



Excel 2016 and PIVOT TABLES



OVERALL AIM:

This session aims to teach you how to create basic pivot tables using data from different sources, such as myCSUB, the Finance Data Warehouse, 25Live, and more.

LESSON OBJECTIVES

At the end of the session, the participants will be able to:

- Articulate the purpose of pivot tables
- Differentiate between tables and pivot tables
- Identify 5 ways to analyze data with pivot tables
- Create 5 basic pivot tables with different data
- Enhance your pivot tables for readability
- Perform custom sorts
- Apply filters and slicers
- Refresh data in pivot tables
- Change data sources

REFLECTIVE QUESTIONS

- When should I use a pivot table?
- How can I make my analysis more meaningful using pivot table?
- What data sources are available that I can use with pivot table?
- What are the 5 basic forms for pivot tables?
- What questions does my pivot tables answer?

PIVOT TABLES

According to Wikipedia, pivot tables are data summarization tools found in data visualization programs, such as spreadsheets or business intelligence software.

Pivot table can automatically sort, count, total or average the data stored in one table or spreadsheet, displaying the results

in a second table – the pivot table – showing the summarized data.

Account Totals	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Grand Total
601201 - Management and Supervisory	23,779.00	31,469.14	12,852.00	12,852.00	12,852.00	12,852.00	12,852.00	12,852.00	119,508.14
601300 - Support Staff Salaries	6,611.24	6,365.78	7,235.90	10,373.24	10,423.97	10,736.27	14,370.04		66,116.44
601301 - Overtime		1,036.64							1,036.64
601303 - Student Assistant	3,985.50	4,269.25	2,346.25	2,403.00	1,910.00	2,862.50	2,706.00		20,482.50
601812 - Payroll Stipends-Payroll only	514.01	530.02	273.00	192.80					1,509.83
604001 - Telephone Usage	34.49	35.02				72.72	80.97	98.23	321.43
604002 - Computer Networks	3,491.81		0.00						3,491.81
604800 - Call Phone Expenses				225.00				225.00	450.00
606001 - Travel-In State				2,380.16	3,555.58	3,100.81	1,329.47		10,757.30
616002 - I/T Hardware (Computers)			1,235.87				24,132.16	1,290.57	26,658.60
616003 - I/T Software Expense	12,988.32		600.00	2,824.73	15,662.47	-10.52	73,130.00		105,195.00
616005 - Misc Info Tech Costs	2,830.48	23,024.34	73,452.61	54,050.98	12,432.86	620.00	33,232.58	10,868.19	210,512.04
660002 - Printing	50.00				89.50	-32.70	100.00		206.80
660003 - Supplies and Services	741.76	-31.83	178.02	1,304.88	2,852.94		14	10,143.64	-6,997.80
660009 - Training and Professional Dev			180.00						400.00
660042 - Recruitment Expense	385.00		499.25	1,073.63					1,476.19
660090 - Other Costs	2,005.50								2,005.50
660888 - Parking Permits		24.00							98.00
660901 - Conference Registration Fees					810.00				1,570.00
Grand Total	57,417.11	66,722.36	98,852.90	87,680.42	60,662.04	29,968.19	173,079.12	5,144.55	579,526.69

PIVOT TABLE HISTORY

Pivot Tables were created by Pito Salas, software developer, in 1986. While working on Lotus Improv, a spreadsheet program, he began to notice patterns of data emerging. However, it wasn't until 1994 that Microsoft added pivot table functionality to Excel.

PIVOT TABLE BENEFITS

According to the Association of Business Training, pivot tables are:

- Easy to use
- Save time
- Easy way to analyze data
- An effective method for finding patterns in data
- Quick method for creating reports
- and Help with making quick decisions.

TABLES AND PIVOT TABLES

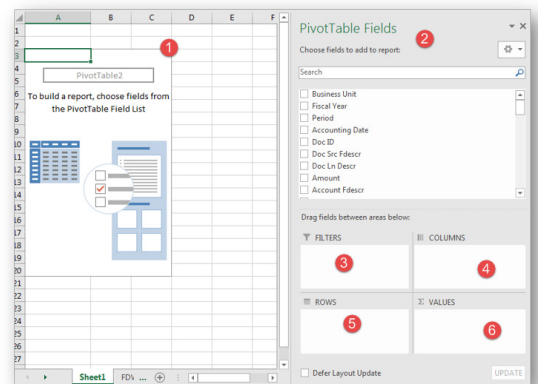
Tables and pivot tables have similar attributes. They both consist of rows and columns, list data with or without aggregations, and can calculate values based on data in rows, columns, or both.

However, there are many differences between the two. Whereas Tables can contain cells with calculations based on row or column data, pivot table can perform calculations at the intersection of the rows and columns.

PIVOT TABLE ENVIRONMENT

The pivot table environment consists of 6 key areas:

1. Pivot table
2. Fields List
3. Filters
4. Columns
5. Rows
6. Values



QUICK ANALYSIS

Pivot tables allow you to analyze data quickly. They can answer many types of questions. The table below lists some basic questions answered with pivot tables by type.

SUMMARY	What is the total? Or, how many are there?
CATEGORICAL	What is the total for certain items? Or, how many are there of certain items?
TIME BASED	What is the total for certain items based on a grouping? Or, how many are there of certain items based on a grouping?
HIERARCHICAL	Does the totals or number of items vary over time?
CONTRAST	Does the totals or number of items affected by certain items?

5 BASIC PIVOT TABLE TYPES

Summary

Summary pivot tables show the total value for a field. In the illustration, \$265,769.39 represents the total amount for all the data.

Summary
How much? Or How many?

Answers:
What is the Values for all the data?
What is the sum of the amounts for all the data?

To create a summary pivot table, drag a field to the Values box only. The Values box will show a sum if the field is numeric or a count if the field is text.

Categorical

Categorical pivot tables show the values (sums, counts, etc.) for a select category (field). In the example, the total spent for 660010 - Insurance Expense is \$10.95.

Categorical
What is the total for certain items? Or, how many are there of certain items?

Answers:
What is the Values of the Rows?
What is the total amount of the accounts?

To create a categorical pivot table, drag a field to Values and a field to Rows.

Contrast

Contrast pivot tables are similar to cross tabs. They allow you to see how values vary based on comparisons or cross sections.

Contrast
Does the totals or number of items affected by certain items?

Answers:
Does the Values vary based on Rows and Columns?
Does the Average CSUB Cum GPA vary based on City and Academic Level?

To create a contrast pivot table, drag a field to the Rows, Columns, and Values boxes.

Time-Based

Time-based pivot tables are similar to Contrast pivot tables. The only difference is one field is a time value, such as term, month, fiscal period, etc. Time-based pivot tables allow you to see how values vary over time.

TIME
Does the totals or number of items vary over time?

Answers:
What is the Values of Rows by Columns?
What is the total amount of the accounts by the fiscal periods?

To create a time-based pivot table, drag a field to the Rows, Columns, and Values boxes. The field in the Columns box should be a time value.

Hierarchical

A hierarchical pivot table allows you to group fields based on a hierarchy. It allows you to see sub-totals for the group and totals each row.

Hierarchical
What is the total for certain items based on a hierarchy? Or, how many are there of certain items based on a grouping?

Answers:
What is the Values of the Rows grouped by Rows?
What is the sum of the amounts of the accounts grouped by account category?

To create a hierarchical pivot table, drag 2 related fields to Rows and a field to values.

