



BUSINESS ANALYTICS

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PIVOT TABLES

- THE **PIVOT TABLE** IS AN EXCEL TOOL THAT ALLOWS YOU TO BREAK DATA DOWN BY CATEGORIES.
- SOMETIMES PIVOT TABLES ARE USED TO DISPLAY TABLES OF COUNTS, OFTEN CALLED CROSSTABS OR CONTINGENCY TABLES.
- HOWEVER, CROSSTABS TYPICALLY LIST ONLY COUNTS, WHEREAS PIVOT TABLES CAN LIST COUNTS, SUMS, AVERAGES, AND OTHER SUMMARY MEASURES.



ELECMART SALES.XLSX

- **OBJECTIVE:** TO USE PIVOT TABLES TO BREAK DOWN THE CUSTOMER ORDER DATA BY A NUMBER OF CATEGORICAL VARIABLES.
- **SOLUTION:** DATA SET CONTAINS DATA ON 400 CUSTOMER ORDERS DURING SEVERAL MONTHS FOR ELECMART COMPANY.
- CREATE A PIVOT TABLE BY CLICKING THE PIVOTTABLE BUTTON ON THE INSERT RIBBON.


	A	B	C	D	E	F	G	H	I	J
1	Date	Day	Time	Region	Card Type	Gender	Buy Category	Items Ordered	Total Cost	High Item
2	6-Mar	Tue	Morning	West	ElecMart	Female	High	4	\$136.97	\$79.97
3	6-Mar	Tue	Morning	West	Other	Female	Medium	1	\$25.55	\$25.55
4	6-Mar	Tue	Afternoon	West	ElecMart	Female	Medium	5	\$113.95	\$90.47
5	6-Mar	Tue	Afternoon	NorthEast	Other	Female	Low	1	\$6.82	\$6.82
6	6-Mar	Tue	Afternoon	West	ElecMart	Male	Medium	4	\$147.32	\$83.21
7	6-Mar	Tue	Afternoon	NorthEast	Other	Female	Medium	5	\$142.15	\$50.90
8	7-Mar	Wed	Evening	West	Other	Male	Low	1	\$18.65	\$18.65
9	7-Mar	Wed	Evening	South	Other	Male	High	4	\$178.34	\$161.93
10	7-Mar	Wed	Evening	West	Other	Male	Low	2	\$25.83	\$15.91
11	8-Mar	Thu	Morning	MidWest	Other	Female	Low	1	\$18.13	\$18.13
12	8-Mar	Thu	Morning	NorthEast	ElecMart	Female	Medium	2	\$54.52	\$54.38
13	8-Mar	Thu	Afternoon	South	Other	Male	Medium	2	\$61.93	\$56.32
14	9-Mar	Fri	Morning	NorthEast	ElecMart	Male	High	3	\$147.68	\$96.64
15	9-Mar	Fri	Afternoon	NorthEast	Other	Male	Low	1	\$27.24	\$27.24



PIVOT TABLES



PivotTable1



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



The illustration shows a small data table with columns labeled 'NAME', 'SEX', 'AGE', 'CITY', 'COUNTRY', and 'SALES'. To its right is a simplified version of the PivotTable Field List task pane, which has four sections: 'Report Filter' (with a funnel icon), 'Column Labels' (with a grid icon), 'Row Labels' (with a grid icon), and 'Values' (with a summation symbol icon). A circular callout highlights the 'Report Filter' section, showing three checkboxes, with the middle one checked and marked with a green checkmark.

Drag fields between areas below:

 Report Filter  Column Lab...

 Row Labels  Values

☐ Defer Layout Upd...

PivotTable Field List

Choose fields to add to report:

- ☐ Date
- ☐ Day
- ☐ Time
- ☐ Region
- ☐ Card Type
- ☐ Gender
- ☐ Buy Category
- ☐ Items Ordered
- ☐ Total Cost
- ☐ High Item





ELECMART SALES.XLSX

Row Labels	Sum of Total Cost
Afternoon	24265.6
MidWest	3187.16
NorthEast	8159.78
South	5729.72
West	7188.94
Evening	18834.3
MidWest	2552.89
NorthEast	5941.49
South	3864.12
West	6475.8
Morning	18427.31
MidWest	3878.22
NorthEast	5084.57
South	3835.86
West	5628.66
Grand Total	61527.21

HIDING CATEGORIES (FILTERING)

- YOU CAN FILTER OUT ANY ITEMS IN A PIVOT TABLE THAT YOU DON'T WANT TO SEE.
 - CLICK THE ROW LABELS DROPDOWN ARROW OF THE ACTIVE FIELD AND CHECK THE ITEMS YOU WANT TO FILTER ON.
 - A PIVOT TABLE WITH HIDDEN CATEGORIES IS SHOWN BELOW.

Row Labels 	Sum of Total Cost
 Afternoon	24265.6
MidWest	3187.16
NorthEast	8159.78
South	5729.72
West	7188.94
Grand Total	24265.6

SORTING ON VALUES OR CATEGORIES

- IT IS EASY TO SORT IN A PIVOT TABLE, EITHER BY THE NUMBERS IN THE VALUES AREA OR BY THE LABELS IN A ROWS OR COLUMNS FIELD.
 - TO SORT BY THE NUMBERS IN THE VALUES AREA, RIGHT-CLICK ANY NUMBER AND SELECT SORT.
 - TO SORT ON THE LABELS OF A ROWS OR COLUMNS FIELD, RIGHT-CLICK ANY OF THE CATEGORIES AND SELECT SORT.
 - YOU CAN ALSO CLICK THE DROPDOWN ARROW FOR THE FIELD AND GET THE DIALOG BOX THAT ALLOWS BOTH SORTING AND FILTERING.




CHANGING LOCATIONS OF FIELDS (PIVOTING)

- YOU CAN CHOOSE WHERE TO PLACE VARIABLES IN A PIVOT TABLE.
 - FOR EXAMPLE, TO PLACE THE REGION VARIABLE IN THE COLUMNS AREA, DRAG THE REGION BUTTON FROM THE ROWS AREA OF THE PIVOTTABLE FIELDS PANE TO THE COLUMNS AREA.

	A	B	C	D	E	F
1						
2						
3	Sum of Total Cost	Column Labels				
4	Row Labels	MidWest	NorthEast	South	West	Grand Total
5	Morning	3878.22	5084.57	3835.86	5628.66	18427.31
6	Afternoon	3187.16	8159.78	5729.72	7188.94	24265.6
7	Evening	2552.89	5941.49	3864.12	6475.8	18834.3
8	Grand Total	9618.27	19185.84	13429.7	19293.4	61527.21

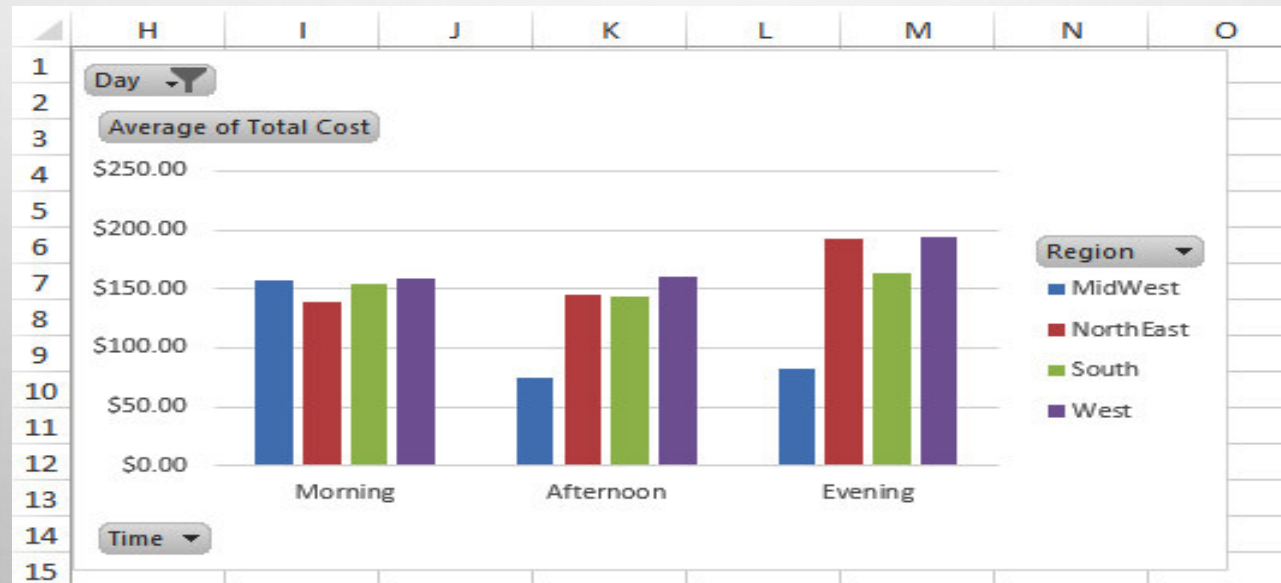
CHANGING FIELD SETTINGS

- YOU CAN CHANGE VARIOUS SETTINGS IN THE FIELD SETTINGS DIALOG BOX.
 - TO GET TO THIS DIALOG BOX:
 - CLICK THE FIELD SETTING BUTTON ON THE ANALYZE/OPTIONS RIBBON.
 - OR RIGHT-CLICK ANY OF THE PIVOT TABLE CELLS AND SELECT THE FIELD SETTINGS ITEM.
 - THE PIVOT TABLE WITH VALUE FIELD SETTINGS CHANGED TO AVERAGE IS SHOWN BELOW.

	A	B	C	D	E	F
1	Day	(Multiple Items) 				
2						
3	Average of Total Cost	Column Labels 				
4	Row Labels 	MidWest	NorthEast	South	West	Grand Total
5	Morning	\$157.11	\$139.05	\$153.59	\$158.51	\$154.01
6	Afternoon	\$73.97	\$145.48	\$143.51	\$159.97	\$144.79
7	Evening	\$82.45	\$192.46	\$163.23	\$193.91	\$175.66
8	Grand Total	\$118.08	\$163.43	\$152.24	\$170.72	\$158.14

PIVOT CHARTS

- IT IS EASY TO ACCOMPANY PIVOT TABLES WITH **PIVOT CHARTS**.
 - THESE CHARTS ADAPT AUTOMATICALLY TO THE UNDERLYING PIVOT TABLE.
 - TO CREATE A PIVOT CHART, CLICK ANYWHERE INSIDE THE PIVOT TABLE, SELECT THE PIVOTCHART BUTTON ON THE ANALYZE/OPTIONS RIBBON, AND SELECT A CHART TYPE.



MULTIPLE VARIABLES IN THE VALUES AREA

- MORE THAN A SINGLE VARIABLE CAN BE PLACED IN THE VALUES AREA.
- ALSO, A GIVEN VARIABLE IN THE VALUES AREA CAN BE SUMMARIZED BY MORE THAN ONE SUMMARIZING FUNCTION.

	A	B	C	D	E	F	G
1	Day	(Multiple Items)					
2							
3		Column Labels					
4		MidWest		NorthEast		Total Average of Total Cost	Total Sum of Total Cost
5	Row Labels	Average of Total Cost	Sum of Total Cost	Average of Total Cost	Sum of Total Cost		
6	Morning	\$157.11	785.53	\$139.05	695.26	\$148.08	1480.79
7	Afternoon	\$73.97	147.93	\$145.48	1600.23	\$134.47	1748.16
8	Evening	\$82.45	247.35	\$192.46	2117.08	\$168.89	2364.43
9	Grand Total	\$118.08	1180.81	\$163.43	4412.57	\$151.17	5593.38

SUMMARIZING BY COUNT

- THE VARIABLE IN THE VALUES AREA CAN BE SUMMARIZED BY THE COUNT FUNCTION.
 - THIS IS USEFUL WHEN YOU WANT TO KNOW, FOR EXAMPLE, HOW MANY OF THE ORDERS WERE PLACED BY FEMALES IN THE SOUTH.
 - RIGHT-CLICK ANY NUMBER IN THE PIVOT TABLE, SELECT VALUE FIELD SETTINGS, AND SELECT THE COUNT FUNCTION.

	A	B	C	D	E	F
1						
2						
3	Count	Column Labels ▼				
4	Row Labels ▼	MidWest	NorthEast	South	West	Grand Total
5	Morning	26	33	27	38	124
6	Afternoon	26	48	39	41	154
7	Evening	19	34	27	42	122
8	Grand Total	71	115	93	121	400

GROUPING

- CATEGORIES IN A ROWS OR COLUMNS VARIABLE CAN BE GROUPED.
- SUPPOSE YOU WANT TO SUMMARIZE SUM OF TOTAL COST BY DATE.
 - STARTING WITH A BLANK PIVOT TABLE, CHECK BOTH DATE AND TOTAL COST IN THE PIVOTTABLE FIELDS PANE.
 - THEN RIGHT-CLICK ANY DATE AND SELECT GROUP.

	A	B
1		
2		
3	Row Labels ▼	Sum of Total Cost
4	Mar	\$9,383.26
5	Apr	\$14,589.91
6	May	\$19,468.11
7	Jun	\$18,085.93
8	Grand Total	\$61,527.21

OTHER PIVOT TABLE FEATURES

- SHOWING/HIDING SUBTOTALS AND GRAND TOTALS (CHECK THE LAYOUT OPTIONS ON THE DESIGN RIBBON)
- DEALING WITH BLANK ROWS, THAT IS, CATEGORIES WITH NO DATA (RIGHT-CLICK ANY NUMBER, CHOOSE PIVOTTABLE OPTIONS, AND CHECK THE OPTIONS ON THE LAYOUT & FORMAT TAB)
- DISPLAYING THE DATA BEHIND A GIVEN NUMBER IN A PIVOT TABLE (DOUBLE-CLICK ANY NUMBER IN THE VALUES AREA TO GET A NEW WORKSHEET)
- FORMATTING A PIVOT TABLE WITH VARIOUS STYLES (CHECK THE STYLE OPTIONS ON THE DESIGN RIBBON)
- MOVING OR RENAMING PIVOT TABLES (CHECK THE PIVOTTABLE AND ACTION GROUPS ON THE ANALYZE/OPTIONS RIBBON)
- REFRESHING PIVOT TABLES AS THE UNDERLYING DATA CHANGES (CHECK THE REFRESH DROPDOWN LIST ON THE ANALYZE/OPTIONS RIBBON)
- CREATING PIVOT TABLE FORMULAS FOR CALCULATED FIELDS OR CALCULATED ITEMS (CHECK THE FORMULAS DROPDOWN LIST ON THE ANALYZE/OPTIONS RIBBON)



LASAGNA TRIERS.XLSX

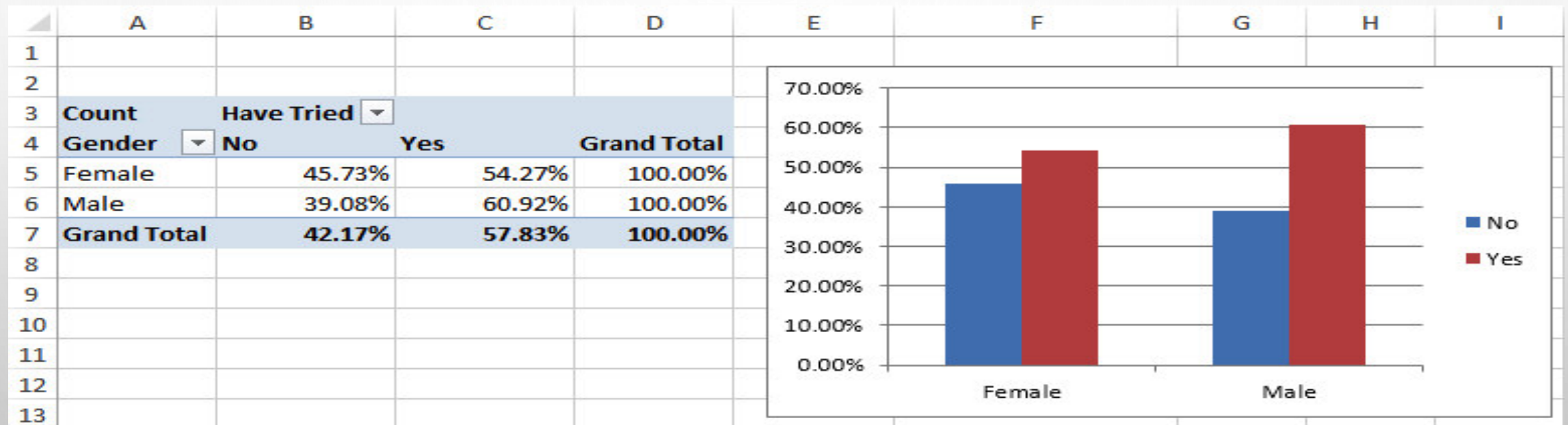
- **OBJECTIVE:** TO USE PIVOT TABLES TO EXPLORE WHICH DEMOGRAPHIC VARIABLES HELP TO DISTINGUISH LASAGNA TRIERS FROM NONTRIERS.
- **SOLUTION:** DATA SET CONTAINS DATA ON OVER 800 POTENTIAL CUSTOMERS BEING TRACKED BY A FROZEN LASAGNA COMPANY.
- SET UP A PIVOT TABLE THAT SHOWS COUNTS OF TRIERS AND NONTRIERS FOR DIFFERENT CATEGORIES OF THE VARIABLES.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Person	Age	Weight	Income	Pay Type	Car Value	CC Debt	Gender	Live Alone	Dwell Type	Mall Trips	Nbhd	Have Tried
2	1	48	175	65500	Hourly	2190	3510	Male	No	Home	7	East	No
3	2	33	202	29100	Hourly	2110	740	Female	No	Condo	4	East	Yes
4	3	51	188	32200	Salaried	5140	910	Male	No	Condo	1	East	No
5	4	56	244	19000	Hourly	700	1620	Female	No	Home	3	West	No
6	5	28	218	81400	Salaried	26620	600	Male	No	Apt	3	West	Yes
7	6	51	173	73000	Salaried	24520	950	Female	No	Condo	2	East	No
8	7	44	182	66400	Salaried	10130	3500	Female	Yes	Condo	6	West	Yes
9	8	29	189	46200	Salaried	10250	2860	Male	No	Condo	5	West	Yes
10	9	28	200	61100	Salaried	17210	3180	Male	No	Condo	10	West	Yes
11	10	29	209	9800	Salaried	2090	1270	Female	Yes	Apt	7	East	Yes



LASAGNA TRIERS.XLSX

PIVOT TABLE AND PIVOT CHART FOR EXAMINING THE EFFECT OF GENDER



SLICERS AND TIMELINES

- IN EXCEL 2010, MICROSOFT ADDED **SLICERS**—LISTS OF THE DISTINCT VALUES OF ANY VARIABLE, WHICH YOU CAN THEN FILTER ON.
 - YOU ADD A SLICER FROM THE ANALYZE/OPTIONS RIBBON UNDER PIVOTTABLE TOOLS.
- IN EXCEL 2013, A TIMELINE FEATURE WAS ADDED. A TIMELINE IS LIKE A SLICER, BUT IT IS SPECIFICALLY FOR FILTERING ON A DATE VARIABLE.

PIVOT TABLE WITH SLICERS AND A TIMELINE

	A	B	C	D	E	F	G	H	I
1									
2									
3	Row Labels	Sum of Total Cost							
4	Afternoon	\$650.80							
5	Evening	\$2,442.05							
6	Grand Total	\$3,092.85							
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									

Region

MidWest

NorthEast

South

West

Gender

Female

Male

Purchase Date

Apr - May 2012 MONTHS

2012

EB MAR APR MAY JUN JUL AUG

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