Multi-dimensional Reporting

Our first lab introduced Pivot tables as a powerful data summarization tool. This lab will continue with Excel's Pivot table feature for the purpose of doing Online Analytical Processing (OLAP). It is an easy way to increase insights into data through aggregation. OLAP enables users to analyse different dimensions of multidimensional data. In a multidimensional approach, data is organized into dimensions. A number of multi-dimensional navigational techniques will be introduced, e.g. drill-down, slice and dice. Terminology explained:

Dimension

A dimension is a context, aspect or perspective by which the facts may be described, accessed, grouped, selected, sequenced, filtered and presented. A dimension reflects how business users typically think of the business. For example business users may view their data by product, customers, time etc...

Fact

A fact is measurement/metric, mostly always numeric. Example: revenue, quantity, price etc…

Multi-dimensional

Multidimensional means a fact always relates to one or more dimensions.

OLAP techniques:

Slice: selects one dimension e.g. year – select '2018'

Dice: is selecting two or more dimensions, e.g. year – select '2018', product – 'shoe', locations – 'Dublin'

Roll up: is based upon levels organised in hierarchies. E.g. the application may roll up sales by week, month, quarter and year

Drill-down: is the reverse of roll-up, drilling down the hierarchy, e.g. year to month

Using Microsoft Excel for Multidimensional Analysis

Business Case

Robert Jones is a manager of several sales organizations at Global Bike Inc. and his responsibilities are monitoring and managing sales activities. He has a number of OLTP systems to assist with the recording of day-to-day transactions. At the end of each month, he is provided with a report which displays each sale. The format of the report is illustrated below. Although this report provides a lot of information, the information is not in a format that can easily assist in the type of decisions you are required to make. Robert has decided to examine the PivotTables as means of producing more useful reports.

The sales data is delivered by the IT Department in the following format:

YEAR	MONTH	DAY	Customer	CustomerDescr	City	Salesorg	Country	OrderNumb	OrderItem	Product	ProductDesc	Product C	Division	SalesC	UnitOf	Revenue	Currency	Discount	CostOfGoods	Revenue USD	Discount USD	Cogm USD
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	10	DXTR2000	Deluxe Tour	TOU	BI	2	ST	6000	USD	300	2800	6000	300	2800
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	20	PRTR2000	Professional	TOU	BI	5	ST	16000	USD	800	7500	16000	800	7500
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	30	ORMN1000	Men's Off Rc	ORB	BI	1	ST	2400	USD	120	1200	2400	120	1200
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	40	ORHT1000	Men's Off Rc	ORB	BI	1	ST	1600	USD	80	900	1600	80	900
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	50	DXRD1000	Deluxe Road	ROB	BI	7	ST	11900	USD	595	7000	11900	595	7000
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	60	DXRD2000	Deluxe Road	ROB	BI	2	ST	3300	USD	165	1900	3300	165	1900
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	70	PRRD1000	Professional	ROB	BI	2	ST	8000	USD	400	4400	8000	400	4400
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	80	OHMT1000	Off Road Hel	ACC	AS	1	ST	50	USD	2,5	25	50	2,5	25
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	90	CAGE1000	Water Bottle	ACC	AS	1	ST	18	USD	0,9	9	18	0,9	9
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	100	RKIT1000	Repair Kit	ACC	AS	1	ST	32	USD	1,6	16	32	1,6	16
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	110	PUMP1000	Air Pump	ACC	AS	13	ST	364	USD	18,2	182	364	18,2	182
2007	1	1	5000	Beantown Bikes	Boston	UE00	US	100001	120	FAID1000	First Aid Kit	ACC	AS	7	ST	280	USD	14	140	280	14	140
2007	1	1	15000	Bavaria Bikes	München	DS00	DE	100002	10	DXTR1000	Deluxe Tour	TOU	BI	2	ST	4901,6	EUR	245,08	3770,2	6600	330	2800
2007	1	1	15000	Bavaria Bikes	München	DS00	DE	100002	20	DXTR2000	Deluxe Tour	TOU	BI	1	ST	2450,8	EUR	122,54	1885,1	3300	165	1400
2007	1	1	15000	Bavaria Bikes	München	DS00	DE	100002	30	PRTR2000	Professional	TOU	BI	3	ST	7842,54	EUR	392,13	6059,25	10559,98	528	4500
2007	1	1	15000	Bavaria Bikes	München	DS00	DE	100002	40	PRTR3000	Professional	TOU	BI	2	ST	5228,36	EUR	261,42	4039,5	7039,99	352	3000

Task

The purpose of this exercise is to create a PivotTable in Microsoft Excel in order to analyse the data using the multi-dimensional reporting. A number of multi-dimensional navigational techniques will be introduced. Moreover, some special techniques for presenting FACTS which are known as key figures will be shown.

1. Open the Excel file

Download the file SalesdataPivotV01.xlsx.

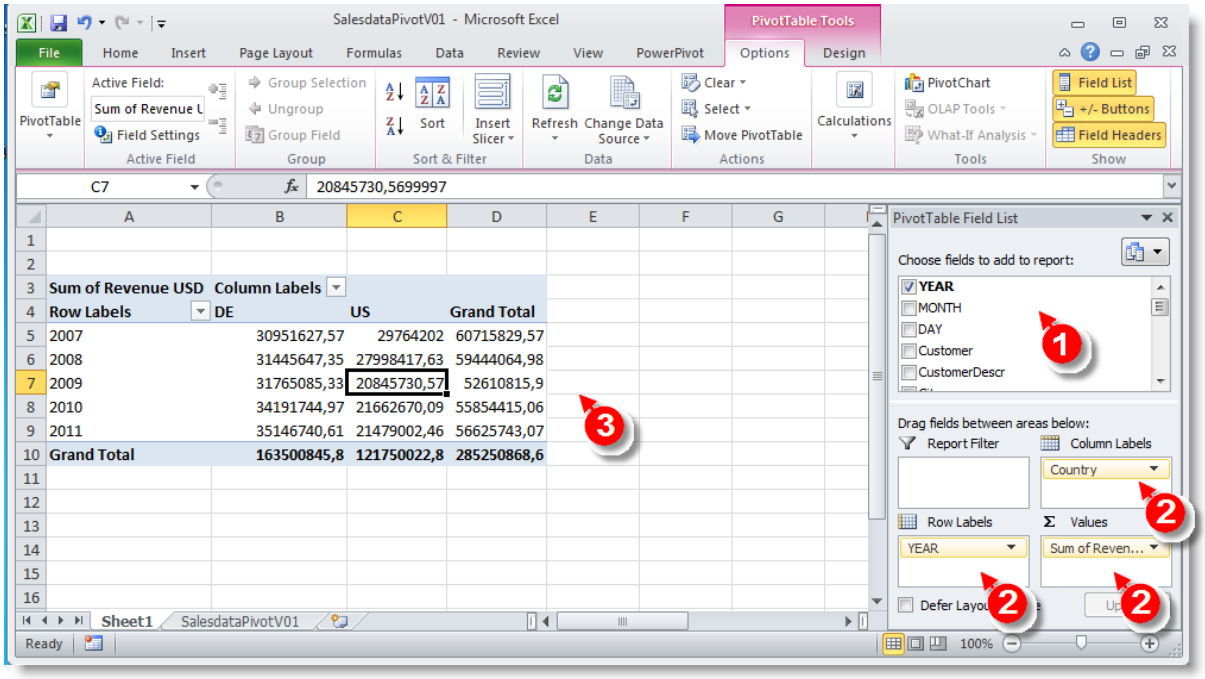
2. Create Pivot Table

Start with a high level overview and create a pivot table, which shows the revenue in Germany and the US throughout the years.

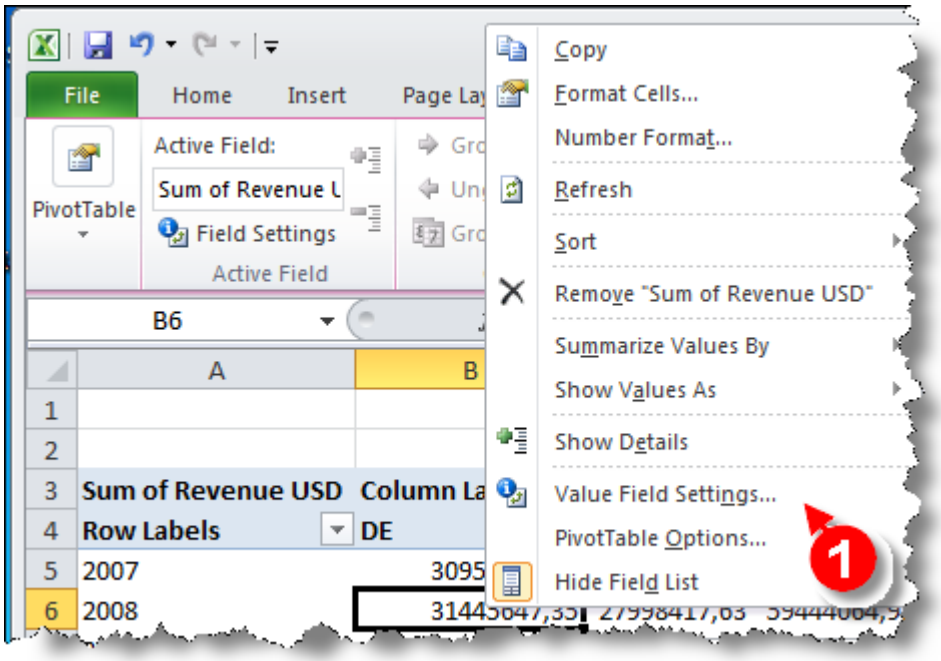
Sum of Revenue USD	Column Labels		
Row Labels	DE	US	Grand Total
2007	$30.951.628	$29.764.202	$60.715.830
2008	$31.445.647	$27.998.418	$59.444.065
2009	$31.765.085	$20.845.731	$52.610.816
2010	$34.191.745	$21.662.670	$55.854.415
2011	$35.146.741	$21.479.002	$56.625.743
Grand Total	**$163.500.846**	**$121.750.023**	**$285.250.869**

Solution:

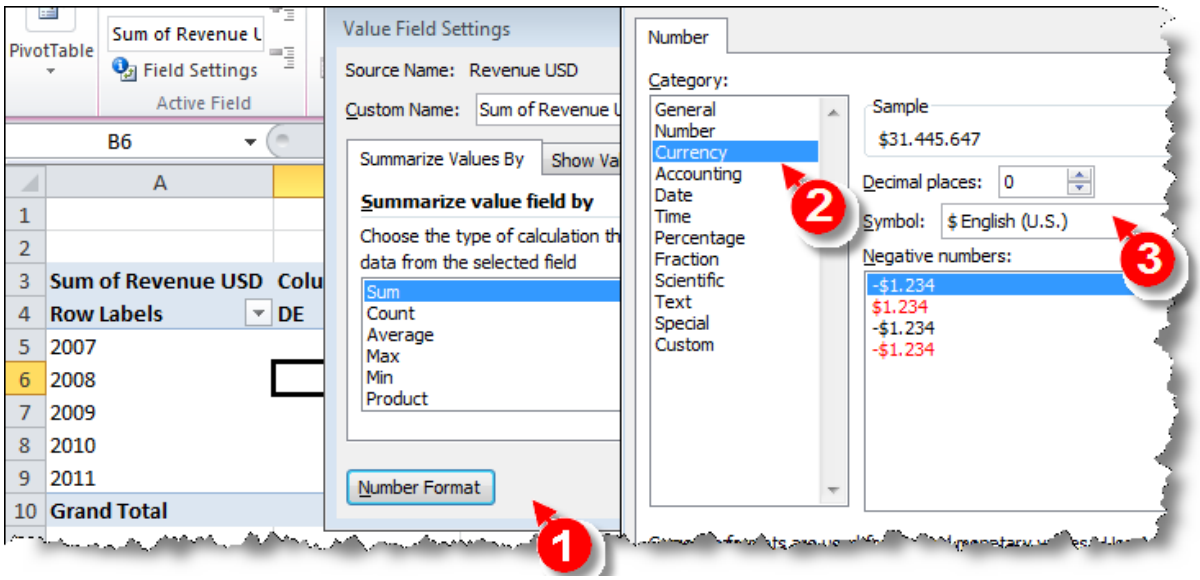
Drag and Drop the fields ***YEAR***, ***Country*** and ***Revenue in USD*** from the field list (1) to the report areas (2) and watch the result (3).



Use the context menu on a data cell to adjust ***Value Field Settings***.



Choose ***Number Format*** (1) ***Currency*** (2) $ English (U.S.) with 0 ***Decimal Places*** (3).



You might want to save the intermediate result.

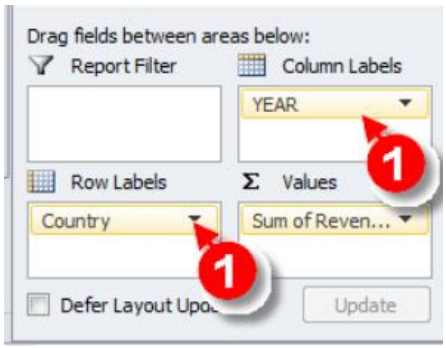
3. Rotate

Rotate the view by swapping the axes.

Sum of Revenue USD	Column Labels					
Row Labels	2007	2008	2009	2010	2011	Grand Total
DE	$30.951.628	$31.445.647	$31.765.085	$34.191.745	$35.146.741	$163.500.846
US	$29.764.202	$27.998.418	$20.845.731	$21.662.670	$21.479.002	$121.750.023
Grand Total	**$60.715.830**	**$59.444.065**	**$52.610.816**	**$55.854.415**	**$56.625.743**	**$285.250.869**

You can observe a different behavior of two countries: whereas Germany shows a continuous increase in revenue, there is a sharp decline in the US in 2009.

Solution:



Try now to identify reasons for this behaviour in the data! Do this by slicing the data (see the next step).

4. Slice

We analyse the data from Germany first and, therefore, do a slice on country. Switch the Key figure to ***Revenue*** in local currency.

Sum of Revenue	Column Labels					
Row Labels	2007	2008	2009	2010	2011	Grand Total
DE	22.986.729 €	23.353.620 €	23.590.854 €	25.393.053 €	26.102.295 €	121.426.551 €
Grand Total	**22.986.729 €**	**23.353.620 €**	**23.590.854 €**	**25.393.053 €**	**26.102.295 €**	**121.426.551 €**

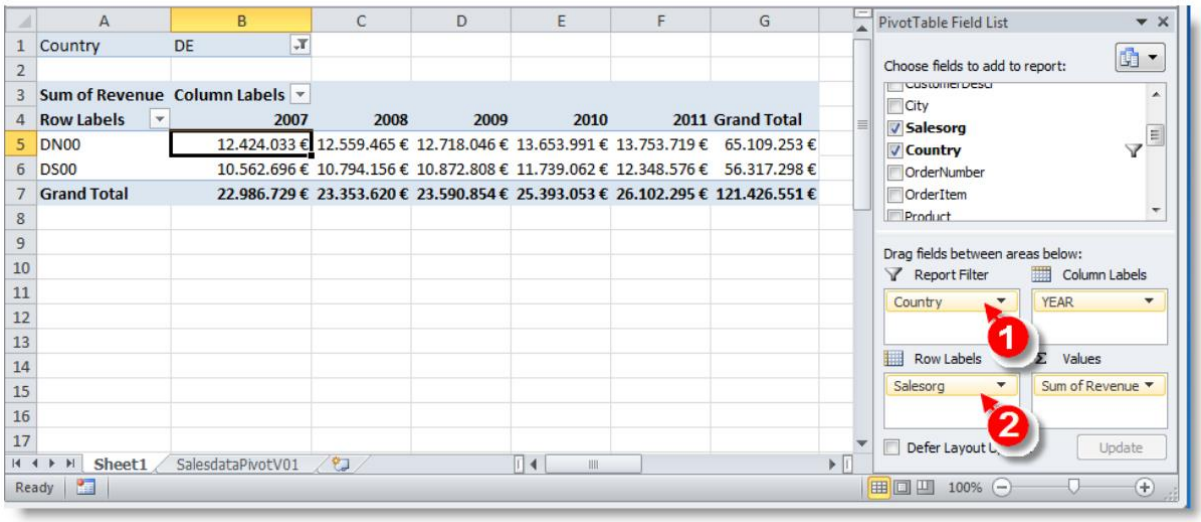
5. Drill down to Sales Organization and Customer

Next, drill down to the sales organization. There is no dependency visible: both sales organizations behave similarly.

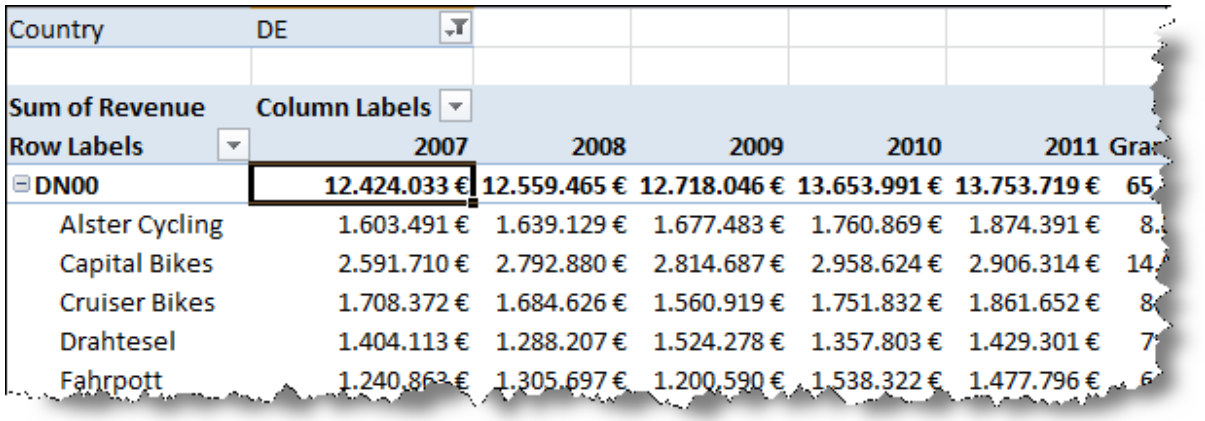
Country	DE					
Sum of Revenue	**Column Labels**					
Row Labels	**2007**	**2008**	**2009**	**2010**	**2011**	**Grand Total**
DN00	12.424.033 €	12.559.465 €	12.718.046 €	13.653.991 €	13.753.719 €	65.109.253 €
DS00	10.562.696 €	10.794.156 €	10.872.808 €	11.739.062 €	12.348.576 €	56.317.298 €
Grand Total	**22.986.729 €**	**23.353.620 €**	**23.590.854 €**	**25.393.053 €**	**26.102.295 €**	**121.426.551 €**

Solution:

Move ***Country*** to the ***Report Filter*** (1) and ***Salesorg*** to the ***Row Labels*** (2).



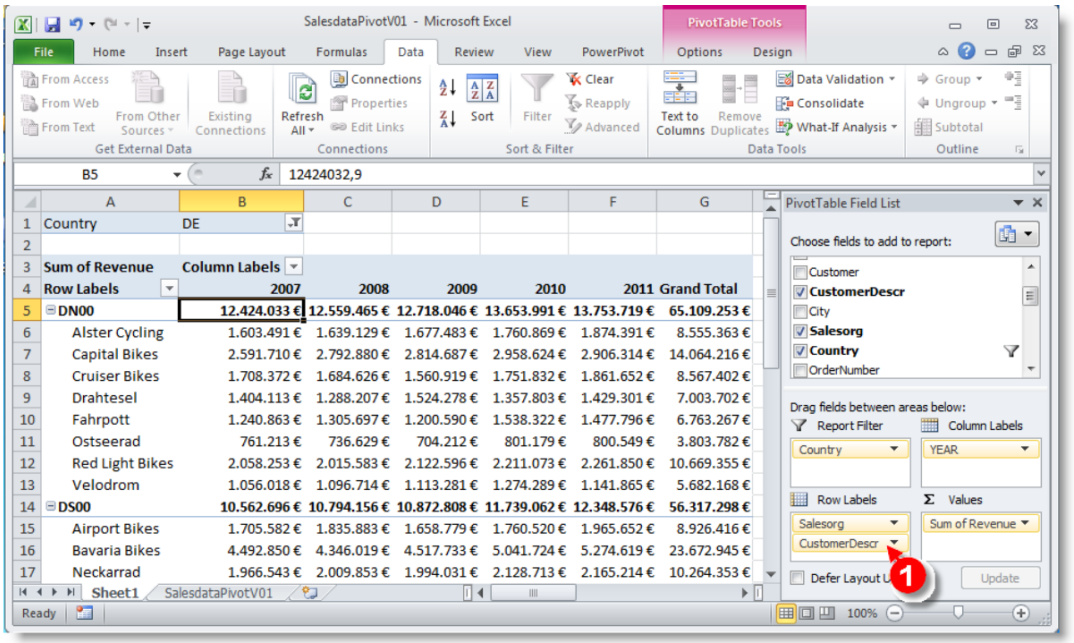
From sales organization, drill down to customer. Everything looks fine!



Country	DE					
Sum of Revenue	Column Labels					
Row Labels	2007	2008	2009	2010	2011	Gra
DN00	12.424.033 €	12.559.465 €	12.718.046 €	13.653.991 €	13.753.719 €	65
Alster Cycling	1.603.491 €	1.639.129 €	1.677.483 €	1.760.869 €	1.874.391 €	8.
Capital Bikes	2.591.710 €	2.792.880 €	2.814.687 €	2.958.624 €	2.906.314 €	14.
Cruiser Bikes	1.708.372 €	1.684.626 €	1.560.919 €	1.751.832 €	1.861.652 €	8
Drahtesel	1.404.113 €	1.288.207 €	1.524.278 €	1.357.803 €	1.429.301 €	7
Fahrpott	1.240.863 €	1.305.697 €	1.200.590 €	1.538.322 €	1.477.796 €	6

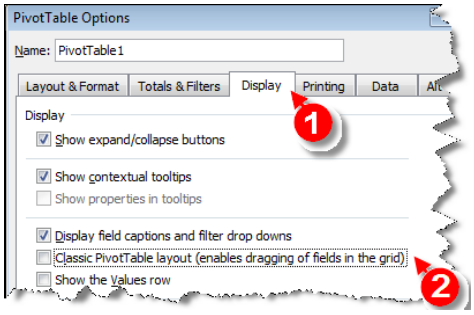
Solution:

Add ***CustomerDescr*** to the ***Row Labels***.



	A	B	C	D	E	F	G
1	Country	DE					
2							
3	Sum of Revenue	Column Labels					
4	Row Labels	2007	2008	2009	2010	2011	Grand Total
5	DN00	12.424.033 €	12.559.465 €	12.718.046 €	13.653.991 €	13.753.719 €	65.109.253 €
6	Alster Cycling	1.603.491 €	1.639.129 €	1.677.483 €	1.760.869 €	1.874.391 €	8.555.363 €
7	Capital Bikes	2.591.710 €	2.792.880 €	2.814.687 €	2.958.624 €	2.906.314 €	14.064.216 €
8	Cruiser Bikes	1.708.372 €	1.684.626 €	1.560.919 €	1.751.832 €	1.861.652 €	8.567.402 €
9	Drahtesel	1.404.113 €	1.288.207 €	1.524.278 €	1.357.803 €	1.429.301 €	7.003.702 €
10	Fahrpott	1.240.863 €	1.305.697 €	1.200.590 €	1.538.322 €	1.477.796 €	6.763.267 €
11	Ostseerad	761.213 €	736.629 €	704.212 €	801.179 €	800.549 €	3.803.782 €
12	Red Light Bikes	2.058.253 €	2.015.583 €	2.122.596 €	2.211.073 €	2.261.850 €	10.669.355 €
13	Velodrom	1.056.018 €	1.096.714 €	1.113.281 €	1.274.289 €	1.141.865 €	5.682.168 €
14	DS00	10.562.696 €	10.794.156 €	10.872.808 €	11.739.062 €	12.348.576 €	56.317.298 €
15	Airport Bikes	1.705.582 €	1.835.883 €	1.658.779 €	1.760.520 €	1.965.652 €	8.926.416 €
16	Bavaria Bikes	4.492.850 €	4.346.019 €	4.517.733 €	5.041.724 €	5.274.619 €	23.672.945 €
17	Neckarrad	1.966.543 €	2.009.853 €	1.994.031 €	2.128.713 €	2.165.214 €	10.264.353 €

Make sure the ***Classic PivotTable layout*** is **NOT** selected (2).



6. Rotation

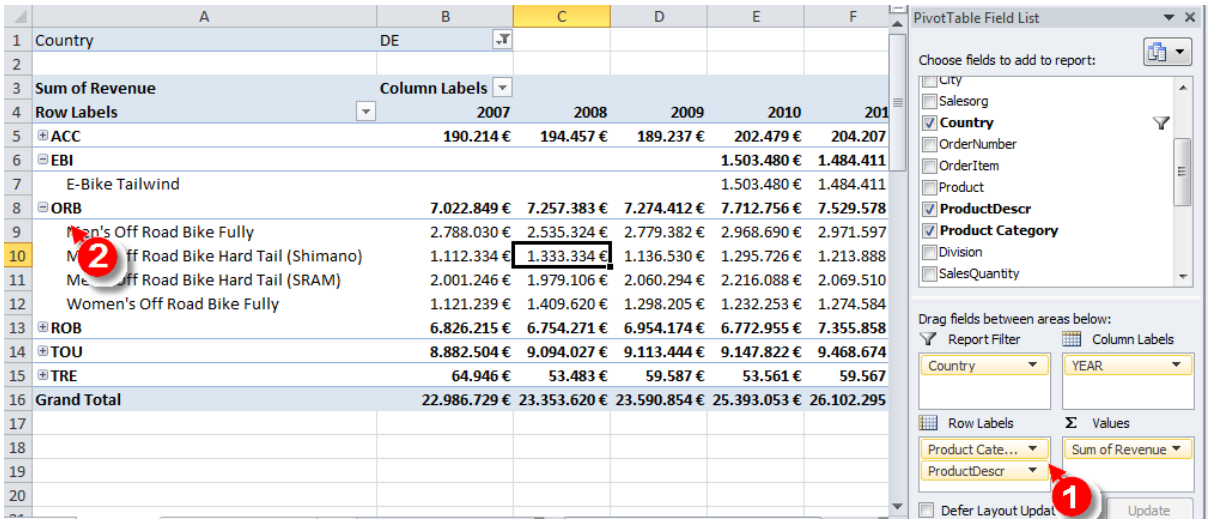
Check the dependency on the product category and product by rotating the cube.

Country	DE					
Sum of Revenue	**Column Labels**					
Row Labels	**2007**	**2008**	**2009**	**2010**	**2011**	**Grand Total**
⊞ACC	**190.214,31 €**	**194.456,55 €**	**189.237,23 €**	**202.478,85 €**	**204.206,90 €**	**980.593,84 €**
⊟EBI				**1.503.480,00 €**	**1.484.411,00 €**	**2.987.891,00 €**
E-Bike Tailwind				1.503.480,00 €	1.484.411,00 €	2.987.891,00 €
⊟ORB	**7.022.849,23 €**	**7.257.383,28 €**	**7.274.412,22 €**	**7.712.756,46 €**	**7.529.578,22 €**	**36.796.979,41 €**
Men's Off Road Bike Fully	2.788.030,08 €	2.535.323,70 €	2.779.382,40 €	2.968.689,60 €	2.971.596,60 €	14.043.022,38 €
Men's Off Road Bike Hard Tail (Shimano)	1.112.333,59 €	1.333.333,50 €	1.136.530,40 €	1.295.726,40 €	1.213.887,50 €	6.091.811,39 €
Men's Off Road Bike Hard Tail (SRAM)	2.001.246,39 €	1.979.106,48 €	2.060.294,40 €	2.216.087,72 €	2.069.510,04 €	10.326.245,03 €
Women's Off Road Bike Fully	1.121.239,17 €	1.409.619,60 €	1.298.205,02 €	1.232.252,74 €	1.274.584,08 €	6.335.900,61 €
⊞ROB	**6.826.215,08 €**	**6.754.271,11 €**	**6.954.173,72 €**	**6.772.955,09 €**	**7.355.858,41 €**	**34.663.473,41 €**
⊞TOU	**8.882.504,30 €**	**9.094.026,60 €**	**9.113.443,50 €**	**9.147.821,55 €**	**9.468.673,58 €**	**45.706.469,53 €**
⊞TRE	**64.946,20 €**	**53.482,52 €**	**59.587,15 €**	**53.561,29 €**	**59.567,11 €**	**291.144,27 €**
Grand Total	**22.986.729,12 €**	**23.353.620,06 €**	**23.590.853,82 €**	**25.393.053,24 €**	**26.102.295,22 €**	**121.426.551,46 €**

We observe the introduction of a new product in 2010: the new ***E-bike Tailwind***. Now analyse the new market in more details!

Solution:

Adjust ***Row Labels*** (1). Expand and Collapse as needed (2).



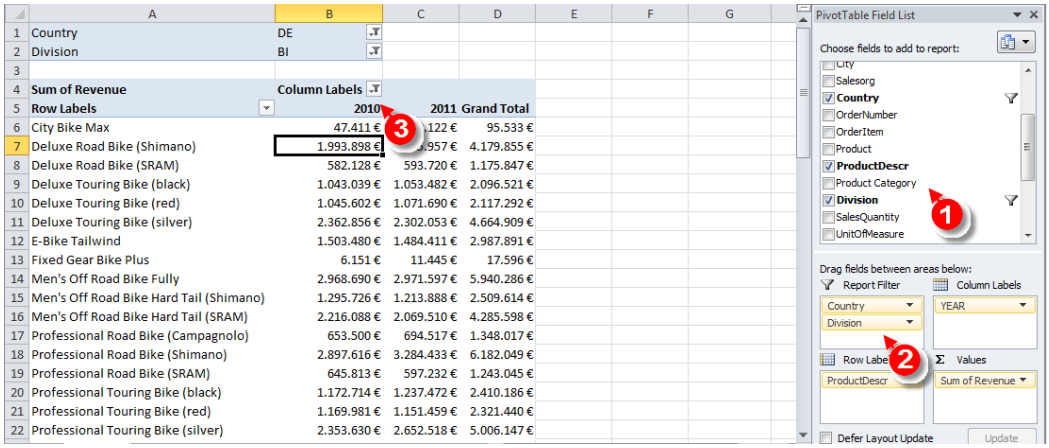
7. Show percentage values

Compare the new E-bike with other bikes. Filter the last two years an all bikes (filter on ***Division***!). Instead of showing the revenue in absolute numbers, show values as ***% of Column Total***. Sort the data by revenue. We recognize that the new product already contributes more than 5% to the total revenue!

Country	DE		
Division	BI		
Sum of Revenue	**Column Labels**		
Row Labels	**2010**	**2011**	**Grand Total**
Professional Road Bike (Shimano)	11,50%	12,68%	12,10%
Men's Off Road Bike Fully	11,78%	11,47%	11,63%
Professional Touring Bike (silver)	9,34%	10,24%	9,80%
Deluxe Touring Bike (silver)	9,38%	8,89%	9,13%
Men's Off Road Bike Hard Tail (SRAM)	8,80%	7,99%	8,39%
Deluxe Road Bike (Shimano)	7,92%	8,44%	8,18%
E-Bike Tailwind	5,97%	5,73%	5,85%
Men's Off Road Bike Hard Tail (Shimano)	5,14%	4,69%	4,9%
Women's Off Road Bike Fully	4,89%	4,92%	4,9%
Professional Touring Bike (black)	4,66%	4,78%	4,72%
Professional Touring Bike (red)	4,64%	4,45%	4,54%
Deluxe Touring Bike (red)	4,15%	4,14%	4,14%
Deluxe Touring Bike (black)	4,14%	4,07%	4,10%
Professional Road Bike (Campagnolo)	2,59%	2,68%	2,64%
Professional Road Bike (SRAM)	2,56%	2,31%	2,43%
Deluxe Road Bike (SRAM)	2,31%	2,29%	2,30%
City Bike Max	0,19%	0,19%	0,19%
Fixed Gear Bike Plus	0,02%	0,04%	0,03%
Grand Total	**100,00%**	**100,00%**	**100,00%**

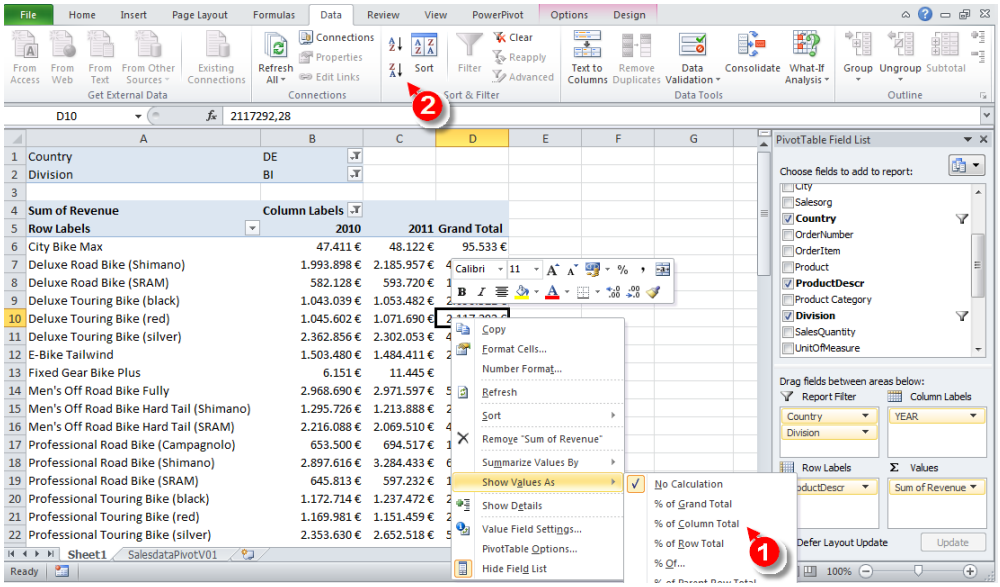
Solution:

Remove ***Product Category*** (1). Add appropriate filter for ***Division*** (2) and ***YEAR*** (3).



	A	B	C	D	E	F	G
1	Country	DE					
2	Division	BI					
3							
4	**Sum of Revenue**	**Column Labels**					
5	**Row Labels**	**2010**		**2011**	**Grand Total**		
6	City Bike Max	47.411 €		122 €	95.533 €		
7	Deluxe Road Bike (Shimano)	1.993.898 €		957 €	4.179.855 €		
8	Deluxe Road Bike (SRAM)	582.128 €		593.720 €	1.175.847 €		
9	Deluxe Touring Bike (black)	1.043.039 €		1.053.482 €	2.096.521 €		
10	Deluxe Touring Bike (red)	1.045.602 €		1.071.690 €	2.117.292 €		
11	Deluxe Touring Bike (silver)	2.362.856 €		2.302.053 €	4.664.909 €		
12	E-Bike Tailwind	1.503.480 €		1.484.411 €	2.987.891 €		
13	Fixed Gear Bike Plus	6.151 €		11.445 €	17.596 €		
14	Men's Off Road Bike Fully	2.968.690 €		2.971.597 €	5.940.286 €		
15	Men's Off Road Bike Hard Tail (Shimano)	1.295.726 €		1.213.888 €	2.509.614 €		
16	Men's Off Road Bike Hard Tail (SRAM)	2.216.088 €		2.069.510 €	4.285.598 €		
17	Professional Road Bike (Campagnolo)	653.500 €		694.517 €	1.348.017 €		
18	Professional Road Bike (Shimano)	2.897.616 €		3.284.433 €	6.182.049 €		
19	Professional Road Bike (SRAM)	645.813 €		597.232 €	1.243.045 €		
20	Professional Touring Bike (black)	1.172.714 €		1.237.472 €	2.410.186 €		
21	Professional Touring Bike (red)	1.169.981 €		1.151.459 €	2.321.440 €		
22	Professional Touring Bike (silver)	2.353.630 €		2.652.518 €	5.006.147 €		

Show values as ***% of Column Total*** (1) and sort (2) descending.



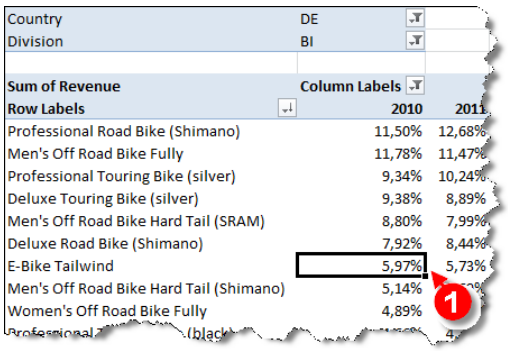
8. Drill-through

To finish the analysis of Germany find out, when the new E-bike was sold for the first time. For this have a look at all order items sorted by date.

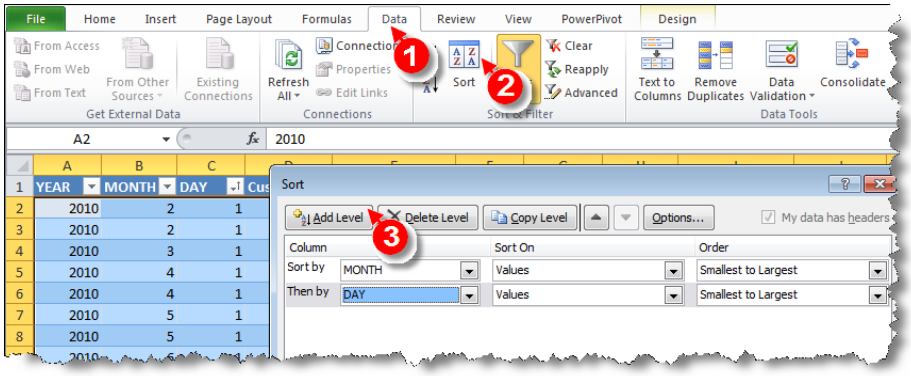
YEAR	MONTH	DAY	Customer	CustomerDescr
2010	2	1	23000	Red Light Bikes
2010	2	1	20000	Neckarrad
2010	2	4	23000	Red Light Bikes
2010	2	4	20000	Neckarrad
2010	2	4	16000	Capital Bikes

Solution:

Double-click on the E-Bike 2010 value. A new worksheet is created.

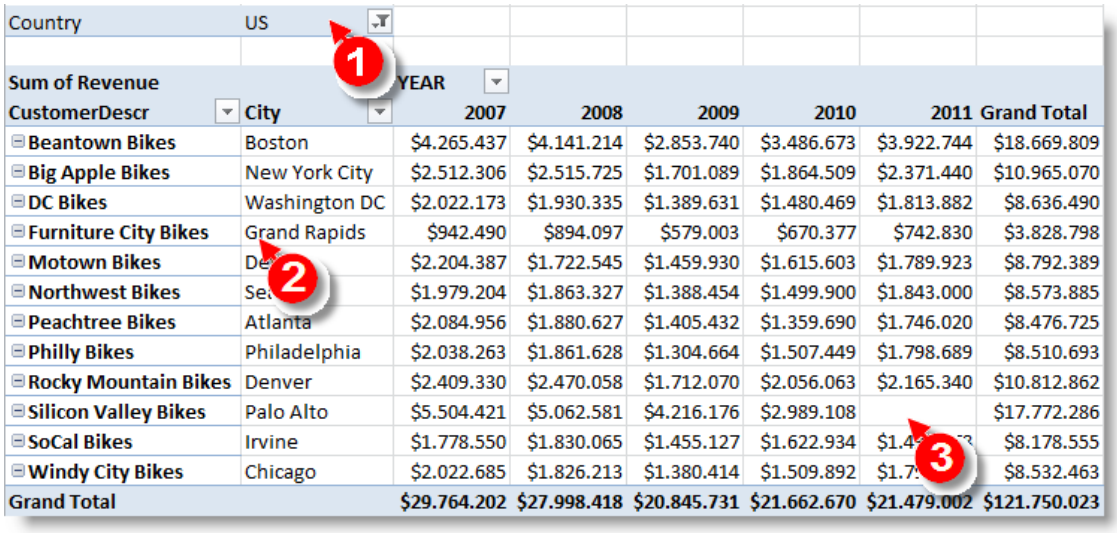


On the ***Data*** tab (1) call ***Sort*** (2) and use ***Add Level*** (3) to sort by ***MONTH*** and ***DAY***.



9. Analyzing the US Data

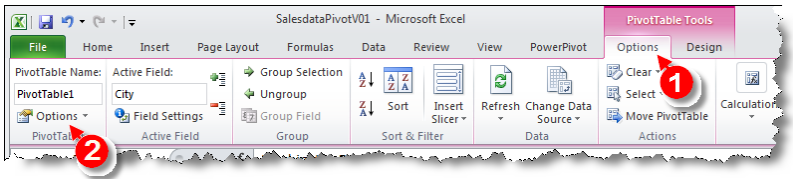
In the following, we analyse the situation in the US. Remember that we observed a **sharp revenue decline between 2008 and 2009** and we want to find out reasons for this. Therefore change country to US (1) and remove all other filters. Since revenue is in local currency, change the format to $. In order to obtain Customer and City in two separate columns (2) you have to switch to the ***Classic PivotTable layout*** (cf. ***PivotTable Options***). We observe that a very important customer is lost between 2010 and 2011 (3).



Country	US						
Sum of Revenue		YEAR					
CustomerDescr	City	2007	2008	2009	2010	2011	Grand Total
Beantown Bikes	Boston	$4.265.437	$4.141.214	$2.853.740	$3.486.673	$3.922.744	$18.669.809
Big Apple Bikes	New York City	$2.512.306	$2.515.725	$1.701.089	$1.864.509	$2.371.440	$10.965.070
DC Bikes	Washington DC	$2.022.173	$1.930.335	$1.389.631	$1.480.469	$1.813.882	$8.636.490
Furniture City Bikes	Grand Rapids	$942.490	$894.097	$579.003	$670.377	$742.830	$3.828.798
Motown Bikes	De	$2.204.387	$1.722.545	$1.459.930	$1.615.603	$1.789.923	$8.792.389
Northwest Bikes	Se	$1.979.204	$1.863.327	$1.388.454	$1.499.900	$1.843.000	$8.573.885
Peachtree Bikes	Atlanta	$2.084.956	$1.880.627	$1.405.432	$1.359.690	$1.746.020	$8.476.725
Philly Bikes	Philadelphia	$2.038.263	$1.861.628	$1.304.664	$1.507.449	$1.798.689	$8.510.693
Rocky Mountain Bikes	Denver	$2.409.330	$2.470.058	$1.712.070	$2.056.063	$2.165.340	$10.812.862
Silicon Valley Bikes	Palo Alto	$5.504.421	$5.062.581	$4.216.176	$2.989.108		$17.772.286
SoCal Bikes	Irvine	$1.778.550	$1.830.065	$1.455.127	$1.622.934	$1.4	$8.178.555
Windy City Bikes	Chicago	$2.022.685	$1.826.213	$1.380.414	$1.509.892	$1.7	$8.532.463
Grand Total		$29.764.202	$27.998.418	$20.845.731	$21.662.670	$21.479.002	$121.750.023

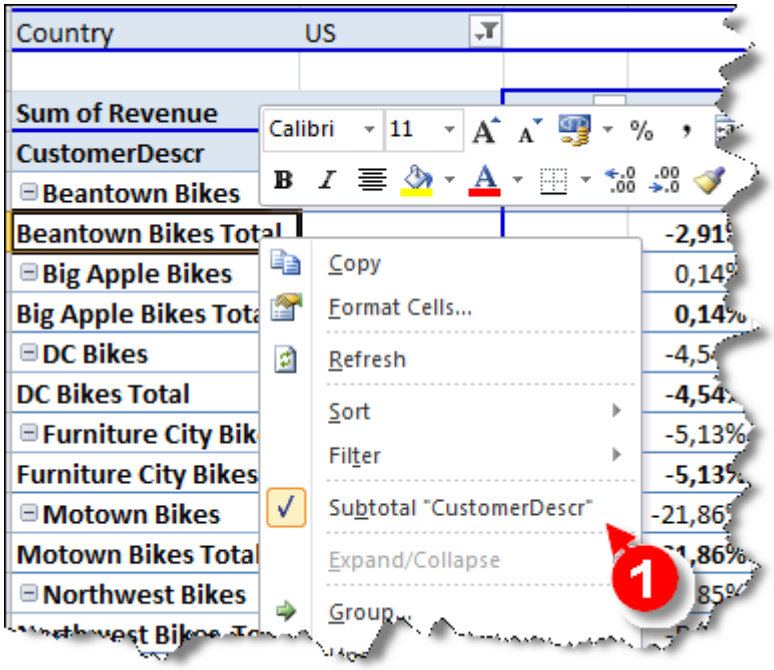
Solution:

To switch to the ***Classic PivotTable layout*** call ***PivotTable Options...***



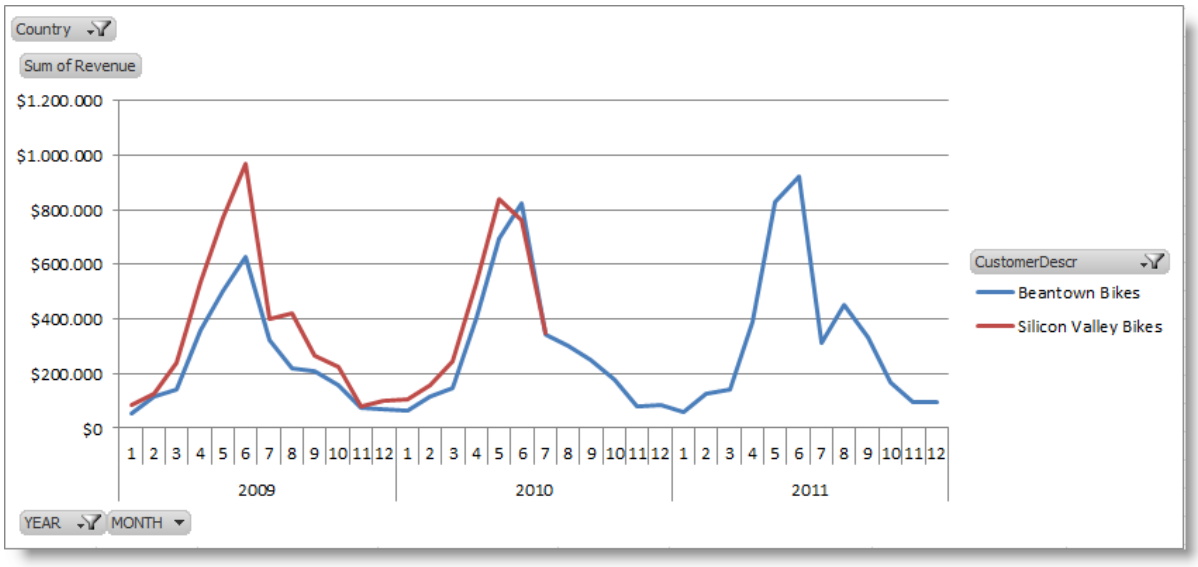
... and use the ***Display tab*** (1) to select the required option (2).

All other adjustments can be done as before. By default subtotals are shown, which can be changed in context menu.



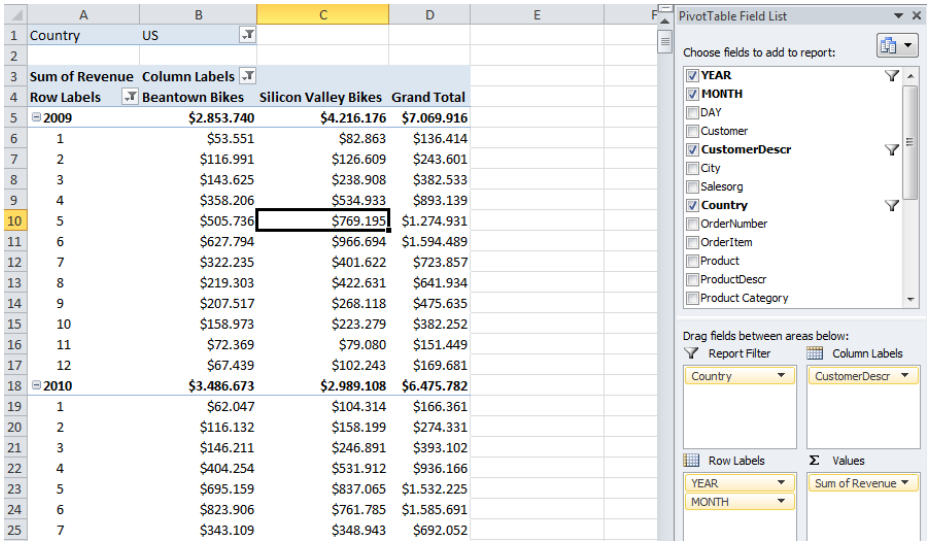
10. Insert a Chart

We want to explore this in more detail and use a chart to visualize the data. Filter Silicon Valley Bikes and Beantown Bikes Boston and the years 2009 to 2011 (dice operator). Drill down to calendar month and insert a line chart



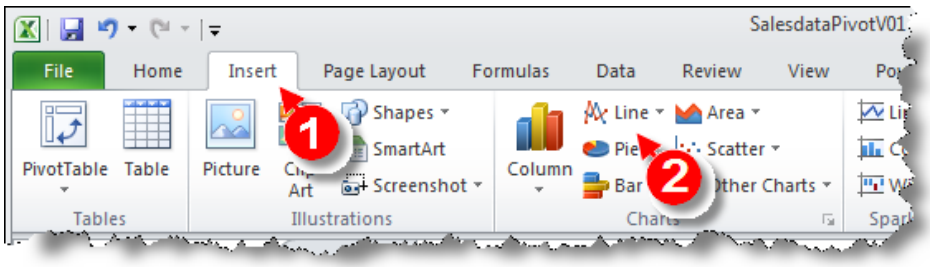
Solution:

All navigation steps can be done as before.



	A	B	C	D
1	Country	US		
2				
3	Sum of Revenue	Column Labels		
4	Row Labels	Beantown Bikes	Silicon Valley Bikes	Grand Total
5	2009	$2.853.740	$4.216.176	$7.069.916
6	1	$53.551	$82.863	$136.414
7	2	$116.991	$126.609	$243.601
8	3	$143.625	$238.908	$382.533
9	4	$358.206	$534.933	$893.139
10	5	$505.736	$769.195	$1.274.931
11	6	$627.794	$966.694	$1.594.489
12	7	$322.235	$401.622	$723.857
13	8	$219.303	$422.631	$641.934
14	9	$207.517	$268.118	$475.635
15	10	$158.973	$223.279	$382.252
16	11	$72.369	$79.080	$151.449
17	12	$67.439	$102.243	$169.681
18	2010	$3.486.673	$2.989.108	$6.475.782
19	1	$62.047	$104.314	$166.361
20	2	$116.132	$158.199	$274.331
21	3	$146.211	$246.891	$393.102
22	4	$404.254	$531.912	$936.166
23	5	$695.159	$837.065	$1.532.225
24	6	$823.906	$761.785	$1.585.691
25	7	$343.109	$348.943	$692.052

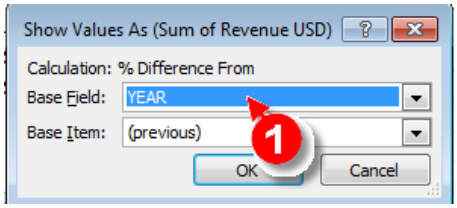
A chart can be added using the ***Insert tab***.



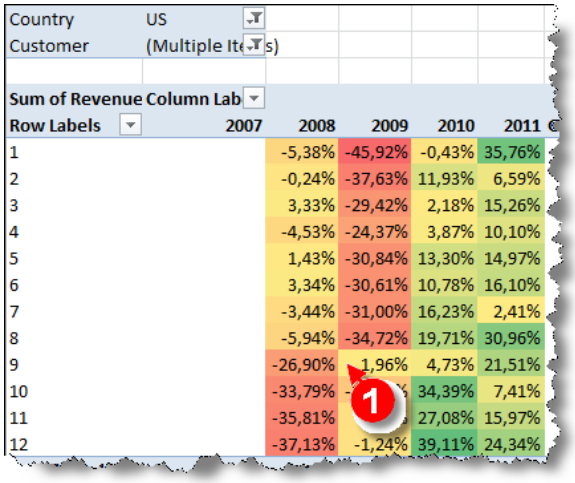
11. Conditional Formatting

In order to detect other effects we remove the filter on the calendar year, **exclude** this customer from the subsequent steps....

... and look at the monthly values compared to the previous year.



This shows a decline in September 2008 (Lehman crisis) which is partially recovered in the following years.



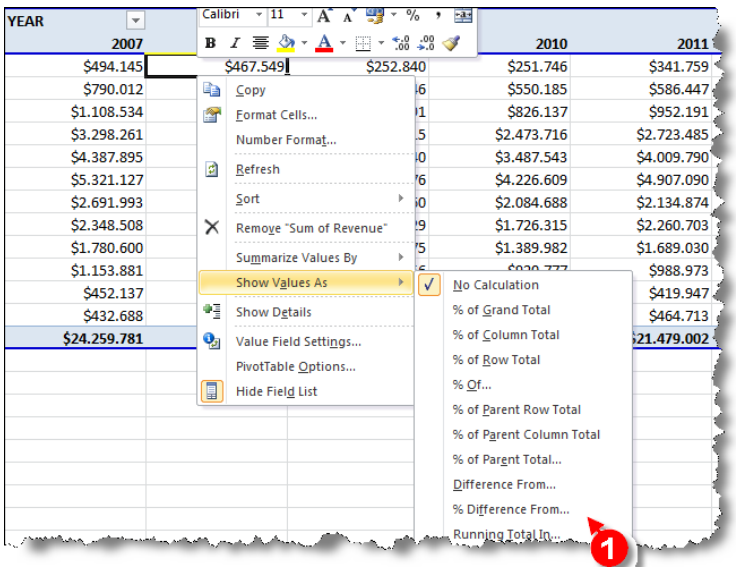
Country	US				
Customer	(Multiple Items)				
Sum of Revenue	Column Lab				
Row Labels	2007	2008	2009	2010	2011
1		-5,38%	-45,92%	-0,43%	35,76%
2		-0,24%	-37,63%	11,93%	6,59%
3		3,33%	-29,42%	2,18%	15,26%
4		-4,53%	-24,37%	3,87%	10,10%
5		1,43%	-30,84%	13,30%	14,97%
6		3,34%	-30,61%	10,78%	16,10%
7		-3,44%	-31,00%	16,23%	2,41%
8		-5,94%	-34,72%	19,71%	30,96%
9		-26,90%	-1,96%	4,73%	21,51%
10		-33,79%		34,39%	7,41%
11		-35,81%		27,08%	15,97%
12		-37,13%	-1,24%	39,11%	24,34%

Solution:

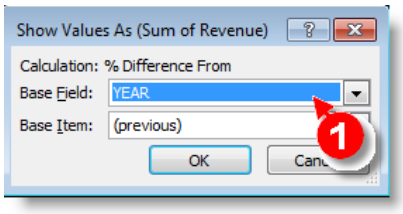
Exclude customer ***Silicon Valley Bikes*** and show all years in columns. Add ***MONTH*** to rows.

Country	US					
CustomerDescr	(Multiple Items)					
Sum of Revenue	YEAR					
MONTH	2007	2008	2009	2010	2011	Grand Total
1	$494.145	$467.549	$252.840	$251.746	$341.759	$1.808.038
2	$790.012	$788.110	$491.546	$550.185	$586.447	$3.206.299
3	$1.108.534	$1.145.442	$808.491	$826.137	$952.191	$4.840.795
4	$3.298.261	$3.148.930	$2.381.515	$2.473.716	$2.723.485	$14.025.908
5	$4.387.895	$4.450.597	$3.078.140	$3.487.543	$4.009.790	$19.413.964
6	$5.321.127	$5.498.837	$3.815.376	$4.226.609	$4.907.090	$23.769.040
7	$2.691.993	$2.599.383	$1.793.560	$2.084.688	$2.134.874	$11.304.499
8	$2.348.508	$2.209.049	$1.442.129	$1.726.315	$2.260.703	$9.986.705
9	$1.780.600	$1.301.664	$1.327.175	$1.389.982	$1.689.030	$7.488.452
10	$1.153.881	$764.023	$685.156	$920.777	$988.973	$4.512.810
11	$452.137	$290.215	$284.954	$362.110	$419.947	$1.809.363
12	$432.688	$272.038	$268.672	$373.751	$464.713	$1.811.863
Grand Total	**$24.259.781**	**$22.935.837**	**$16.629.555**	**$18.673.562**	**$21.479.002**	**$103.977.737**

Change presentation of numbers by right-clicking on a data cell and selecting ***Show values as % Difference from***

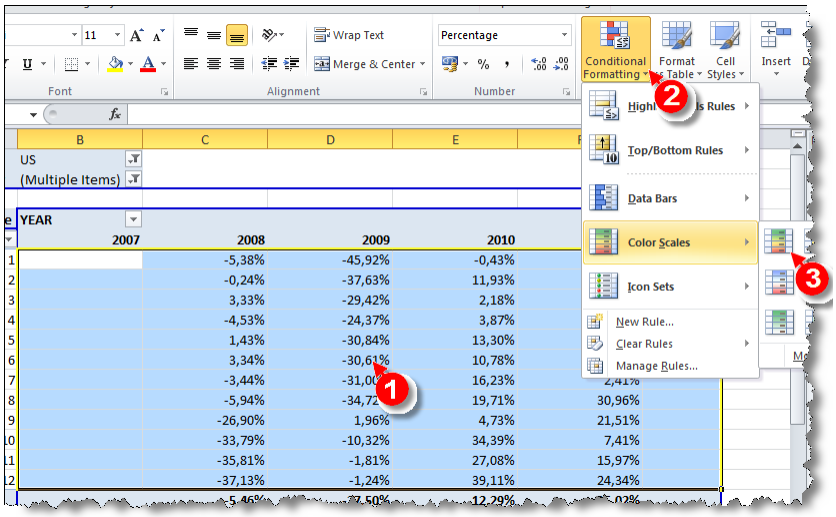


Choose ***YEAR*** as ***Base Field***.



If necessary accept the system message.

Mark all the data cells (1) and select ***Conditinal Formating*** (2) with ***Green - Yellow - Red Color Scale*** (3).



Develop your skills

Flops

What product sold the least number of units?_____

Top Seller

What product category provided the most revenue in 2011? _____

Sales by Product Category

What percentage did the off-road bikes contribute to the overall bicycle sales quantity?

_____

In which three cities was this percentage significantly above the average?

_____