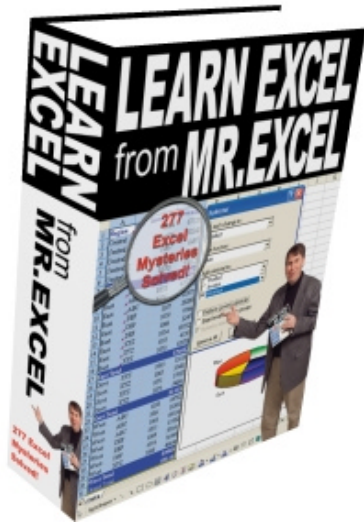




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This week - six more topics on Pivot Tables.

CREATE A REPORT SHOWING COUNT, MIN, MAX, AVERAGE, ETC.

Problem: All of the Pivot Table examples shown thus far are for summing revenue. What if you need to find out the average sale by customer or the smallest sale?

Strategy: Pivot tables offer a variety of calculation options. Double-click the Sum of Revenue button to change the calculation from Sum to any other calculation, as shown in Fig. 915.

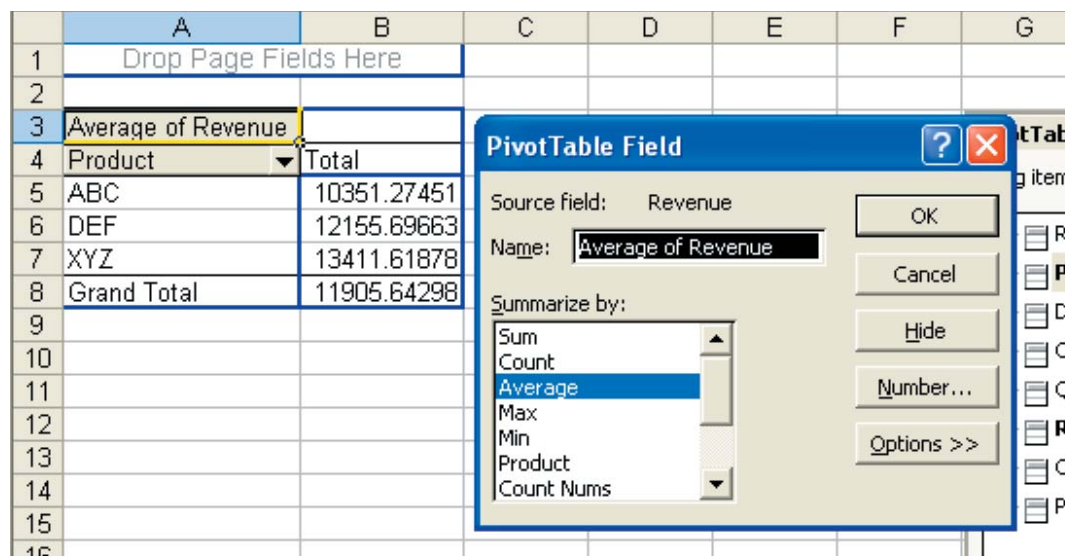


Fig. 915

Additional Information: There is no built-in way to create a median for a pivot table. I've heard this question a few times. If you absolutely need to create a median in a pivot table, contact MrExcel Consulting – we've custom written pivot-table-like reports that do medians.

Summary: Pivot tables can create averages; find the smallest sale, largest sale, and the number of sales. Use the Summarize By field in the PivotTable Field dialog.

Commands Discussed: PivotTable

USE MULTIPLE DATA FIELDS AS A COLUMN FIELD

Problem: When you create a table with two or more Data fields, Excel will default to having the various Data fields be like the innermost Row field, as shown in Fig. 916. This is not the most useful view of the data. It would be preferable to have the three data columns going across the columns for each product.

	A	B	C
1			
2			
3	Product ▼	Data ▼	Total
4	ABC	Sum of Revenue	2111660
5		Sum of Quantity	110600
6		Sum of Profit	1174878
7	DEF	Sum of Revenue	2163714
8		Sum of Quantity	97800
9		Sum of Profit	1201362
10	XYZ	Sum of Revenue	2427503
11		Sum of Quantity	105400
12		Sum of Profit	1350315
13	Total Sum of Revenue		6702877
14	Total Sum of Quantity		313800
15	Total Sum of Profit		3726555
16			

Fig. 916

Strategy: When you have more than one field in the Data area, you will find that a new button appears on the pivot table that is called Data, as shown in Fig. 917. You can drag the Data button from the Row field to the Column field.

	A	B	C	D
1				
2				
3		Data ▼		
4	Product ▼	Sum of Revenue	Sum of Quantity	Sum of Profit
5	ABC	2111660	110600	1174878
6	DEF	2163714	97800	1201362
7	XYZ	2427503	105400	1350315
8	Grand Total	6702877	313800	3726555
9				

Fig. 917

Summary: Although the default view of the pivot report for multiple Data fields is unusual, you can easily correct it by moving the Data field to the Column area.

Commands Discussed: Data – PivotTable

Part III

COMPARE FOUR WAYS TO SHOW TWO DATA FIELDS IN A PIVOT TABLE

Problem: When you create a pivot table with two fields and two Data fields, Excel uses this very ugly default view of the data, as shown in Fig. 918.

	A	B	C	D	E	F
1	Drop Page Fields Here					
2						
3			Region ▼			
4	Product ▼	Data ▼	East	Central	West	Grand Total
5	ABC	Sum of Revenue	703255	776759	631646	2111660
6		Sum of Quantity	36500	40800	33300	110600
7		Sum of Profit	394100	431183	349595	1174878
8	DEF	Sum of Revenue	891799	776996	494919	2163714
9		Sum of Quantity	40300	34900	22600	97800
10		Sum of Profit	495247	433580	272535	1201362
11	XYZ	Sum of Revenue	882724	832414	712365	2427503
12		Sum of Quantity	38900	36200	30300	105400
13		Sum of Profit	485166	462450	402699	1350315
14	Total Sum of Revenue		2477778	2386169	1838930	6702877
15	Total Sum of Quantity		115700	111900	86200	313800
16	Total Sum of Profit		1374513	1327213	1024829	3726555

Fig. 918

Strategy: There is really no good strategy to deal with this problem. Excel offers four ways to view this report and none of them is entirely acceptable.

As shown in Fig. 919, in the second view, the Data field is dragged to be the first Column field. I don't like the fact that they show revenue in columns B through D, but then you have to scroll all the way over to column K for the total revenue.

Note: The numbers below are reformatted to make the columns narrower so the entire report can fit in this page.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3		Data ▼	Region ▼										
4		Sum of Revenue			Sum of Quantity			Sum of Profit			Total Sum of Revenue	Total Sum of Quantity	Total Sum of Profit
5	Product ▼	East	Central	West	East	Central	West	East	Central	West			
6	ABC	703K	777K	632K	37K	41K	33K	394K	431K	350K	2,112K	111K	1,175K
7	DEF	892K	777K	495K	40K	35K	23K	495K	434K	273K	2,164K	98K	1,201K
8	XYZ	883K	832K	712K	39K	36K	30K	485K	462K	403K	2,428K	105K	1,350K
9	Grand Total	2,478K	2,386K	1,839K	116K	112K	86K	1,375K	1,327K	1,025K	6,703K	314K	3,727K

Fig. 919

In the third view, the Data field is dragged to be the second Column field, as shown in Fig. 920. This view keeps all of East together, then all of Central, then all of West.

	A	B	C	D	E	F	G	H	I	J	K	L	M		
1															
2															
3		Region ▼ Data ▼													
4		East			Central			West			Total Sum of Revenue			Sum of Quantity	Sum of Profit
5	Product ▼	Sum of Revenue	Sum of Quantity	Sum of Profit	Sum of Revenue	Sum of Quantity	Sum of Profit	Sum of Revenue	Sum of Quantity	Sum of Profit					
6	ABC	703K	37K	394K	777K	41K	431K	632K	33K	350K	2,112K	111K	1,175K		
7	DEF	892K	40K	495K	777K	35K	434K	495K	23K	273K	2,164K	98K	1,201K		
8	XYZ	883K	39K	485K	832K	36K	462K	712K	30K	403K	2,428K	105K	1,350K		
9	Grand Total	2,478K	116K	1,375K	2,386K	112K	1,327K	1,839K	86K	1,025K	6,703K	314K	3,727K		

Fig. 920

For the final view, drag the Data field to be the outermost Row field, as shown in Fig. 921. This view is pretty good, although it would be preferable to have the total Sum of Revenue appear after row 7 instead of all the way at the end.

	A	B	C	D	E	F
1						
2						
3			Region ▼			
4	Data ▼	Product ▼	East	Central	West	Grand Total
5	Sum of Revenue	ABC	703K	777K	632K	2,112K
6		DEF	892K	777K	495K	2,164K
7		XYZ	883K	832K	712K	2,428K
8	Sum of Quantity	ABC	37K	41K	33K	111K
9		DEF	40K	35K	23K	98K
10		XYZ	39K	36K	30K	105K
11	Sum of Profit	ABC	394K	431K	350K	1,175K
12		DEF	495K	434K	273K	1,201K
13		XYZ	485K	462K	403K	1,350K
14	Total Sum of Revenue		2,478K	2,386K	1,839K	6,703K
15	Total Sum of Quantity		116K	112K	86K	314K
16	Total Sum of Profit		1,375K	1,327K	1,025K	3,727K

Fig. 921

Summary: When you have two fields and two data types in a pivot table, there are four possible options for displaying the data. None of the options is perfect. It might be easier to create the report without totals and add them yourself after changing to values.

Commands Discussed: Data – PivotTable

GROUP DAILY DATES UP BY MONTH IN A PIVOT TABLE

Problem: Your dataset has a date on which each item was shipped. When you produce a pivot table with that field, it provides sales by day, as shown in Fig. 922. The plant manager loves sales by day, but everyone else in the company would rather see sales by month.

	A	B	C	D	E
1	Drop Page Fields Here				
2					
3	Sum of Revenue	Product			
4	Date	ABC	DEF	XYZ	Grand Total
5	1-Jan-04	0	0	22,810	22,810
6	2-Jan-04	10,245	2,257	0	12,502
7	3-Jan-04	0	0	11,240	11,240
8	4-Jan-04	0	18,552	18,356	36,908
9	5-Jan-04	6,860	0	0	6,860
10	7-Jan-04	8,456	21,730	13,806	43,992
11	9-Jan-04	16,416	0	21,015	37,431
12	10-Jan-04	0	0	42,903	42,903
13	12-Jan-04	6,267	0	9,144	15,411

Fig. 922

Strategy: You can group daily dates to show year, quarter, and month. Build a pivot table with dates in the Row area of the pivot table.

- 1) Right-click the Date heading. From the pop-up menu, choose Group and Show Detail and then Group, as shown in Fig. 923.

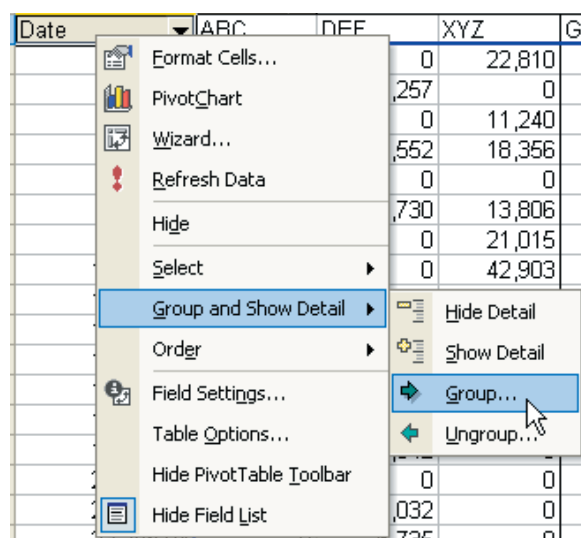


Fig. 923

- 2) The Grouping dialog defaults to select Months. If your data spans more than one year, it is crucial that you also select years. For this example, select Months, Quarters, and Years, as shown in Fig. 924.

Result: The Date field is now replaced with Months. There are two new fields in the PivotTable Field List – one for Quarters and one for Years, as shown in Fig. 925.

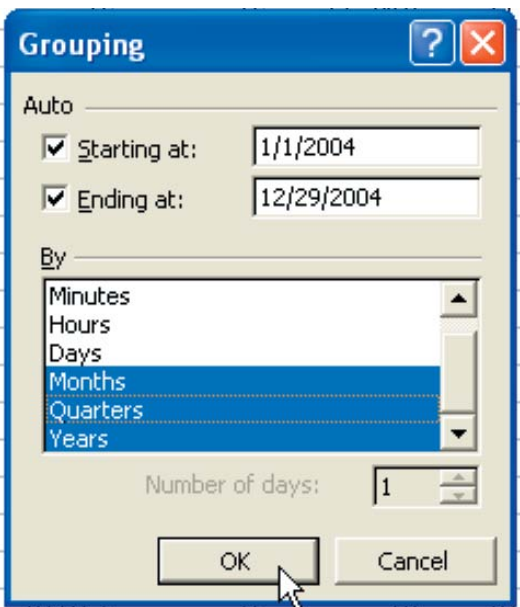


Fig. 924

Part
III

	A	B	C	D	E	F	G	H	I	J
1	Drop Page Fields Here									
2										
3	Sum of Revenue			Product						
4	Years	Quarters	Date	ABC	DEF	XYZ	Grand Total			
5	2004	Qtr1	Jan	262,726	94,413	173,607	530,746			
6			Feb	171,194	174,365	220,483	566,042			
7			Mar	119,131	185,336	181,890	486,357			
8		Qtr2	Apr	182,134	157,101	229,408	568,643			
9			May	194,643	212,803	212,073	619,519			
10			Jun	145,088	143,024	119,340	407,452			
11		Qtr3	Jul	154,812	264,976	261,830	681,618			
12			Aug	184,452	136,723	277,461	598,636			
13			Sep	189,193	207,730	76,593	473,516			
14		Qtr4	Oct	196,345	173,816	243,071	613,232			
15			Nov	106,523	259,841	167,388	533,752			
16			Dec	205,419	153,586	264,359	623,364			
17	Grand Total			2,111,660	2,163,714	2,427,503	6,702,877			
18										
19										
20										

PivotTable Field List

Drag items to the PivotTable report

- Region
- Product
- Date
- Customer
- Quantity
- Revenue
- COGS
- Profit
- Quarters
- Years

Add To Row Area

Fig. 925

Gotcha: If you fail to include Years in the grouping, data from both Jan 2004 and Jan 2005 will be reported as “Jan”. Unless you are doing a seasonality analysis, this is rarely what you need.

Summary: The Group feature is excellent for turning a daily report into a monthly or quarterly report.

Commands Discussed: PivotTable – Group and Show Detail – Group

GROUP BY WEEK IN A PIVOT TABLE

Problem: In the last example you noticed that the Grouping dialog allows you to group by second, minute, hour, day, month, quarter, and year. You need to group by week.

Strategy: There is a grouping option that will group by week. However, in order to set this up correctly, you will have to grab a calendar.

The dataset has data going back to January 1, 2004. Look on a calendar to determine that this date fell on a Thursday.

- 1) If you want your week to report from Monday through Sunday, then jot down that the week should start on December 29, 2003, as shown in Fig. 926.



Fig. 926

- 2) Create a pivot table with dates in the Row area. Right-click the date, choose Group and Show Detail and then Group.
- 3) In the Grouping dialog, Excel defaults to showing the entire range of dates of the dataset. If you left the Starting at: field unchanged, as shown in Fig. 927, your weeks would all start on Thursday. As shown in Fig. 928, change the 1/1/2004 date to 12/29/2003 to have your weeks start on Monday.

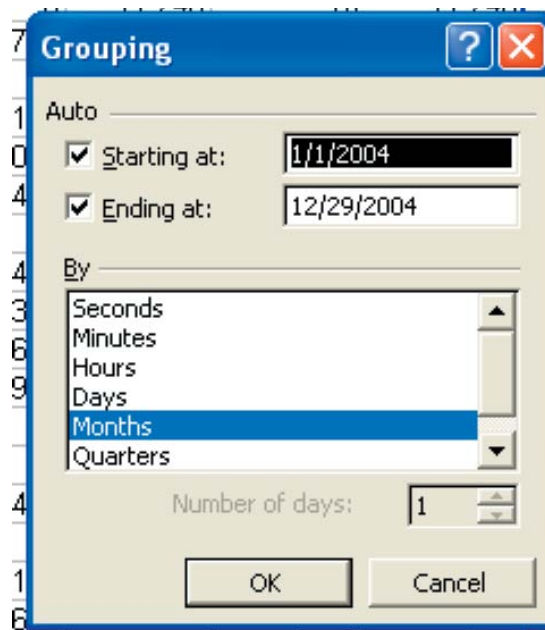


Fig. 927

**Part
III**

- 4) Unselect the Months selection by choosing it with the mouse. Select the Days choice. This will ungray the Number of Days: field at the bottom of the dialog. Use the spin button to move up to 7 days. See Fig. 928.

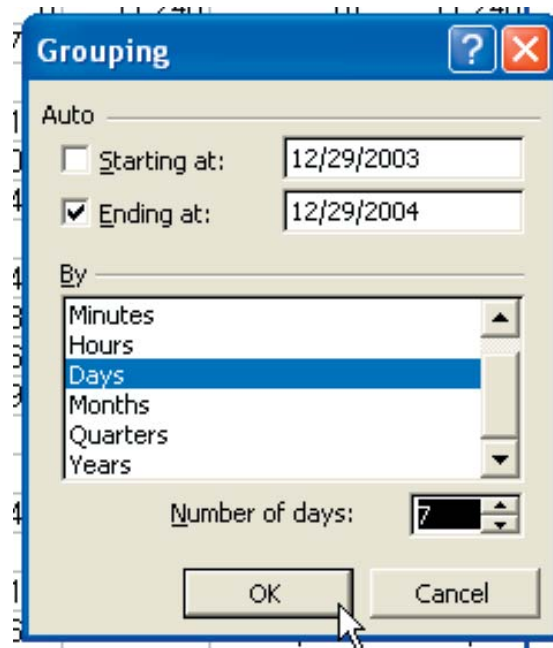


Fig. 928

Result: The report is redrawn as a weekly report, as shown in Fig. 929.

	A	B	C	D	E
1	Drop Page Fields Here				
2					
3	Sum of Revenue	Region ▼			
4	Date ▼	East	Central	West	Grand Total
5	12/29/2003 - 1/4/2004	60,759	22,701	0	83,460
6	1/5/2004 - 1/11/2004	72,666	44,714	13,806	131,186
7	1/12/2004 - 1/18/2004	29,335	29,895	28,254	87,484
8	1/19/2004 - 1/25/2004	41,450	38,275	40,160	119,885
9	1/26/2004 - 2/1/2004	86,404	20,489	24,782	131,675
10	2/2/2004 - 2/8/2004	27,753	19,411	37,050	84,214

Fig. 929

Additional Details: Excel does not add a “Week” field to the PivotTable Field List. Instead, the field formerly containing dates now contains weeks, but is still called Date.

Gotcha: Once you group by weeks, you can no longer group by month, quarter, year, or any other selection.

Summary: It is possible to group daily dates up to weeks by using the Number of Days field in the Grouping dialog.

Commands Discussed: Data – PivotTable – Group and Show Detail

PRODUCE AN ORDER LEAD-TIME REPORT

Problem: You work in a manufacturing plant, scheduling orders and material. You always appreciate it when the sales force gets orders a few months in advance so that you have enough time to get material into the plant without having to pay exorbitant prices on the gray market. Your dataset has both an Order Date and a Ship Date, as shown in Fig. 930. You want to analyze what percentage of the revenue comes in two months before the order has to ship.

	A	B	C	D	E
1	Region	Product	OrdDate	ShipDate	Customer
2	East	XYZ	12-Nov-03	1-Jan-04	Ford
3	Central	DEF	6-Nov-03	2-Jan-04	Verizon
4	East	ABC	27-Oct-03	2-Jan-04	Verizon
5	Central	XYZ	2-Nov-03	3-Jan-04	Ainsworth
6	Central	XYZ	30-Sep-03	4-Jan-04	Ainsworth
7	East	DEF	20-Oct-03	4-Jan-04	Gildan Activewear

Fig. 930

Strategy: You would like to build a pivot table report with OrdDate in the Column area, ShipDate in the Row area, and Revenue in the Data area. However, both of the date fields have more than 255 points, so you cannot initially produce a report with dates going across the columns.

- 1) Initially, drag the OrdDate field to the Row area, as shown in Fig. 931.

Part III

	A	B	C	D
1	Drop Page Field			
2				
3	Drop Column			
4	OrdDate			
5	23-Sep-03			
6	24-Sep-03			
7	30-Sep-03			
8	1-Oct-03			
9	2-Oct-03			
10	4-Oct-03			
11	5-Oct-03			
12	8-Oct-03			

Drop Data

Grouping

Auto

☒ Starting at:

9/23/2003

☒ Ending at:

12/25/2004

By

Minutes

Hours

Days

Months

Quarters

Years

Number of days: 1

OK

Cancel

Fig. 931

- 2) Right-click OrdDate. Choose Group and Show Detail – Group. Choose to Group by Months and Years, as shown in Fig. 932.

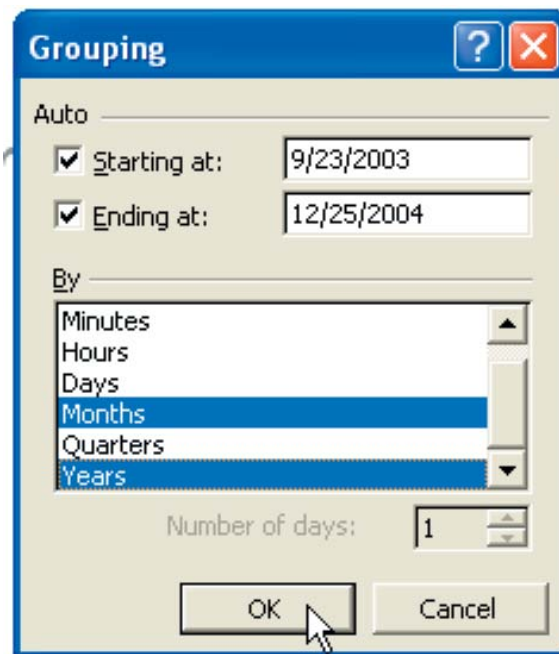


Fig. 932

- 3) Now that the OrdDate field contains only 16 data points, you can drag Years and OrdDate to the Column area as shown in Fig. 933.

	A	B	C	D	E	F
1						
2						
3		Years ▼	OrdDate ▼			
4		2003				2004
5		Sep	Oct	Nov	Dec	Jan
6	Drop Row					
7						
8						
9						
10						
11						

Fig. 933

- 4) Next, drag the ShipDate field to the Row area, as shown in Fig. 934.

	A	B	C	D
1				
2				
3		Years	OrdDate	
4		2003		
5	ShipDate	Sep	Oct	Nov
6	1-Jan-04			
7	2-Jan-04			
8	3-Jan-04			
9	4-Jan-04			

Fig. 934

- 5) Right-click ShipDate. Choose Group and Show Detail and then Group. Group by Months and Years, as shown in Fig. 935.

	A	B	C	D	E
1					
2					
3			Years	OrdDate	
4			2003		
5	Years2	ShipDate	Sep	Oct	Nov
6	2004	Jan			
7		Feb			

Fig. 935

Part
III

It is interesting that the OrdDate fields get a name of “Years”. When you group the ShipDate field, the second field is called “Years2”, as shown in Fig. 936. There is really nothing in the PivotTable Field List to help you remember which Year goes with which date.

It might help to write a note in the worksheet to help you remember that you grouped ShipDate second and that the Years2 field is associated with ShipDate instead of OrdDate.

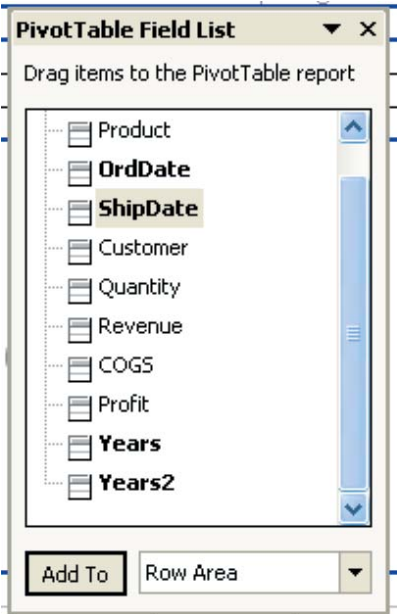


Fig. 936

6) Drag Revenue to the report, as shown in Fig. 937.

	A	B	C	D	E	F	G	H
1								
2								
3	Sum of Reve		Years	▼	OrdDate	▼		
4			2003				2004	
5	Years2	▼	ShipDate	▼	Sep	Oct	Nov	Dec
6	2004	Jan	32832	191608	153506	92432	60368	
7		Feb		19964	175461	114523	186286	69808
8		Mar			45143	88699	139027	94511
9		Apr				48770	128287	154154
10		May					86405	142692
11		Jun						30467

Fig. 937

In Fig. 937, Cell G6 is an interesting number. It says that \$60,368 of the orders that shipped in January was also ordered in January. Your manufacturing plant has to keep a lot of excess inventory on hand to be able to react to orders that come in this late. Cell F6 shows that \$92K of orders for January was placed in December. This is still probably inside the cumulative lead-time for most products.

Additional Information:

Double-click the Sum of Revenue button to display the PivotTable Field dialog. As shown in Fig. 938, choose the Options>> button to unhide a powerful feature of Pivot Tables: Show Data As.

- 1) By default, the Data fields are shown as “Normal”. This means that Excel reports actual total revenue numbers in the report. There are many options available in the Show Data as: dropdown.

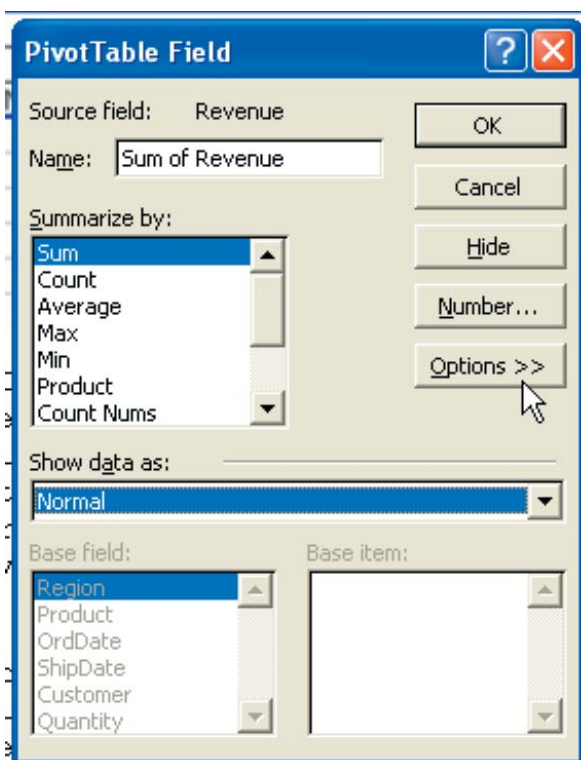


Fig. 938

- 2) In this case, choose Percentage (%) of Row, as shown in Fig. 939.

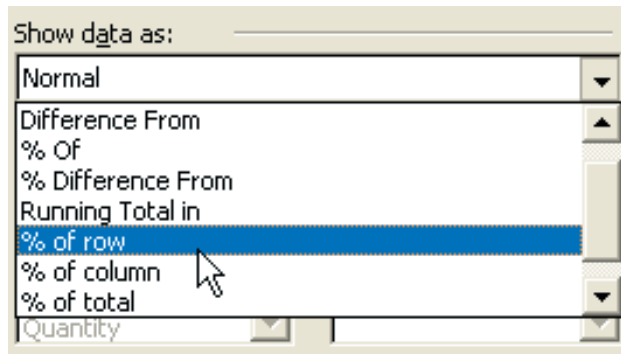


Fig. 939

- 3) Before closing the PivotTable Field dialog, choose the button for Number..., as shown in Fig. 940.

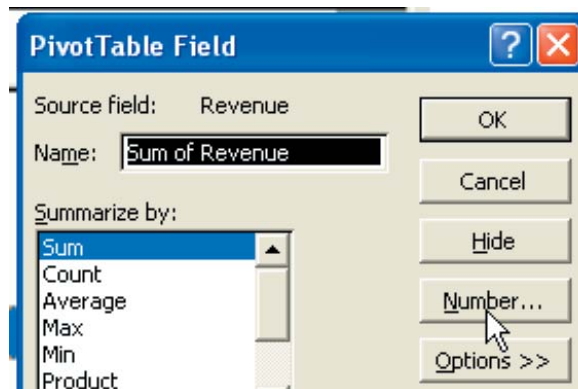


Fig. 940

- 4) Choose Percentage with one decimal place, as shown in Fig. 941. Choose OK to close the Format Cells dialog, then OK to close the PivotTable Field dialog.

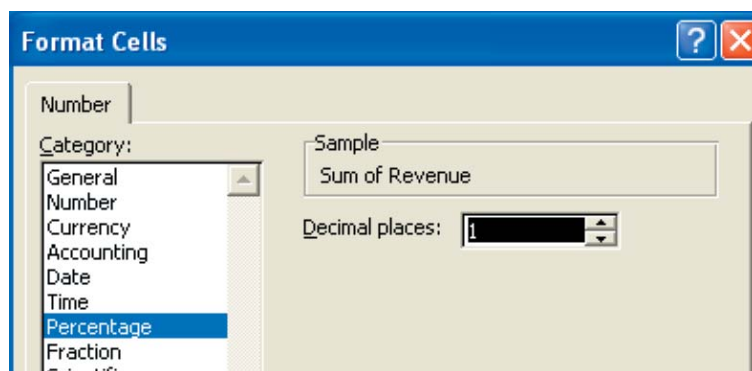


Fig. 941

Result: The pivot table shows that 11.4 percent of January 2004 shipments were ordered in January. See Fig. 942.

Sum of Revenue		Years ▼ OrdDate ▼					
		2003				2004	
Years2 ▼	ShipDate ▼	Sep	Oct	Nov	Dec	Jan	Feb
2004	Jan	6.2%	36.1%	28.9%	17.4%	11.4%	0.0%
	Feb	0.0%	3.5%	31.0%	20.2%	32.9%	12.3%
	Mar	0.0%	0.0%	9.3%	18.2%	28.6%	19.4%
	Apr	0.0%	0.0%	0.0%	8.6%	22.6%	27.1%
	May	0.0%	0.0%	0.0%	0.0%	13.9%	23.0%

Fig. 942

Summary: This report required several techniques. Two different Date fields were grouped by month and year. You also had to double-click the Sum of Revenue field to set the number format and to change the reporting from Normal to Percentage of Row. This type of report will be very useful to all schedulers in manufacturing plants.

Commands Discussed: Data – PivotTable – Show Data As; Data – PivotTable – Group and Show Detail