTable Analyze Design

Subtotals Grand Totals Report Layout Blank Rows

Row Headers Column Headers Banded Rows Banded Columns

PivotTable Builder

FIELD NAME Search fields

OrderDate Region Rep Item

Filters Columns

Rows Values

Rep Count of Region

Drag fields between areas

Which are the original labels?

	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					

Sheet1 Sheet2 Foglio1

Ready

140%

sales_data_elaborated

Search Sheet

HomeInsertPage LayoutFormulasDataReviewViewPivotTable AnalyzeDesign

SubtotalsGrand TotalsReport LayoutBlank 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	179,04					

Click on Design

☐ OrderDate☒ Region☒ Rep☐ Item

Filters

Columns

Rows

Values

Drag fields between areas

Sheet1Sheet2Foglio1

Ready

140%

sales_data_elaborated

Search Sheet

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

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					

Sheet1 Sheet2 Foglio1

Ready

140%

sales_data_elaborated

Search Sheet

Home Insert Page Layout Formulas Data Review View PivotTable Analyze Design

Subtotals Grand Totals

Row Headers

Added Rows

Added Columns

PivotTable Builder

FIELD NAME

Search fields

☐ OrderDate

☒ Region

☒ Rep

☐ Item

Rows

Rep

Values

Count of Region

Drag fields between areas

115

G

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 Jones

12 413,54 Kivell 4

13 999,50 Morgan 3

14 249,50 Parent 3

15 68,37 Smith 3

16 686,95 Sorvino 4

17 131,34 Thompson 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

Sheet1 Sheet2 Foglio1 +

Ready

140%

Show in Compact Form

Show in Outline Form

Show in Tabular Form

Repeat All Item Labels

Don't Repeat Item Labels

West Grand Total

Select "Show in Outline Form"

sales_data_elaborated

Search Sheet

HomeInsertPage LayoutFormulasDataReviewViewPivotTable AnalyzeDesign

SubtotalsGrand TotalsReport LayoutBlank Rows

☒ Row Headers☐ Banded Rows☒ Column Headers☐ Banded Columns

K7

	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					

FIELD NAME

Search fields

☐ OrderDate☒ Region☒ Rep☐ Item

Filters

Columns

Region

Rows

Rep

Values

Count of Region

Drag fields between areas

Now labels are informative

Sheet1Sheet2Foglio1

Ready

140%

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 with 'Rep' as the row labels and 'Region' as the column labels. The values are summed. The 'Grand Total' row shows the total sales for each region and overall.

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

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

- FIELD NAME:** Search fields
- Fields:** ☐ Item, ☐ Units, ☐ Unit Cost, ☒ Total
- Filters:** (Empty)
- Columns:** Region
- Rows:** Rep
- Values:** Sum of Total

Drag fields between areas

A problem of sales analytics

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

The screenshot displays an Excel PivotTable summarizing sales data. The PivotTable is structured with 'Region' as the column header and 'Rep' as the row header. The values represent the 'Sum of Total' for each combination of Region and Rep. The task pane on the right, titled 'PivotTable Analyze', shows the configuration: 'Region' is placed in the 'Columns' area, 'Rep' is placed in the 'Rows' area, and 'Sum of Total' is placed in the 'Values' area. Red arrows and boxes highlight these settings.

	Region	East	West	Grand Total
Rep	Central			
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

Click on the information button.

The screenshot shows an Excel spreadsheet with a PivotTable summarizing sales data by region and representative. The PivotTable is located in the range L5:M18. The PivotTable Builder task pane is open on the right, showing the current configuration of the PivotTable. The Values area shows 'Sum of Total' for the 'Region' field. The information button (i) next to the 'Sum of Total' field is highlighted with a red circle. A red arrow points from the text box 'Click on the information button.' to this button.

	Rep	Central	East	West	Grand Total
1					
2					
3					
4					
5	Sum of Total	Region			
6	Rep	Central	East	West	Grand Total
7	Andrews	438,37			438,37
8	Gill	1749,87			1749,87
9	Howard		536,75		536,75
10	Jardine	2812,19			2812,19
11	Jones		2363,04		2363,04
12	Kivell	3109,44			3109,44
13	Morgan	1387,77			1387,77
14	Parent		3102,3		3102,3
15	Smith	1641,43			1641,43
16	Sorvino			1283,61	1283,61
17	Thompson			1203,11	1203,11
18	Grand Total	11139,07	6002,09	2486,72	19627,88

A problem of sales analytics

The screenshot displays an Excel spreadsheet with a PivotTable and the PivotTable Field task pane open. The PivotTable summarizes sales data by region and representative. The task pane shows the 'Sum of Total' field being configured to use the 'Average' aggregation function.

PivotTable Data:

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

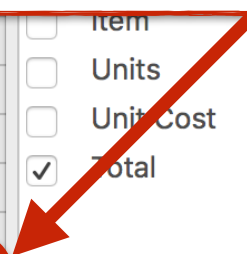
PivotTable Field Task Pane:

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

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			
Rep	Central	East	West	Grand Total
Andrews	109,5925			109,5925
Gill	349,974			349,974
Howard		268,375		268,375
Jardine	562,438			562,438
Jones		295,38		295,38
Kivell	777,36			777,36
Morgan	462,59			462,59
Parent		1034,1		1034,1
Smith	547,1433333			547,1433333
Sorvino			320,9025	320,9025
Thompson			601,555	601,555
Grand Total	464,1279167	461,6992308	414,4533333	456,4623256



Filters

Columns

: Region

Rows

: Rep

Σ Values

: Average of Total

Drag fields between areas

Foglio1

Ready

140%



Sub-groups

The screenshot displays the Microsoft Excel interface with the 'PivotTable Analyze' tab selected. The worksheet is titled 'CLASS1_sales_data_elaborated'. The data table is located in columns G and H, with rows 2 through 24. The data includes numerical values such as 250,00, 625,00, 9,03, 54,89, 18,06, 539,73, 251,72, 139,72, 179,64, 1.005,90, 413,54, 999,50, 249,50, 68,37, 686,95, 131,34, 86,43, 149,25, 719,20, 1.305,00, 449,10, 449,10, and 1.879,06.

A PivotTable is being created, labeled 'PivotTable1'. The text 'To build a report, choose fields from the PivotTable Field List' is displayed within the PivotTable area. The 'PivotTable Fields' task pane is open on the right side of the screen. It shows a list of fields: OrderDate, Region, Rep, Item, Units, Unit Cost, and Total. The 'Filters' section is empty. The 'Columns' section is empty. The 'Rows' section is empty. The 'Values' section is empty. A blue box highlights the 'Values' section. The 'PivotTable Fields' task pane also includes a search bar and a 'Check for Updates' button.

	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			

Sub-groups

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

CLASS1_sales_data_elaborated

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

Calibri (Body) 12 A A General Conditional Formatting Insert Paste B I U % .00 .00 Delete Editing

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			

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

190%

Foglio1

Empty all the fields to get back to the raw PivotTable

Sub-groups

Rep->Columns

Region->Rows

Sum of Total->Values

PivotTable Fields

FIELD NAME Search fields

- ☐ OrderDate
- ☒ Region
- ☒ Rep
- ☐ Item
- ☐ Unit Cost
- ☒ Total

Filters

- Region
- Rep

Columns

- Sum of Total

	G	H	I	J	K	L	M	N
1	Total							
2	250,00							
3	625,00							
4	9,03							
5	54,89	Sum of Total	Rep					
6	18,06	Region	Andrews	Gill	Howard	Jardine	Jones	Kivell
7	539,73	Central	438,37	1749,87		2812,19		3109,44
8	251,72	East			536,75		2363,04	3102,3
9	139,72	West						1283,61
10	179,64	Grand Total	438,37	1749,87	536,75	2812,19	2363,04	3109,44
11	1.005,90							1283,61
12	413,54							1203,11
13	999,50							2486,72
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							
25	479,04							
26	19,96							
27	299,85							
28	255,84							
29	57,71							
30	174,65							
31	299,40							
32	539,40							
33	309,38							
34	575,36							

Sub-groups

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

CLASS1_sales_data_elaborated

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

fx Sum of Total

1 Total

2 250,00

3 625,00

4 9,03

5 54,89 Sum of Total Rep

6 18,06 Region Andrews Gill Howard Jardine Jones Kivell Morgan Parent Smith Sorvino Thompson Grand Total

7 539,73 Central 438,37 1749,87 536,75 2812,19 3109,44 1387,77 1641,43 11139,07

8 251,72 East 6002,09

9 139,72 West 2486,72

10 179,64 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

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

25 479,04

26 19,96

27 299,85

28 255,84

29 57,71

30 174,65

31 299,40

32 539,40

33 309,38

34 575,36

Add Items->Rows

PivotTable Fields

FIELD NAME Search fields

☐ OrderDate

☒ Region

☒ Rep

☐ Item

☐ Units

☐ Unit Cost

☒ Total

Filters

Columns

Rep

Values

Region

Sum of Total

Foglio1

170%

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											Grand Total
Region	Item	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	
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											Grand Total
Region	Item	Andrews	Gill	Howard	Jardine	Jones	Kivell	Morgan	Parent	Smith	Sorvino	Thompson	
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

Class_1_Exercize_1

Search Sheet

Home Insert Page Layout Formulas Data Review View

Paste Paste & Styles Conditional Formatting Format as Table Cell Styles Cells Editing

G6 x ✓ fx PERM

	A	B	C	D	E	F	G
	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

Voters +

Ready | 180%

Exercise: election data in USA



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

Exercise: election data in USA

Class_1_Exercise_1

Search Sheet

Home Insert Page Layout Formulas Data Review View

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Conditional Formatting Format as Table Cell Styles

Alignment Number Cells Editing

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Voter party affiliation

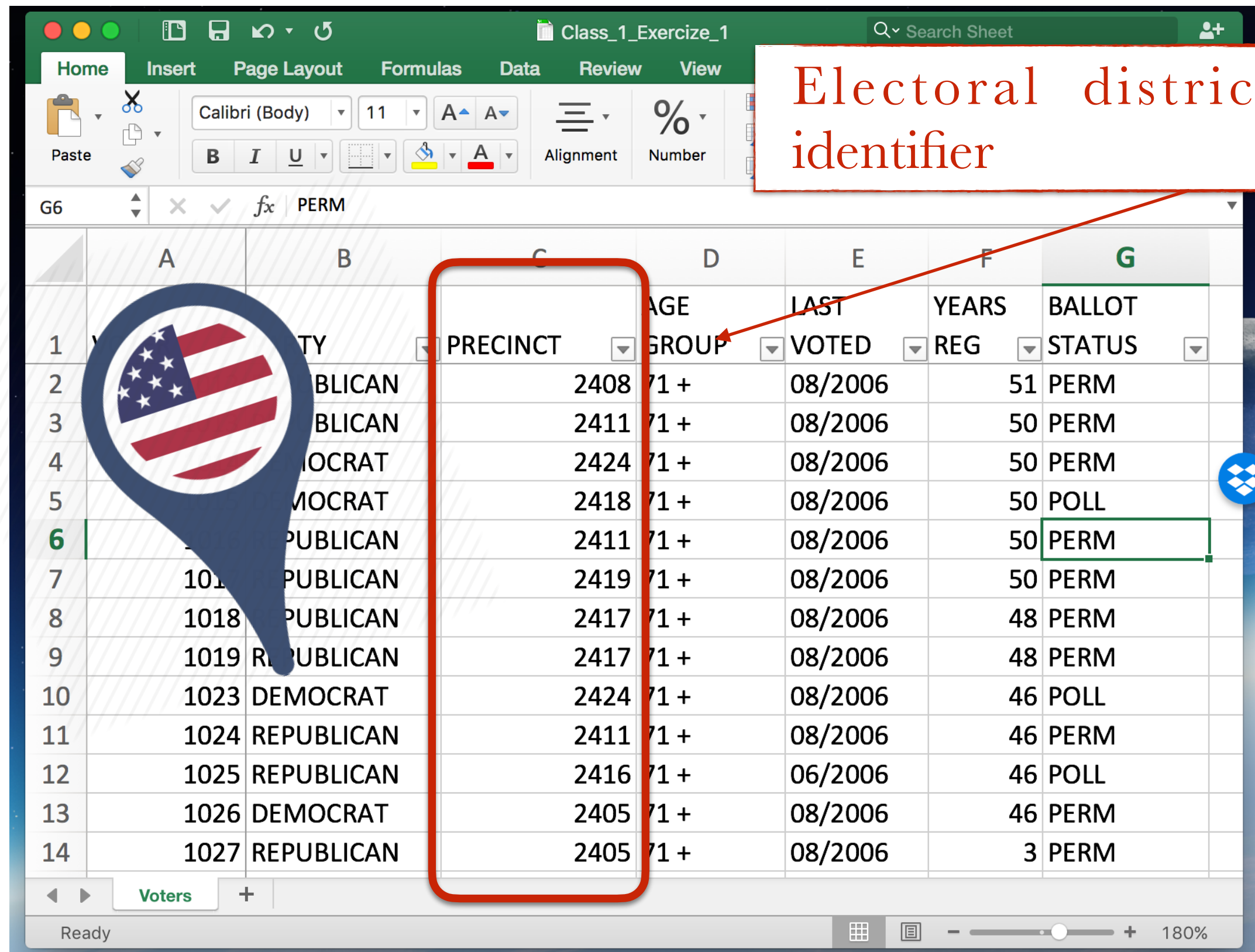
	A	B	C	D	E	F	G
	VOTER	PARTY	PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
1							
2	1012	REPUBLICAN	2408	71 +	08/2006	51	PERM
3	1013	REPUBLICAN	2411	71 +	08/2006	50	PERM
4	1014	DEMOCRAT					RM
5	1015	DEMOCRAT					OLL
6	1016	REPUBLICAN					RM
7	1017	REPUBLICAN					RM
8	1018	REPUBLICAN					RM
9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

Voters

Ready

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Exercise: election data in USA



The image shows an Excel spreadsheet titled "Class_1_Exercise_1" with a worksheet named "Voters". The spreadsheet contains election data for various precincts. A red box highlights the "PRECINCT" column (Column C). A red callout box points to the "PRECINCT" column with the text "Electoral district identifier".

	A	B	C	D	E	F	G
			PRECINCT	AGE GROUP	LAST VOTED	YEARS REG	BALLOT STATUS
1							
2		BLICAN	2408	71 +	08/2006	51	PERM
3		BLICAN	2411	71 +	08/2006	50	PERM
4		MOCRAT	2424	71 +	08/2006	50	PERM
5		MOCRAT	2418	71 +	08/2006	50	POLL
6		PUBLICAN	2411	71 +	08/2006	50	PERM
7	101	PUBLICAN	2419	71 +	08/2006	50	PERM
8	1018	PUBLICAN	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

A horizontal sequence of 15 black silhouettes on a white background, representing the male life cycle. The figures progress from a crawling baby to an elderly man leaning on a cane, with a tombstone at the end. The stages include: crawling, walking with a hat, carrying a backpack, wearing a graduation cap, carrying a briefcase, in a suit, wearing a hat, and leaning on a cane.

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

B I U

Alignment

% Number

Cell Styles

G6

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LAST VOTED

YEARS REG

BALLOT STATUS

1 VOTER PARTY PRECINCT AGE GROUP

2 1012 REPU

3 1013 REPU

4 1014 DEM

5 1015 DEM

6 1016 REPU

7 1017 REPU

8 1018 REPU

9 1019 REPU

10 1023 DEM

11 1024 REPU

12 1025 REPU

13 1026 DEMOCRAT 2405 71 +

14 1027 REPUBLICAN 2405 71 +

08/2006 51 PERM

08/2006 50 PERM

08/2006 50 PERM

08/2006 50 POLL

08/2006 50 PERM

08/2006 50 PERM

08/2006 48 PERM

08/2006 48 PERM

08/2006 46 POLL

08/2006 46 PERM

06/2006 46 POLL

08/2006 46 PERM

08/2006 3 PERM


1

Voters

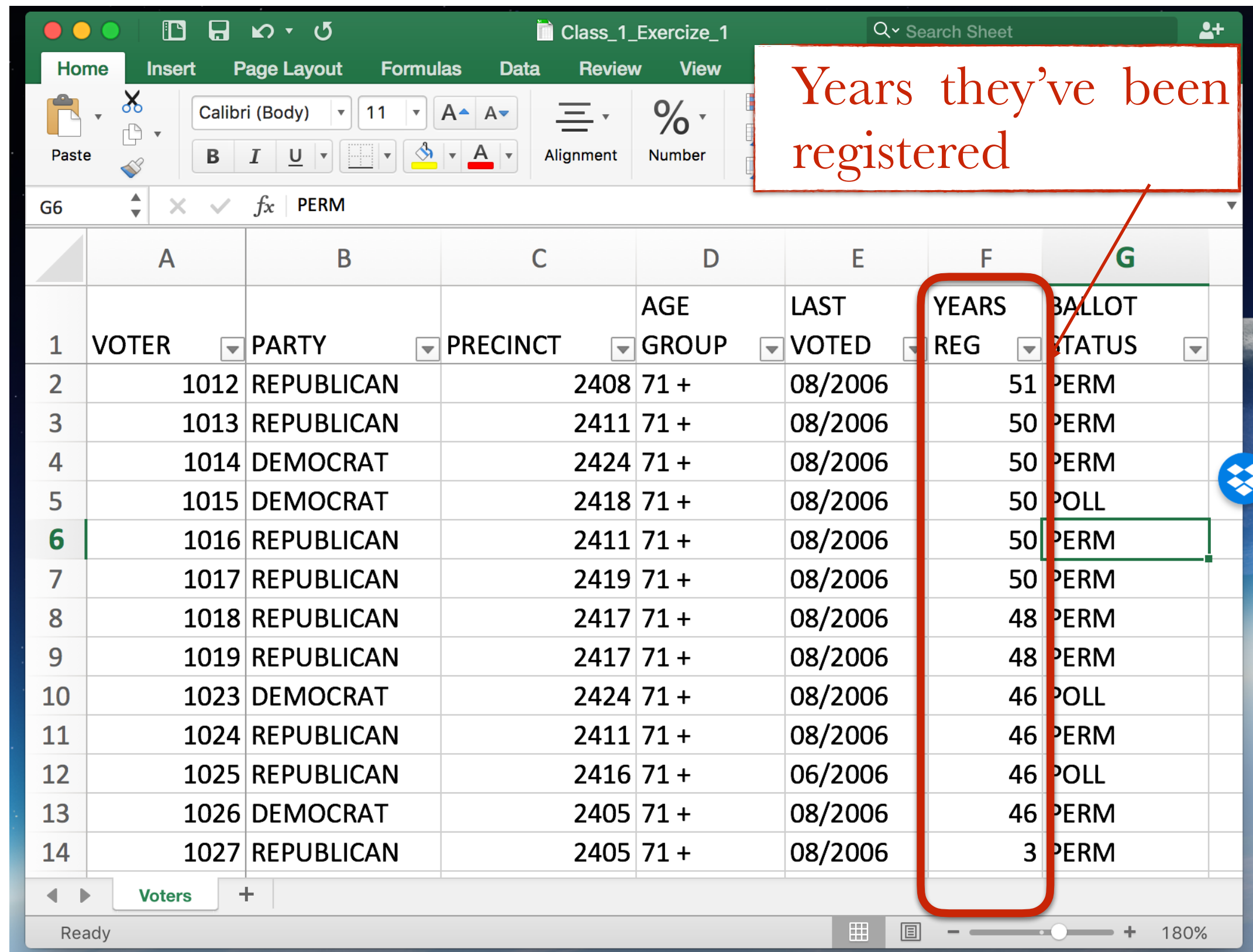
Ready

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Last date of voting



Exercise: election data in USA



Years they've been registered

	A	B	C	D	E	F	G
	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

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

B I U

Alignment Number

Cell Styles

G6

PERM

Ballot Status

VOTER PARTY

1012 REPUBLICAN

1013 REPUBLICAN

1014 DEMOCRAT

1015 DEMOCRAT

1016 REPUBLICAN

1017 REPUBLICAN

1018 REPUBLICAN

1019 REPUBLICAN

1023 DEMOCRAT

1024 REPUBLICAN

1025 REPUBLICAN

1026 DEMOCRAT

1027 REPUBLICAN

AGE LAST YEARS REG STATUS

51 PERM

50 PERM

50 PERM

50 POLL

50 PERM

50 PERM

48 PERM

48 PERM

46 POLL

46 PERM

46 POLL

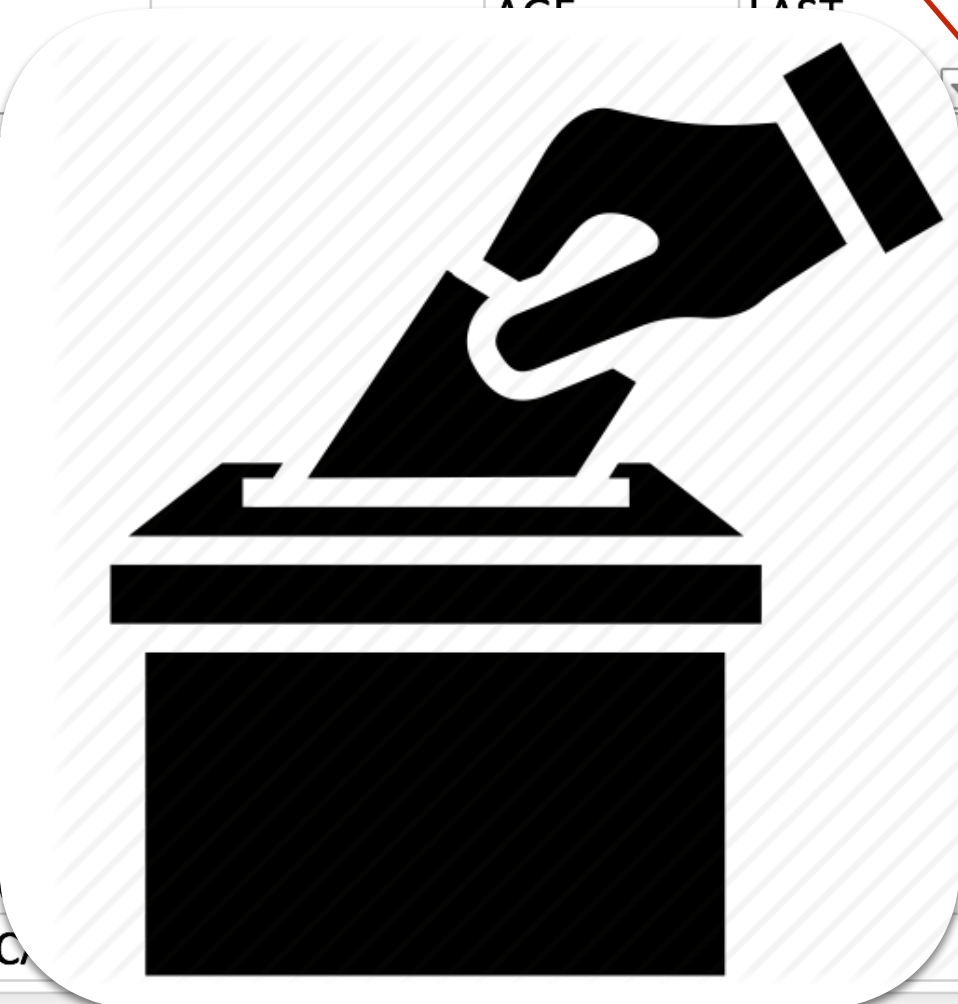
46 PERM

3 PERM

Voters

Ready

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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					
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	80	1	50	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	12	75	1	26	116
2421	2	18	94		64	175
2422	3	16	66		42	127
2423	6	30	87		74	197
2424		21	89		62	172
Grand Total	61	550	2157	41	1191	4000

Sort this column

Count of VOTER	PARTY					
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 the had the worst performance?

Question #2.

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

Solution.

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

Filters

Columns

: PARTY i

Rows

: PRECINCT i

Values

: Count of VOTER i

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

: PARTY

Rows

: PRECINCT

Values

: Count of VOTER

Drag fields between areas

-

+

200%

PivotTable Field

Source field: VOTER

Field name:

Summarize by

Show data as

No Calculation

Base field:

Base item:

VOTER
PARTY
PRECINCT
AGE
LAST

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

PRECINCT PARTY

Rows Values

PRECINCT Count of VOTER

Drag fields between areas

200%

PivotTable Field

Source field: VOTER

Field name: Count of VOTER

Summarize by Show data as

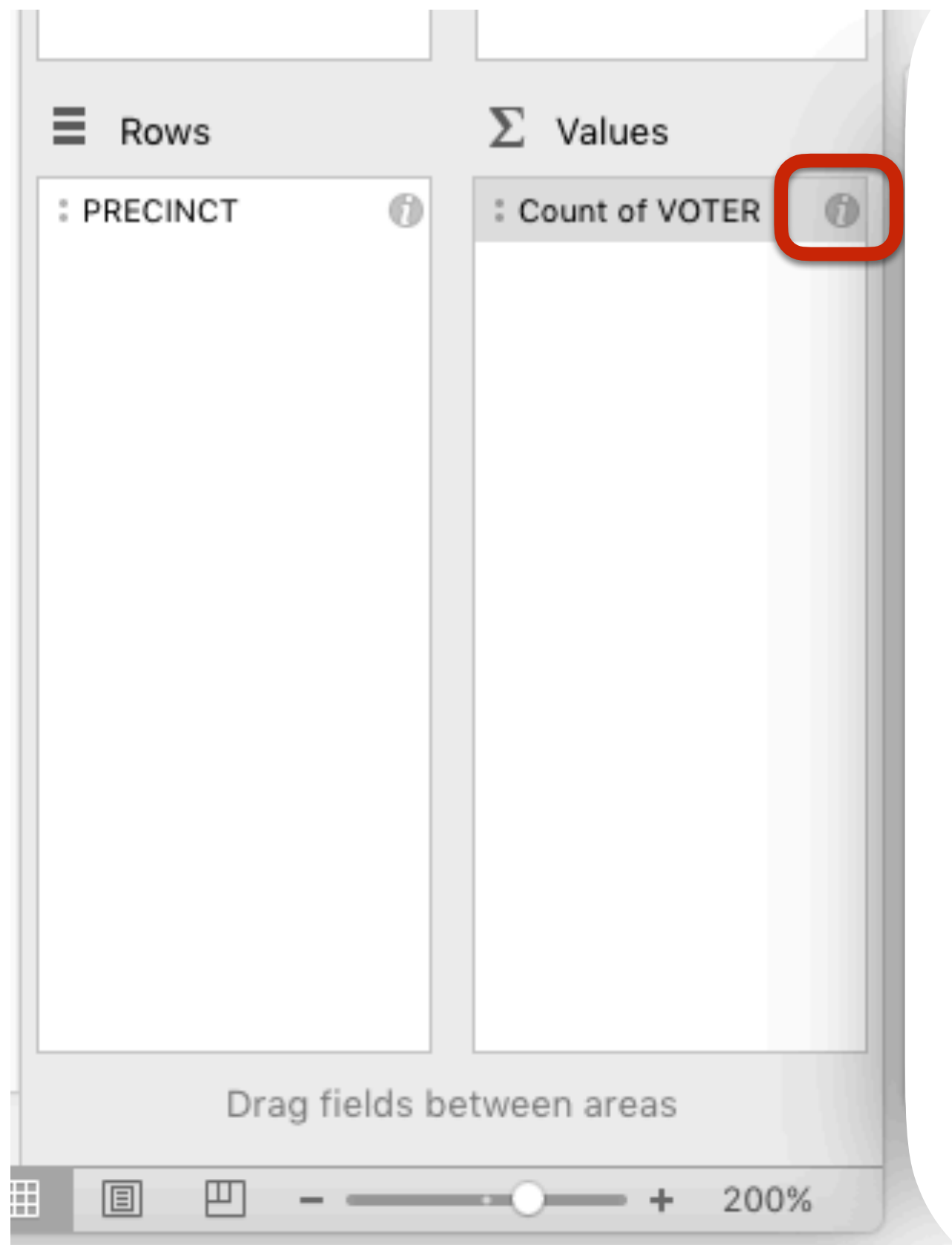
- ✓ No Calculation
- Difference From
- % Of
- % Difference From
- Running Total In
- % of Row Total
- % of Column Total
- % of Grand Total**
- Index
- % of Parent Row Total
- % of Parent Column Total
- % of Parent Total
- % Running Total In
- Rank Smallest to Largest
- Rank Largest to Smallest

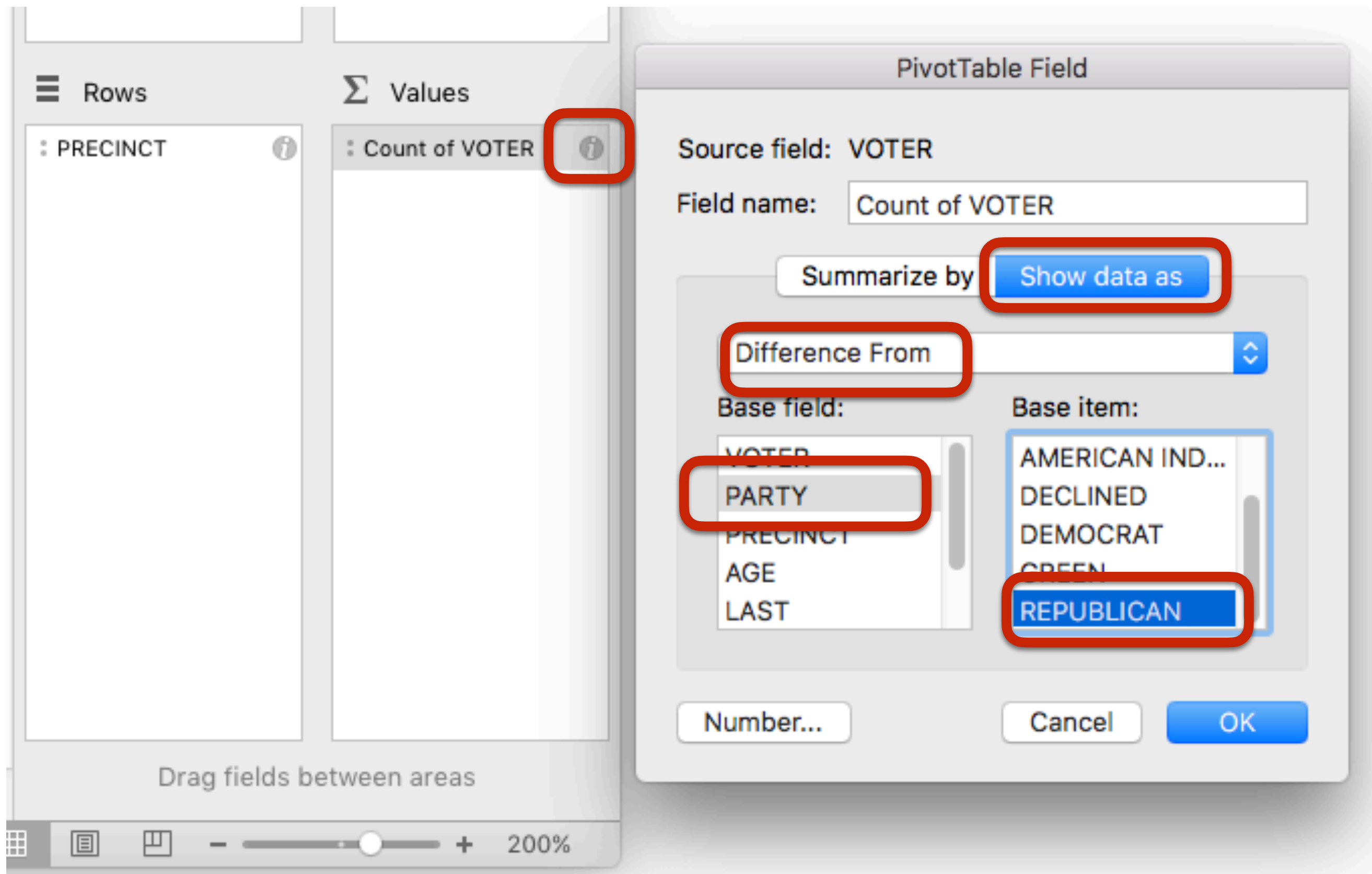
Count of VOTER	PARTY 						
PRECINCT 	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total	
2417	0,05%	0,35%	3,40%	0,05%	1,73%	5,58%	
2418	0,15%	1,00%	3,38%	0,00%	2,18%	6,70%	
2402	0,15%	0,83%	3,20%	0,13%	1,38%	5,68%	
2416	0,05%	0,60%	2,78%	0,08%	1,48%	4,98%	
2419	0,10%	0,83%	2,70%	0,03%	2,30%	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 							
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%		

Question #3.

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



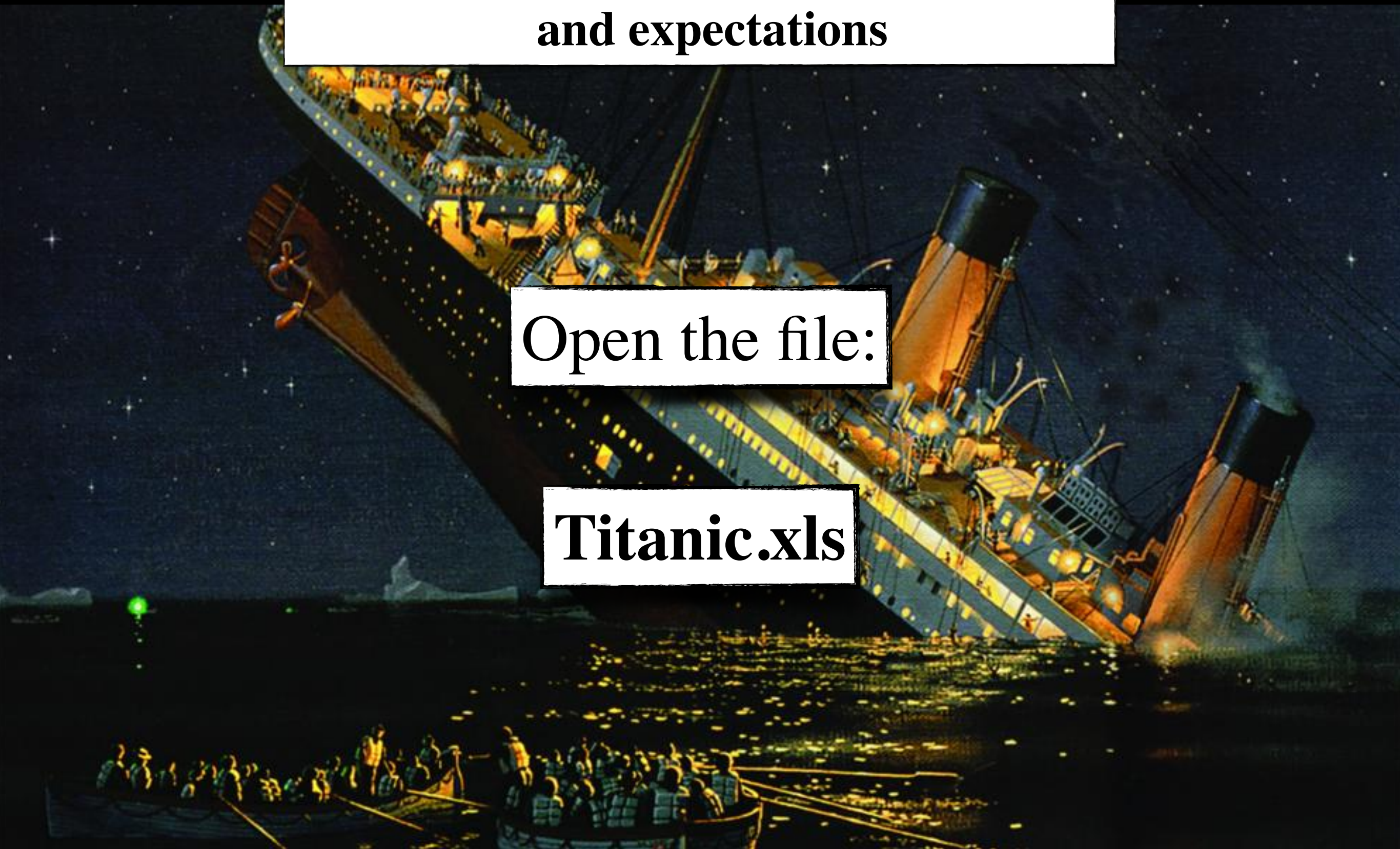


Count of VOTER	PARTY 						
PRECINCT 	AMERICAN INDEP	DECLINED	DEMOCRAT	GREEN	REPUBLICAN	Grand Total	
2417	-67	-55	67	-67			
2418	-81	-47	48	-87			
2402	-49	-22	73	-50			
2416	-57	-35	52	-56			
2419	-88	-59	16	-91			
2401	-31	-8	75	-29			
2415	-52	-28	42	-49			
2413	-58	-37	32	-63			
2421	-62	-49	30	-64			
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			

Conditional (survival) probability and expectations

Open the file:

Titanic.xls

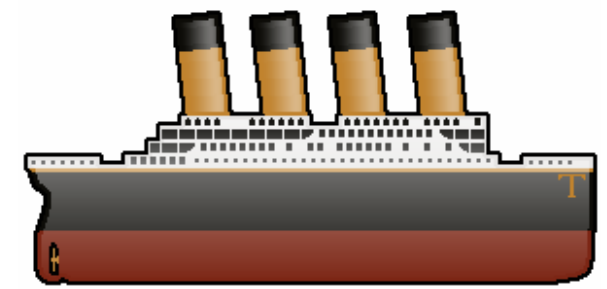


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Q Search Sheet										
Home Insert Draw Page Layout Formulas Data Review View Developer										
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C2										
	A	B	C	D	E	F	G	H	I	J
1	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
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

Sheet 1

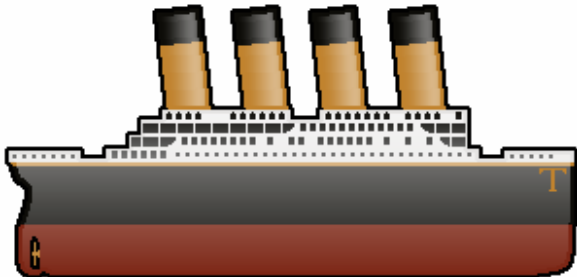
290%

1 = survived
0 = not survived



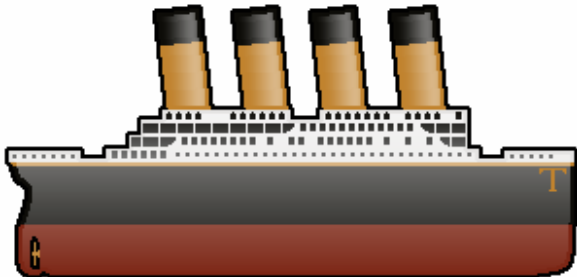
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A	B	C	D	E	F	G	H	I	J	
survived	class	sex	age	sibsp	parch	fare	who	adult_male	embark_town	
0	3	male	22	1	0	7,25	man	TRUE	Southampton	
1	1	female	58	1	0	71,2833	woman	FALSE	Cherbourg	
1	3	female	26	0	0	7,93	woman	FALSE	Southampton	
1	1	female	35	1	0	53,1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

The class of the cabin owned by the passenger



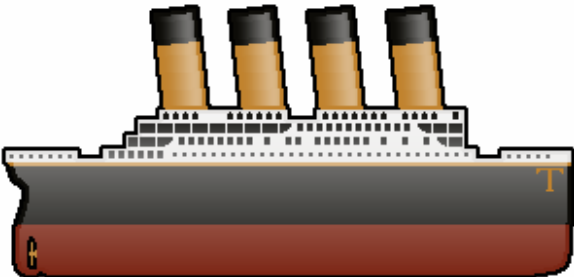
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3	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
4	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
5	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
6	0	3	male	35	0	0	8,05	man	TRUE	Southampton
7	0	3	male		0	0	8,4583	man	TRUE	Queenstown
8	0	1	male	54	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

Sex of the passenger



	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

Age of the passenger

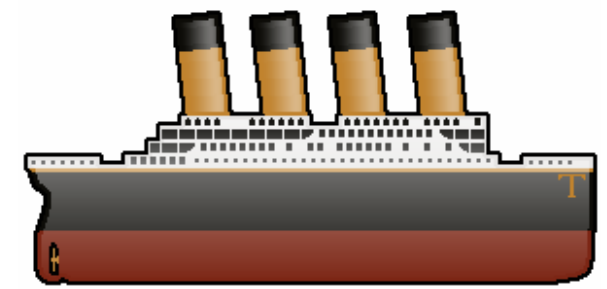


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	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
1	0	3	male	22	1	0	7,25	man	TRUE	Southampton
2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
3	1	3	female	26	0	0	7,93	woman	FALSE	Southampton
4	1	1	female	35	1	0	53,1	woman	FALSE	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

A stylized illustration of the RMS Titanic, showing its four funnels and the hull with the letters 'C' and 'T' visible.

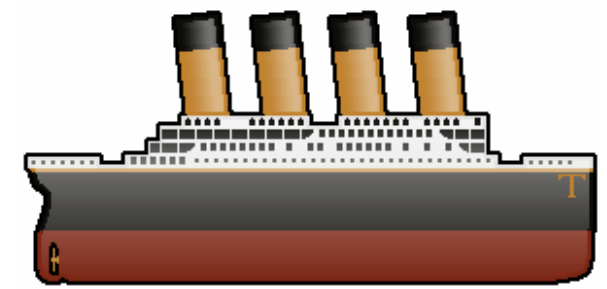
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	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
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2	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
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4	1	1	female	35	1	0	53,1	woman	FALSE	Southampton
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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

Number of Parents/Children Aboard



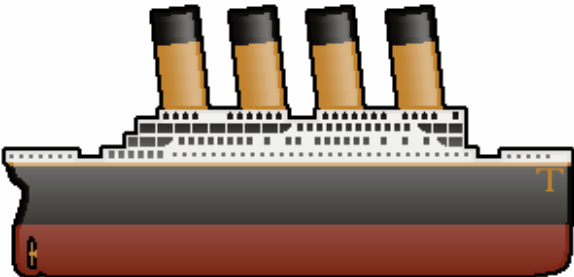
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C2 x ✓ fx male										
	A	B	C	D	E	F	G	H	I	J
1	survived	pclass	sex	age	sibsp	parch	fare	who	adult_male	embark_town
2	0	3	male	22	1	0	7,25	man	TRUE	Southampton
3	1	1	female	38	1	0	71,2833	woman	FALSE	Cherbourg
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5	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

Fare (in £) payed



Titanic										
Search Sheet										
Home Insert Draw Page Layout Formulas Data Review View Developer										
From HTML From Text New Database Query Refresh All Properties Edit Links Connections Sort Filter Clear Reapply Advanced Text to Columns Flash-fill Remove Duplicates Data Validation Consolidate What-if Analysis Group Ungroup Subtotal Hide Details Show Details										
C2 x ✓ fx male										
	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

Sex + Age synthetic descriptor



HomeInsertDrawPage LayoutFormulasDataReviewViewDeveloper

From HTMLFrom TextNew Database QueryRefresh All

ConnectionsPropertiesEdit Links

A ZSortFilterAdvanced

ClearReapply

Text to ColumnsFlash-fillRemove DuplicatesData ValidationConsolidateWhat-if Analysis

GroupUngroupSubtotal

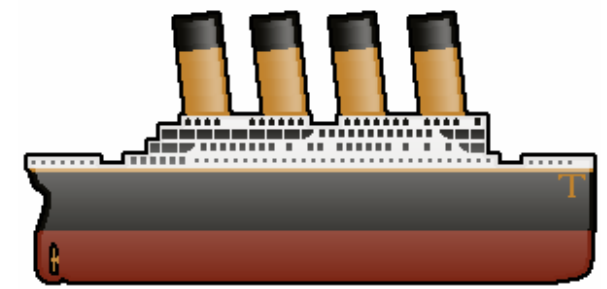
Show DetailHide Detail

C2fxmale

	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

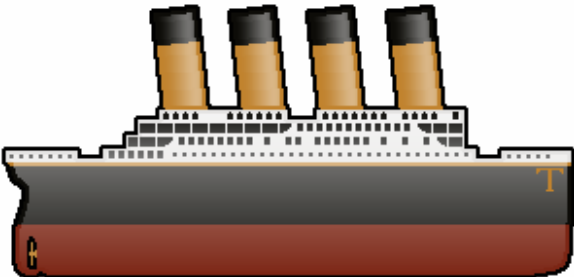
Sheet1

Adult male dummy variable



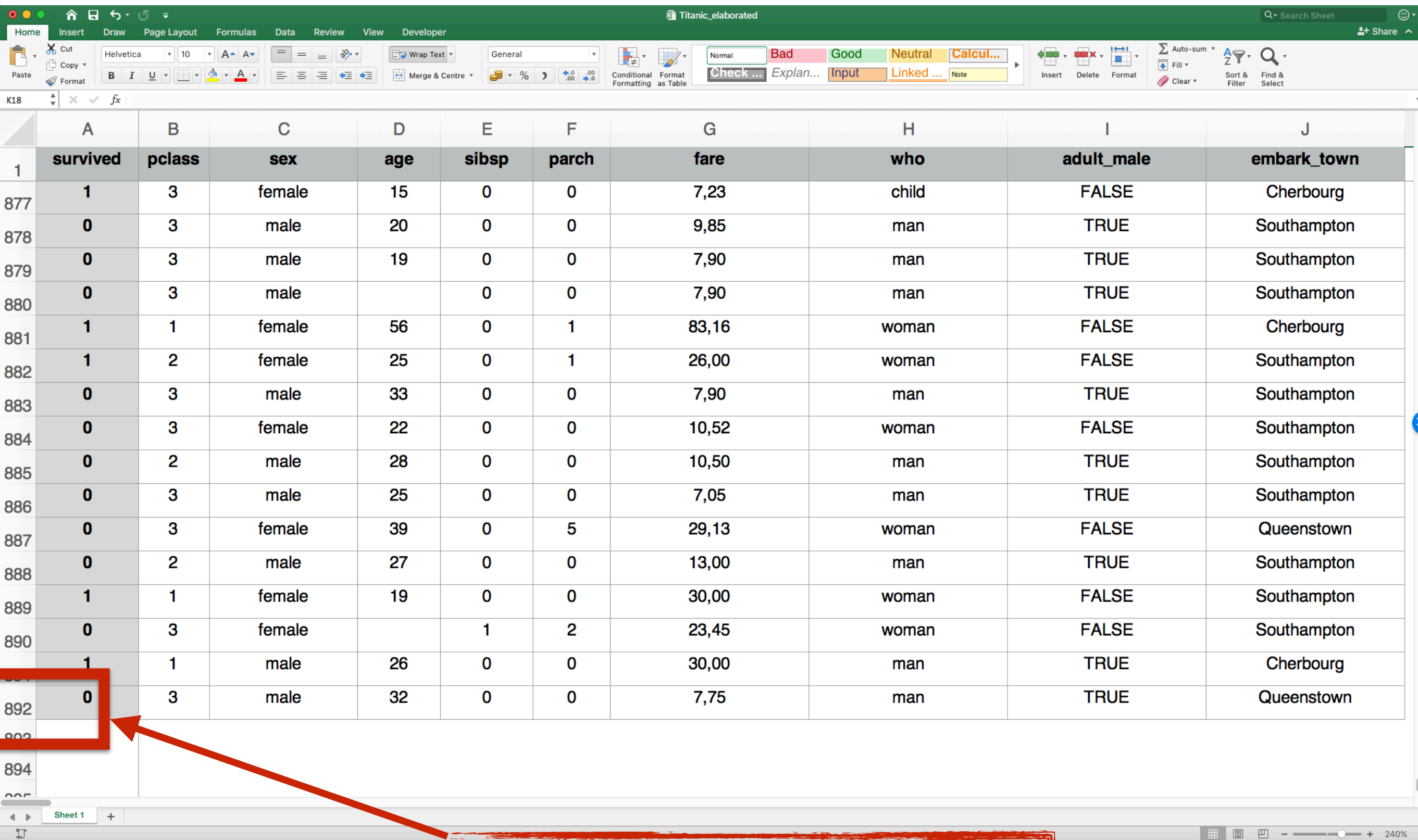
Titanic										
Search Sheet										
Home Insert Draw Page Layout Formulas Data Review View Developer										
From HTML From Text New Database Query Refresh All Properties Edit Links Connections Sort Filter Clear Reapply Advanced Text to Columns Flash-fill Remove Duplicates Data Validation Consolidate What-if Analysis Group Ungroup Subtotal Show Detail Hide Detail										
C2 x ✓ fx male										
	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

Port of Embarkation



	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

Scroll down until the end of the dataset



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

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

K6

	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				
11	1				
12	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

Sex in columns

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

PivotTable Fields Task Pane:

- FIELD NAME:** Search fields
- Fields:** ☒ survived, ☒ pclass, ☒ sex, ☐ age, ☐ sibsp, ☐ parch, ☐ fare, ☐ who
- Filters:**
- Columns:** sex (highlighted with a red box)
- Rows:** pclass
- Values:** Sum of survived

PivotTable 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	

Sex in columns

class in Rows

survived in Values

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

PivotTable Fields Task Pane:

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

PivotTable Data:

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

Annotations:

- Red arrow: Sex in columns (points to 'sex' in Columns)
- Blue arrow: class in Rows (points to 'pclass' in Rows)
- Purple arrow: survived in Values (points to 'Sum of survived' in Values)

Sex in columns

class in Rows

survived in Values

Excel interface showing a PivotTable and PivotTable Fields task pane.

PivotTable Fields:

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

PivotTable:

	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

PivotTable Fields - Columns:

- sex

PivotTable Fields - Rows:

- pclass

PivotTable Fields - Values:

- Sum of survived

Annotations:

- Sex in columns (points to the sex field in the Columns area)
- class in Rows (points to the pclass field in the Rows area)
- survived in Values (points to the Sum of survived field in the Values area)

Microsoft Excel interface showing a PivotTable analysis of Titanic passenger data. The PivotTable is structured with 'survived' as the Row Labels and 'sex' as the Column Labels. The 'Grand Total' row shows 233 females and 109 males, totaling 342 passengers. The 'sex' field is also listed in the PivotTable Fields task pane.

	survived	Sum of survived	Column Labels		
		Row Labels	female	male	Grand Total
1	0	1	91	45	136
2	1	2	70	17	87
3	0	3	72	47	119
4	0	Grand Total	233	109	342

PivotTable Fields task pane:

- FIELD NAME: Search fields
- survived (checked)
- pclass (checked)
- sex (checked)
- age (unchecked)
- sibsp (unchecked)
- parch (unchecked)
- fare (unchecked)
- who (unchecked)

Filters: sex

Columns: sex

Rows: pclass

Values: Sum of survived

Drag fields between areas

We know that there are 891 passengers...

Excel interface showing a PivotTable analysis of Titanic passenger data. The PivotTable is structured with 'survived' as the Row Labels and 'sex' as the Column Labels. The data is summarized by 'pclass' (1st, 2nd, 3rd) and 'Grand Total'.

	survived	Sum of survived	Column Labels			
		Row Labels	female	male	Grand Total	
1	0	1		91	45	136
2	1	2		70	17	87
3	0	3		72	47	119
4	0	Grand Total		233	109	342
5	0					
6	1					
7	0					
8	1					
9	0					
10	1					
11	0					
12	1					
13	0					
14	1					
15	0					
16	1					
17	0					
18	1					
19	0					

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

- Field Name:** survived, pclass, sex, age, sibsp, parch, fare, who
- Filters:** (empty)
- Columns:** sex
- Rows:** pclass
- Values:** Sum of survived

Below the PivotTable, there are two red-bordered text boxes with the following text:

We know that there are 891 passengers...

Is it correct to divide all numbers by 891?

Titanic_elaborated

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

Helvetica 10 A A

Paste

General

Conditional Formatting

Format as Table

Cell Styles

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				

PivotTable Fields

FIELD NAME

Search fields

survived

pclass

sex

age

sibsp

parch

fare

who

Filters

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

Format as Table

Cell Styles

Insert

Delete

Format

Sort & Filter

Find & Select

K6

	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

survived

pclass

sex

age

sibsp

parch

fare

who

Filters

Columns

sex

Rows

pclass

Values

Sum of survived

We know that there are 891 passengers...

Is it correct to divide all numbers by 891?

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

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

Titanic_elaborated

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

Helvetica 10 A A

General

Conditional Formatting

Format as Table

Cell Styles

Insert

Delete

Format

Sort & Filter

Find & Select

K6

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

PivotTable Fields

FIELD NAME

Search fields

survived

pclass

sex

age

sibsp

parch

fare

who

Filters

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

Search fields

☐ survived

☒ pclass

☒ sex

☐ age

☐ sibsp

☐ parch

☐ fare

☐ who

Filters

Columns

sex

Rows

pclass

Values

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				
	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

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

Search fields

☐ survived

☒ pclass

☒ sex

☐ age

☐ sibsp

☐ parch

☐ fare

☐ who

Filters

Columns

sex

Rows

pclass

Values

Count of pclass

Drag fields between areas

05 fx | =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	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						

Sheet 1 Ready 330%

HomeInsertDrawPage LayoutFormulasDataReviewViewDeveloper

CutCopyFormat

Font: Helvetica, 10, Bold, Italic, Underline, Color, Background Color

Paragraph: Bullets, Indent, Merge & Centre, Wrap Text

Number: General, Percent, Decimals, Fractions

Conditional FormattingFormat as Table

NormalBadGoodNeutralCalcul...Check...Explan...InputLinked...Note

InsertDeleteFormat

Auto-sumFillClearSort & FilterFind & Select

05fx=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"

Copy

Paste

Paste Special

Smart Lookup...

Thesaurus...

Insert...

Delete...

Clear Contents

Filter

Sort

Insert Comment

Format Cells...

Choose from Drop-down List...

Define Name...

Hyperlink...

Services

Sheet 1

Ready330%

[illegible]

The formulas is moved and updated to the new cell.

Now the cell P5 reports the formula
=M5/M12

Titanic_elaborated									
Search Sheet									
Share									
Home Insert Draw Page Layout Formulas Data Review View Developer									
Cut Copy Paste Format Helvetica 10 A A Wrap Text General Conditional Formatting Format as Table Check ... Explain ... Input Linked ... Note Insert Delete Format Auto-sum Fill Clear Sort & Filter Find & Select									
P7 fx =M7/M14									
	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	76	108	184			
14	0	Southampton	3	144	347	491			
15	0	Southampton							

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

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

HomeInsertDrawPage LayoutFormulasDataReviewViewDeveloper

CutCopyFormat

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Wrap Text

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Conditional FormattingFormat as Table

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Check ...

Explan...

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Linked ...

Note

Insert

Delete

Format

Auto-sum

Fill

Clear

Sort & Filter

Find & Select

Q Search SheetShare

P7


fx=M7/M14

	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	76	108	184		
14	0	Southampton	3	144	347	491		
15	0	Southampton	Grand Total	314	577	891		

Sheet 1

Select destination and press ENTER or choose Paste

Rich women had the highest probability!



HomeInsertDrawPage LayoutFormulasDataReviewViewDeveloper

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Wrap Text

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Clear

Sort & Filter

Find & Select

Search Sheet

Share

P7

fx

=M7/M14

	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.

HomeInsertDrawPage LayoutFormulasDataReviewViewDeveloperPivot Table AnalyseDesign

Pivot Table Name: PivotTable8Active Field: Average of fare

OptionsExpand FieldField SettingsCollapse FieldGroup SelectionInsert SlicerInsert TimelineFilter SettingsRefreshChange Data SourceClearSelectMove Pivot TableFields, Items & SetsPivot ChartField List+/-Field Headers

L19fx20,6621831521739

	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			
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

pclass

fare

Values

Filters

Drag fields between areas

Sheet 1

Excel interface showing a PivotTable named 'PivotTable8' with the following data:

	survived	port_town			
1	1	hampton	1	94	1
12	1	hampton	2	76	1
13	0	hampton	3	144	3
14	0	hampton	Grand Total	314	5
15	0	hampton			
16	1	hampton			
17	0	enstown			
18	1	hampton			
19	0	hampton			
20	1	erbourg			
21	0	hampton			
22	1	hampton			
23	1	enstown			
24					

Pivot Table Field

Source field: fare

Field name: Average of fare

Summarise by: Average

Number... Cancel OK

Rows: pclass

Values: fare

Drag fields between areas

HomeInsertDrawPage LayoutFormulasDataReviewViewDeveloperPivot Table AnalyseDesign

Pivot Table Name: PivotTable8Active Field: Average of fareExpand FieldCollapse FieldGroup SelectionInsert SlicerInsert TimelineFilter ConnectionsRefreshChange Data SourceClearSelectMove Pivot TableFields, Items & SetsPivot ChartField List+/-ButtonsField Headers

L1920,6621831521739

	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

survivedpclasssexage sibsp parchfare

Filters

Columns

Rows

pclass

Values

Average of fare

Drag fields between areas

Sheet 1