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

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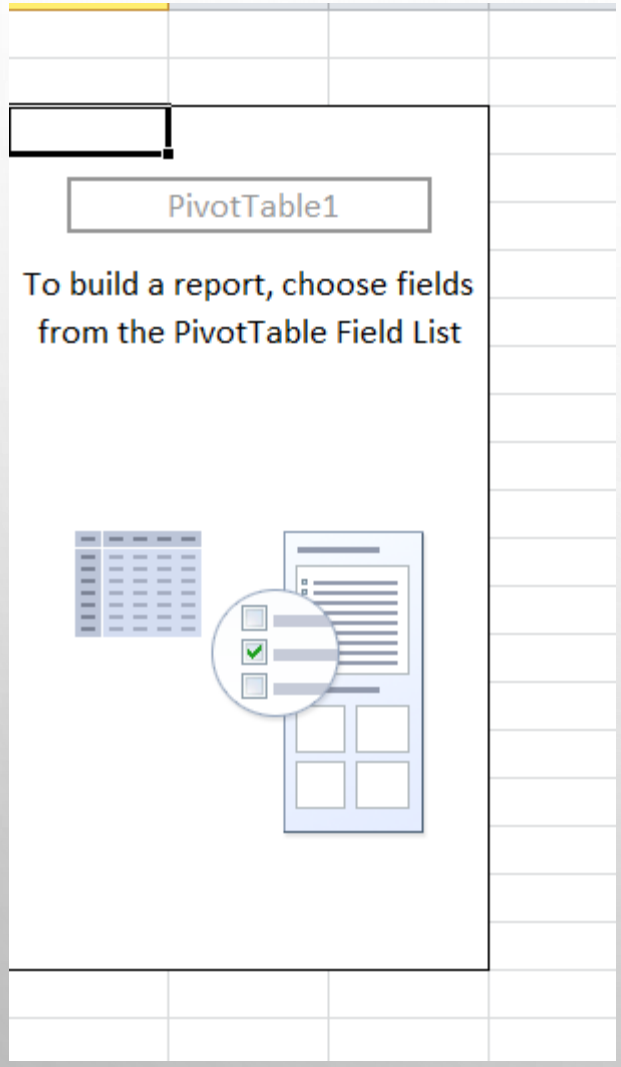
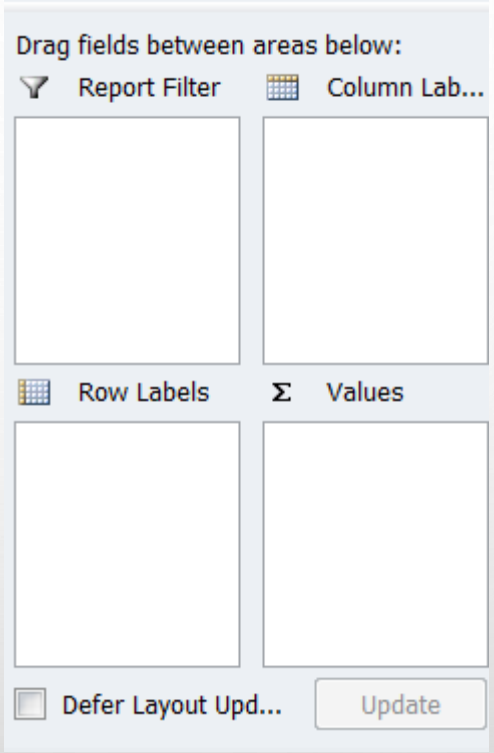
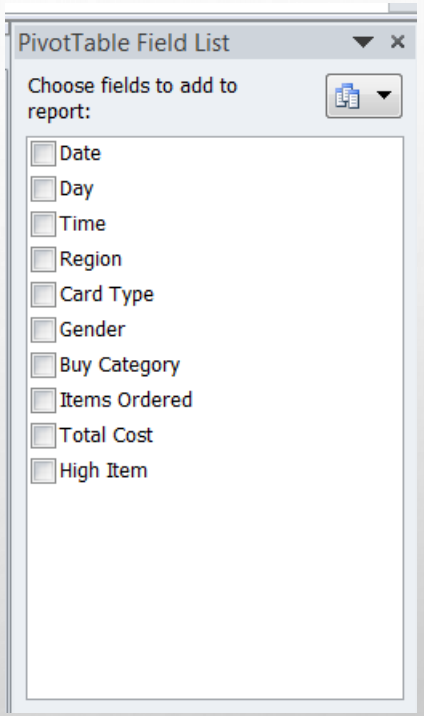
PIVOT TABLES







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ELECMART SALES.XLSX

	A	B	C
1			
2			
3	**Time**	**Region**	**Sum of Total Cost**
4	**Afternoon**	MidWest	3187.16
5		NorthEast	8159.78
6		South	5729.72
7		West	7188.94
8	**Afternoon Total**		**24265.6**
9	**Evening**	MidWest	2552.89
10		NorthEast	5941.49
11		South	3864.12
12		West	6475.8
13	**Evening Total**		**18834.3**
14	**Morning**	MidWest	3878.22
15		NorthEast	5084.57
16		South	3835.86
17		West	5628.66
18	**Morning Total**		**18427.31**
19	**Grand Total**		**61527.21**

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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.

	A	B	C
1			
2			
3	**Time**	**Region**	**Sum of Total Cost**
4	**Afternoon**	MidWest	3187.16
5		South	5729.72
6		West	7188.94
7	**Afternoon Total**		**16105.82**
8	**Morning**	MidWest	3878.22
9		South	3835.86
10		West	5628.66
11	**Morning Total**		**13342.74**
12	**Grand Total**		**29448.56**

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

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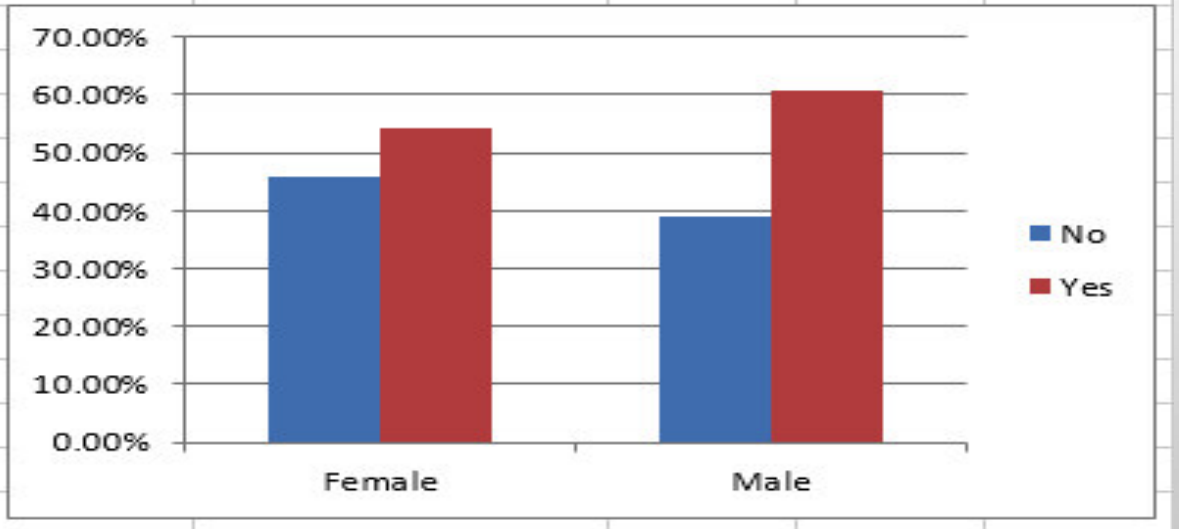
LASAGNA TRIERS.XLSX

PIVOT TABLE AND PIVOT CHART FOR EXAMINING THE EFFECT OF GENDER

Count	Have Tried		
Gender	No	Yes	Grand Total
Female	45.73%	54.27%	100.00%
Male	39.08%	60.92%	100.00%
Grand Total	**42.17%**	**57.83%**	**100.00%**



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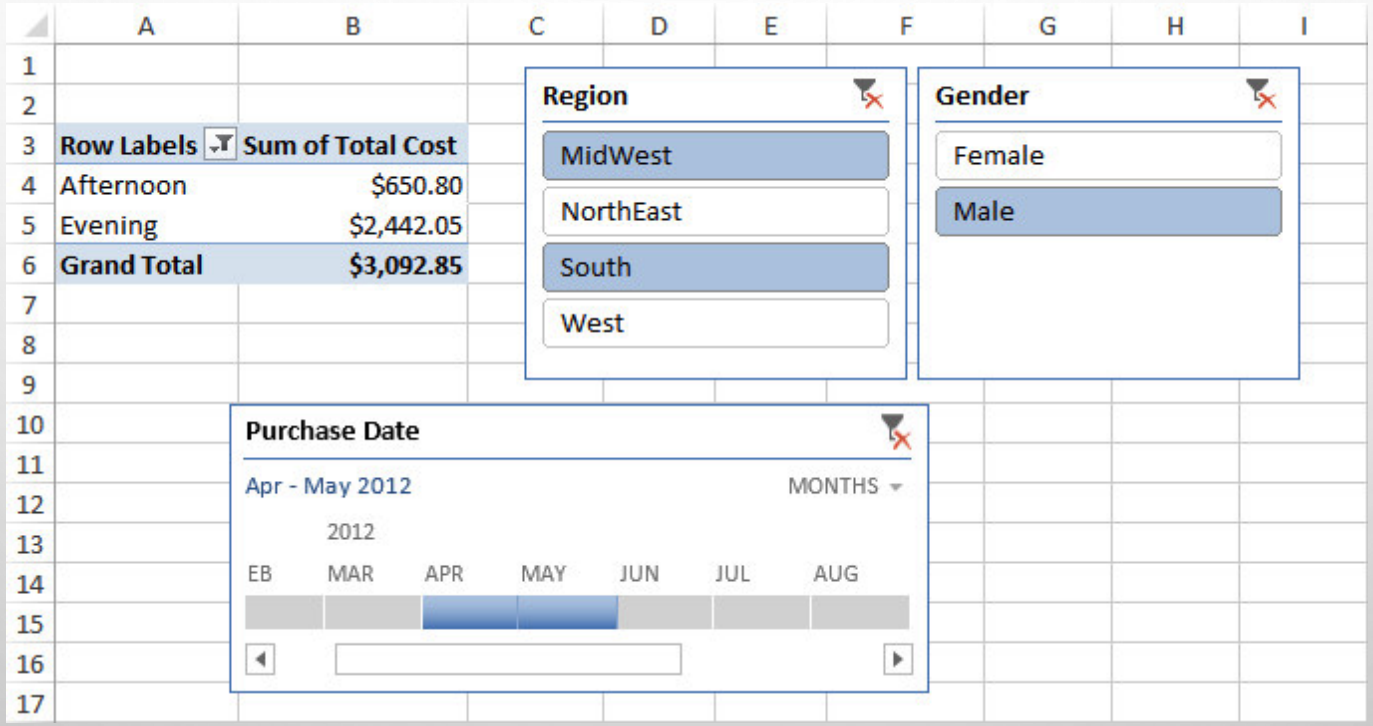
SLICERS AND TIMELINES

- 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