# Office 2016– Excel Basics 05

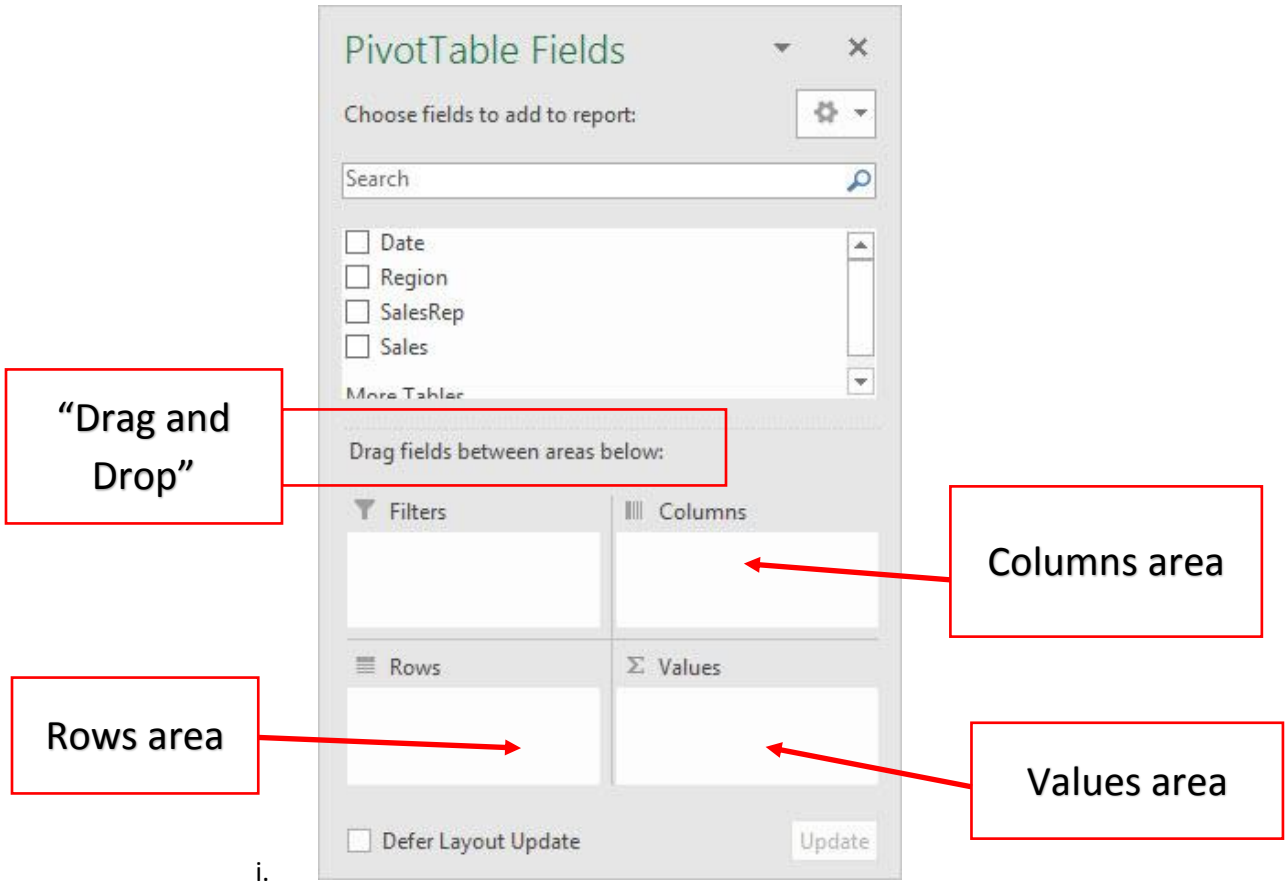
## Video/Class Project #17

## Excel Basics 5: Power of PivotTables to Create Reports with Various Calculations & Layouts

**Goal in video # 5:** Learn more about how we can use PivotTables to create Summary Reports with Different Calculations and Layouts.

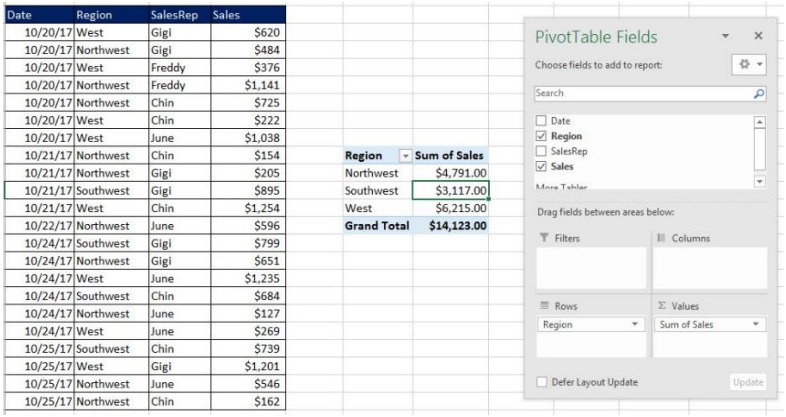
1) Keyboard to open Create PivotTable dialog box when a single cell is selected in the Proper Date Set = Alt, N, V.
2) The reason that a PivotTable is called a "Pivot Table" is because you can drag and drop the fields to either the Rows area or Columns Area in the PivotTable Fields Task Pane to see different views of the report, and you can drag the field you want to make a calculation on, to the Values area.

i.




3) If we create a Regional Sales Report with the Region field in Rows area and the Sales field in the Values area, it looks like this:

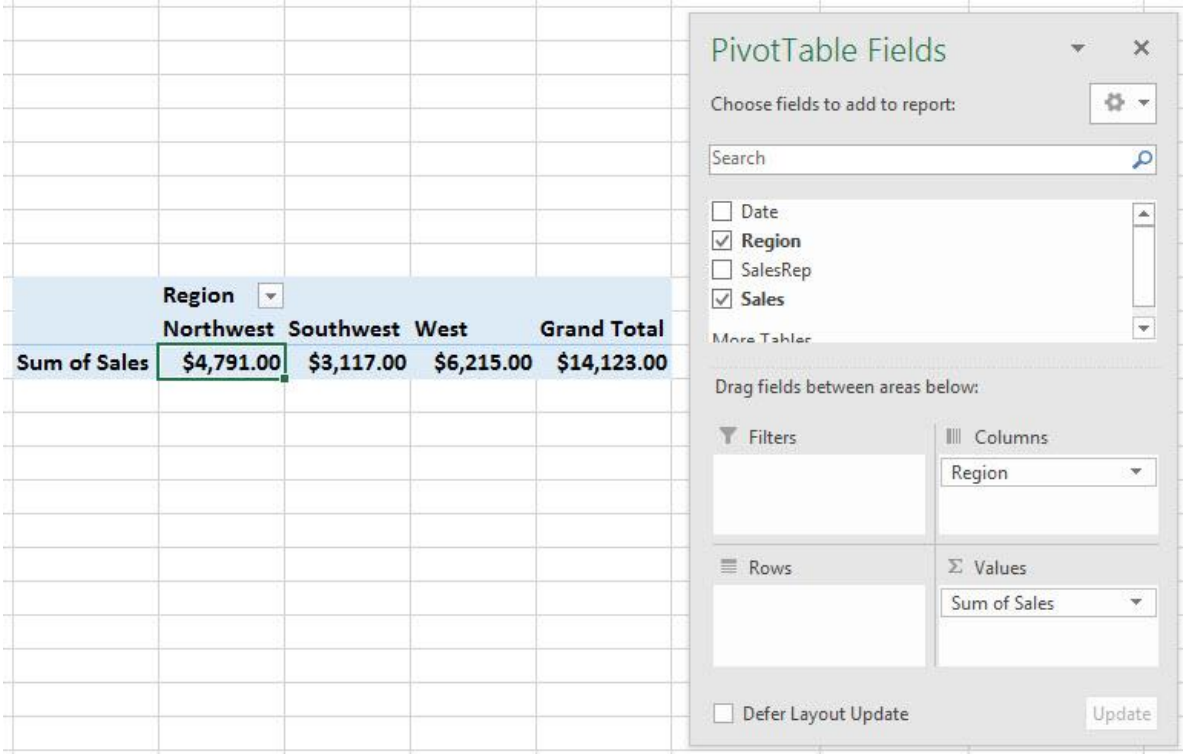
i.



| Date | Region | SalesRep | Sales |
|---|---|---|---|
| 10/20/17 | West | Gigi | $620 |
| 10/20/17 | Northwest | Gigi | $484 |
| 10/20/17 | West | Freddy | $376 |
| 10/20/17 | Northwest | Freddy | $1,141 |
| 10/20/17 | Northwest | Chin | $725 |
| 10/20/17 | West | Chin | $222 |
| 10/20/17 | West | June | $1,038 |
| 10/21/17 | Northwest | Chin | $154 |
| 10/21/17 | Northwest | Gigi | $205 |
| 10/21/17 | Southwest | Gigi | $895 |
| 10/21/17 | West | Chin | $1,254 |
| 10/22/17 | Northwest | June | $596 |
| 10/24/17 | Southwest | Gigi | $799 |
| 10/24/17 | Northwest | Gigi | $651 |
| 10/24/17 | West | June | $1,235 |
| 10/24/17 | Southwest | Chin | $684 |
| 10/24/17 | Northwest | June | $127 |
| 10/24/17 | West | June | $269 |
| 10/25/17 | Southwest | Chin | $739 |
| 10/25/17 | West | Gigi | $1,201 |
| 10/25/17 | Northwest | June | $546 |
| 10/25/17 | Northwest | Chin | $162 |

| Region | Sum of Sales |
|---|---|
| Northwest | $4,791.00 |
| Southwest | $3,117.00 |
| West | $6,215.00 |
| Grand Total | $14,123.00 |

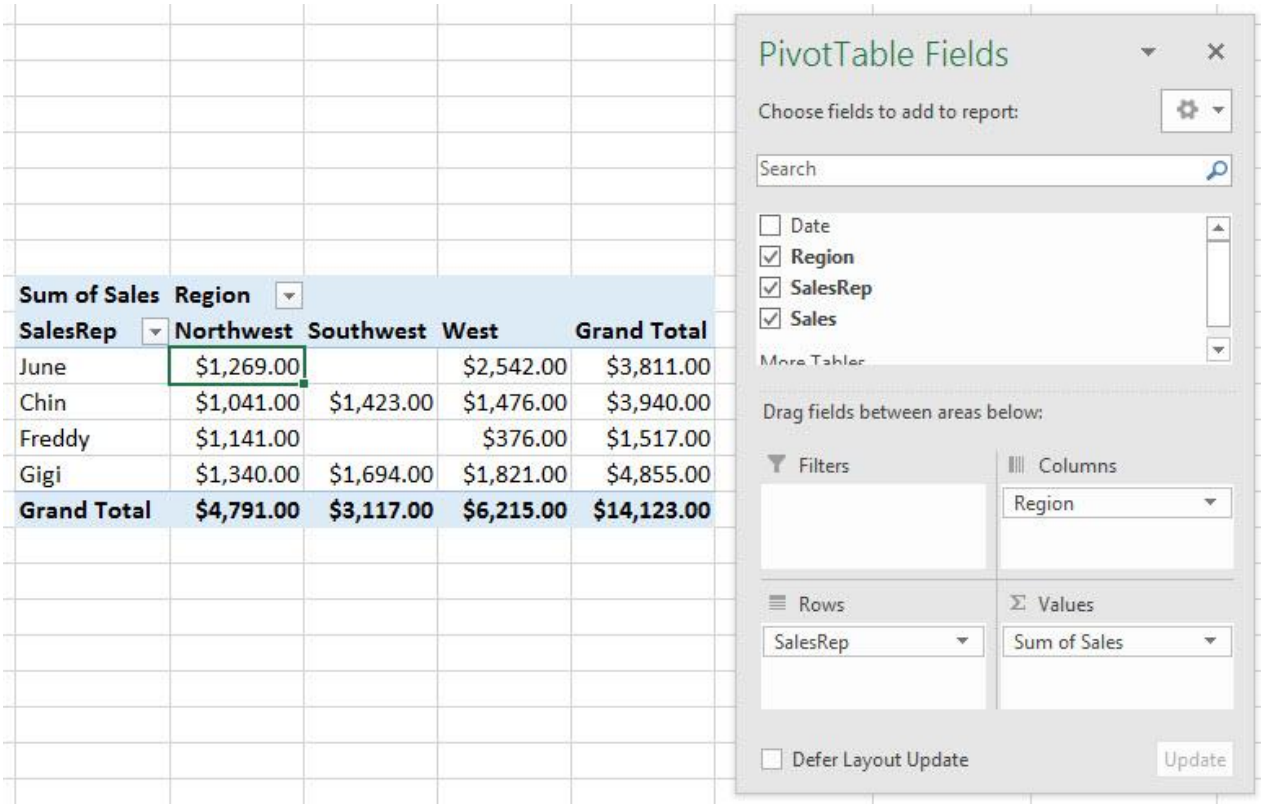
ii. If you drag the "Region" Field from the Row area or Column Area, you would see this report:



| | Region | | | |
|---|---|---|---|---|
| | Northwest | Southwest | West | Grand Total |
| Sum of Sales | $4,791.00 | $3,117.00 | $6,215.00 | $14,123.00 |



iii. If you now drag the SalesRep Field from the Field List down to the Row Area, you would see this report which shows the sales for each SalesRep in each Region:



| Sum of Sales | Region | | | |
|---|---|---|---|---|
| SalesRep | Northwest | Southwest | West | Grand Total |
| June | $1,269.00 | | $2,542.00 | $3,811.00 |
| Chin | $1,041.00 | $1,423.00 | $1,476.00 | $3,940.00 |
| Freddy | $1,141.00 | | $376.00 | $1,517.00 |
| Gigi | $1,340.00 | $1,694.00 | $1,821.00 | $4,855.00 |
| **Grand Total** | **$4,791.00** | **$3,117.00** | **$6,215.00** | **$14,123.00** |

4) It is important to notice that the essence of a PivotTable is that we are making a calculation with conditions or criteria.

i. In our 1st Report we are adding the sales for a particular Region:

1.

| Region | Sum of Sales |
|---|---|
| Northwest | $4,791 |
| Southwest | $3,117 |
| West | $6,215 |
| **Grand Total** | **$14,123** |

Here we are adding Sales with the condition/criteria "Northwest"

Here we are adding Sales with the condition/criteria "Southwest"

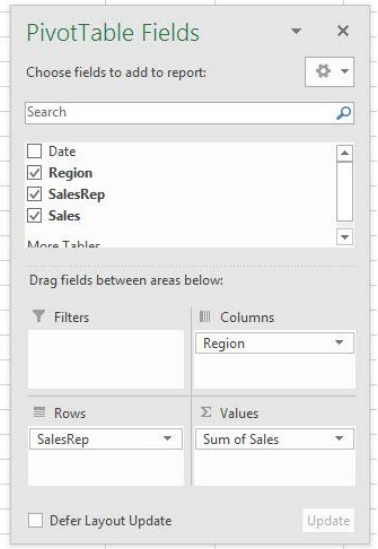
Here we are adding Sales with the condition/criteria "West"

ii. In our 2nd report we are adding the sales for each SalesRep in each Region. This means that we have Fields in both Rows area and Columns area and we are adding with two Conditions/Criteria:

In order for the sales amount to be used to get the total, the record for the sale had to have the SalesRep equal to "June" AND the Region had to be equal to "Northwest".

| Date | Region | SalesRep | Sales |
|---|---|---|---|
| 10/20/17 | West | Gigi | $620 |
| 10/20/17 | Northwest | Gigi | $484 |
| 10/20/17 | West | Freddy | $376 |
| 10/20/17 | Northwest | Freddy | $1,141 |
| 10/20/17 | Northwest | Chin | $725 |
| 10/20/17 | West | Chin | $222 |
| 10/20/17 | West | June | $1,038 |
| 10/21/17 | Northwest | Chin | $154 |
| 10/21/17 | Northwest | Gigi | $205 |
| 10/21/17 | Southwest | Gigi | $895 |
| 10/21/17 | West | Chin | $1,254 |
| 10/22/17 | Northwest | June | $596 |
| 10/24/17 | Southwest | Gigi | $799 |
| 10/24/17 | Northwest | Gigi | $651 |
| 10/24/17 | West | June | $1,235 |
| 10/24/17 | Southwest | Chin | $684 |
| 10/24/17 | Northwest | June | $127 |
| 10/24/17 | West | June | $269 |
| 10/25/17 | Southwest | Chin | $739 |
| 10/25/17 | West | Gigi | $1,201 |
| 10/25/17 | Northwest | June | $546 |
| 10/25/17 | Northwest | Chin | $162 |

| Sum of Sales | Region | | | |
|---|---|---|---|---|
| SalesRep | Northwest | Southwest | West | Grand Total |
| June | $1,269.00 | | $2,542.00 | $3,811.00 |
| Chin | $1,041.00 | $1,423.00 | $1,476.00 | $3,940.00 |
| Freddy | $1,141.00 | | $376.00 | $1,517.00 |
| Gigi | $1,340.00 | $1,694.00 | $1,821.00 | $4,855.00 |
| **Grand Total** | **$4,791.00** | **$3,117.00** | **$6,215.00** | **$14,123.00** |




The total sales of **$1269** is adding with the **two criteria** "**June**" from the SalesRep Field and "**Northwest**" from the Region Field.

5) Important PivotTable Concepts:

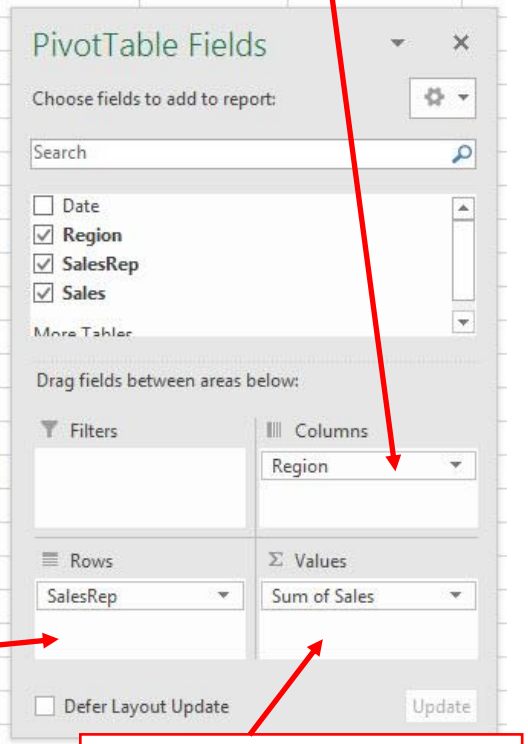
i. Rows area is where you drop Field Names that are Criteria for calculation in Values area.

ii. Columns area is where you drop Field Names that are Criteria for calculation in Values area.

iii. Values area is where you drop Field Names that you want to make a calculation upon.

| 13 | Date | Region | SalesRep | Sales |
|---|---|---|---|---|
| 14 | 10/20/17 | West | Gigi | $620 |
| 15 | 10/20/17 | Northwest | Gigi | $484 |
| 16 | 10/20/17 | West | Freddy | $376 |
| 17 | 10/20/17 | Northwest | Freddy | $1,141 |
| 18 | 10/20/17 | Northwest | Chin | $725 |
| 19 | 10/20/17 | West | Chin | $222 |
| 20 | 10/20/17 | West | June | $1,038 |
| 21 | 10/21/17 | Northwest | Chin | $154 |
| 22 | 10/21/17 | Northwest | Gigi | $205 |
| 23 | 10/21/17 | Southwest | Gigi | $895 |
| 24 | 10/21/17 | West | Chin | $1,254 |
| 25 | 10/22/17 | Northwest | June | $596 |
| 26 | 10/24/17 | Southwest | Gigi | $799 |
| 27 | 10/24/17 | Northwest | Gigi | $651 |
| 28 | 10/24/17 | West | June | $1,235 |
| 29 | 10/24/17 | Southwest | Chin | $684 |
| 30 | 10/24/17 | Northwest | June | $127 |
| 31 | 10/24/17 | West | June | $269 |
| 32 | 10/25/17 | Southwest | Chin | $739 |
| 33 | 10/25/17 | West | Gigi | $1,201 |
| 34 | 10/25/17 | Northwest | June | $546 |
| 35 | 10/25/17 | Northwest | Chin | $162 |

| Sum of Sales | Region | | | |
|---|---|---|---|---|
| SalesRep | Northwest | Southwest | West | Grand Total |
| June | $1,269.00 | | $2,542.00 | $3,811.00 |
| Chin | $1,041.00 | $1,423.00 | $1,476.00 | $3,940.00 |
| Freddy | $1,141.00 | | $376.00 | $1,517.00 |
| Gigi | $1,340.00 | $1,694.00 | $1,821.00 | $4,855.00 |
| **Grand Total** | **$4,791.00** | **$3,117.00** | **$6,215.00** | **$14,123.00** |




Columns area is where you drop Field Names that are Criteria for calculation in Values area

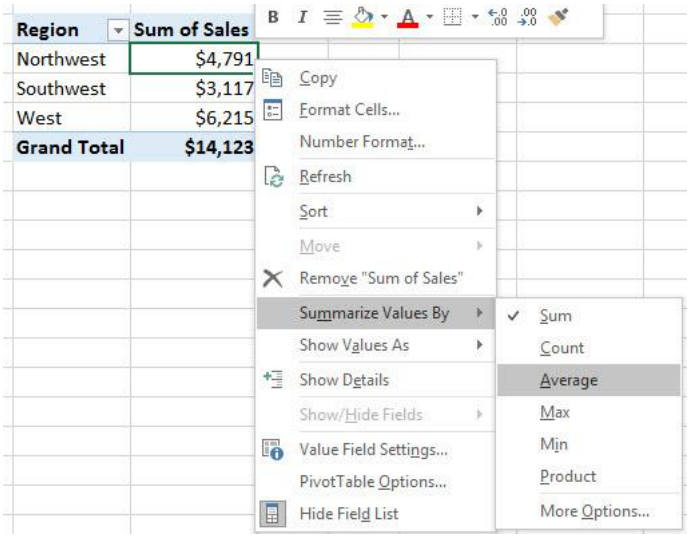
Rows area is where you drop Field Names that are Criteria for calculation in Values area

Values area is where you drop Field Names that you want to make a calculation upon

6) When there are Fields in both the Rows and Columns area of a PivotTable, this report is sometimes called a **Cross Tabulated Report** because the intersecting calculation has a Rows area condition and a Columns area condition, like it is a "cross":

| Sum of Sales | Region | | | |
|---|---|---|---|---|
| SalesRep | Northwest | Southwest | West | Grand Total |
| June | $1,269 | | $2,542 | $3,811 |
| Chin | $1,041 | $1,423 | $1,476 | $3,940 |
| Freddy | $1,141 | | $376 | $1,517 |
| Gigi | $1,340 | $1,694 | $1,821 | $4,855 |
| **Grand Total** | **$4,791** | **$3,117** | **$6,215** | **$14,123** |

7) We can change the summary calculation from "Sum" to a different calculation, like "Average".
   i. With a cell selected in the Values area of the PivotTable, you can right-click and point to "Summarize Values By" and then select a calculations such as "Average", like:



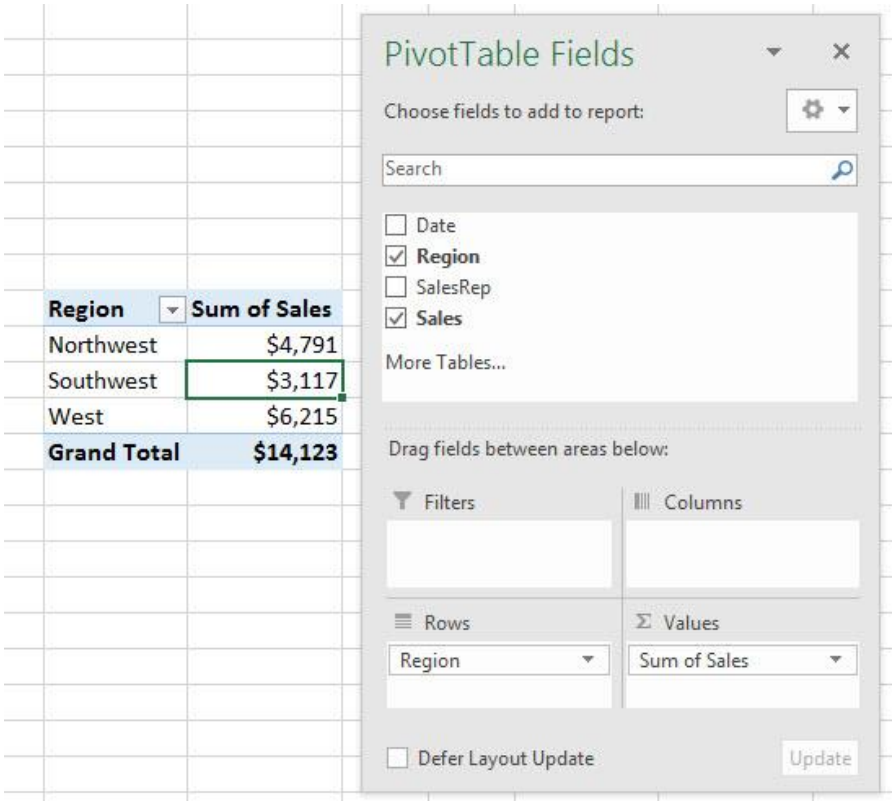

   ii. This report shows the average sale made in each Region. This is an example of the average calculation being made with a single condition.

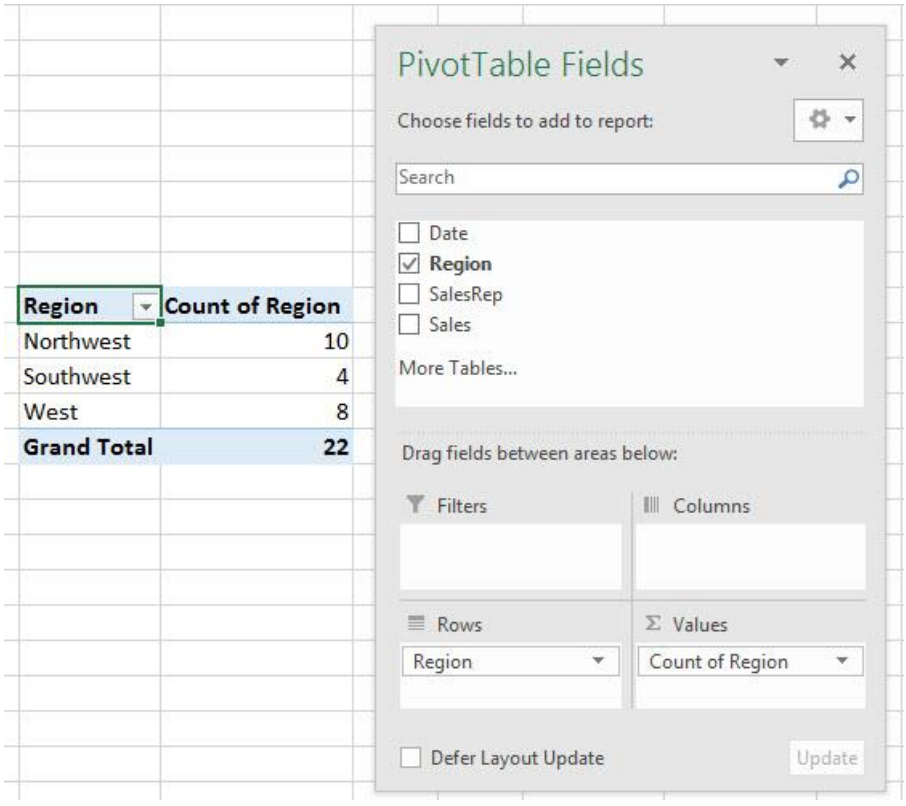
| Region | Average of Sales |
|---|---|
| Northwest | $479 |
| Southwest | $779 |
| West | $777 |
| **Grand Total** | **$642** |

Here we are averaging Sales with the condition/criteria "Northwest"

Here we are averaging Sales with the condition/criteria "Southwest"

Here we are averaging Sales with the condition/criteria "West"

8) We can drag Number fields or Text fields to values area:
   i. If we drag a Number Field, the default calculation will be to SUM, like here where our goal is to add the Sales for Each Region and we dropped the Sales field to the Values area:
      1. 

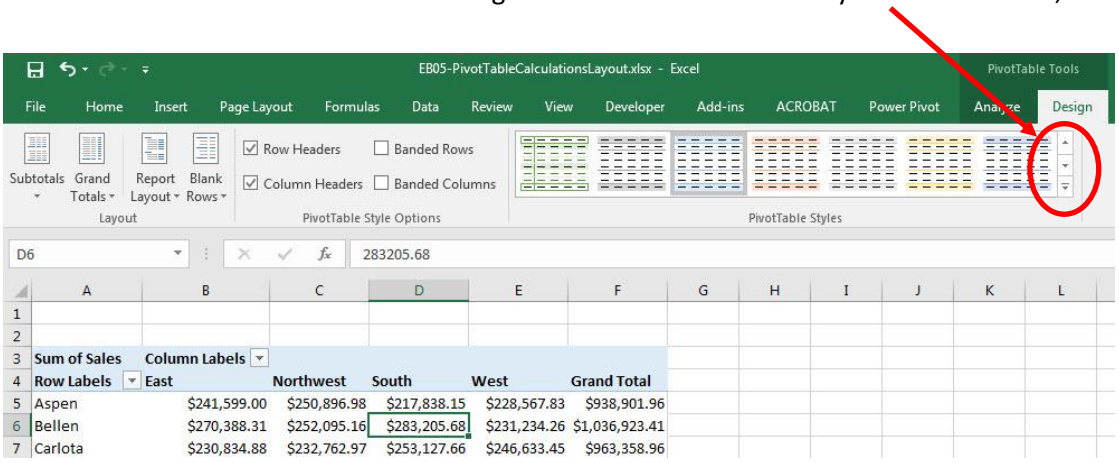
   ii. If we drag a Text Field, the default calculation will be to COUNTA, like here where our goal is to count how many sales we had in each Region and we dropped the Region field to the Values area:
      1. 

9) It is just as easy to make a PivotTable from a small Proper Data Set as it is to make a PivotTable from a large Proper Data Set.
   i. Here is what our Proper Data Set looks like (some rows are hidden):
      1.

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Date | Product | Sales Rep | Region | Sales |
| 2 | 6/13/2017 | Quad | Fran | South | 200.27 |
| 3 | 2/22/2017 | Yanaki | Kiki | Northwest | 243.99 |
| 4 | 8/4/2017 | Quad | Fran | East | 1817.8 |
| 5 | 10/13/2017 | Yanaki | Fran | West | 204.3 |
| 6 | 11/18/2018 | Majestic Beaut | Kiki | West | 2063.08 |
| 13675 | 9/5/2018 | Yanaki | Fran | Northwest | 1154.01 |
| 13676 | 9/2/2017 | Majestic Beaut | Tyrone | East | 368.13 |
| 13677 | 7/19/2017 | Bellen | Fran | South | 522.8 |

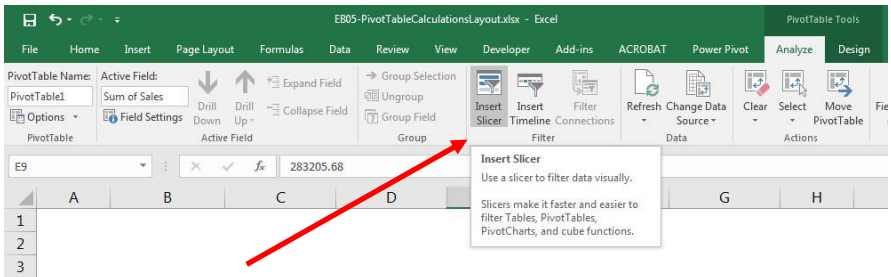
   ii. The keyboard to jump to the bottom of a column (jump to last row before an empty cell) = Ctrl + Down Arrow.
   iii. The keyboard to jump to cell A1 = Ctrl + Home.

10) Format PivotTable with the PivotTable Tools Design Ribbon Tab “PivotTable Styles” More button, like in this picture:
   i.



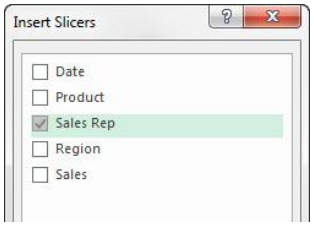

| | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | Sum of Sales | Column Labels | | | | | | | | | | |
| 4 | Row Labels | East | Northwest | South | West | Grand Total | | | | | | |
| 5 | Aspen | $241,599.00 | $250,896.98 | $217,838.15 | $228,567.83 | $938,901.96 | | | | | | |
| 6 | Bellen | $270,388.31 | $252,095.16 | $283,205.68 | $231,234.26 | $1,036,923.41 | | | | | | |
| 7 | Carlota | $230,834.88 | $232,762.97 | $253,127.66 | $246,633.45 | $963,358.96 | | | | | | |

11) PivotTable Slicers
   i. Slicers allow us to add a condition to all the calculations in the PivotTable.
   ii. To insert a Slicer into a PivotTable, click in one cell in the PivotTable Report, then go to the PivotTable Tools Analyze Ribbon Tab, then in the Filter Group, click the Insert Slicer button, like in this picture:
      1.

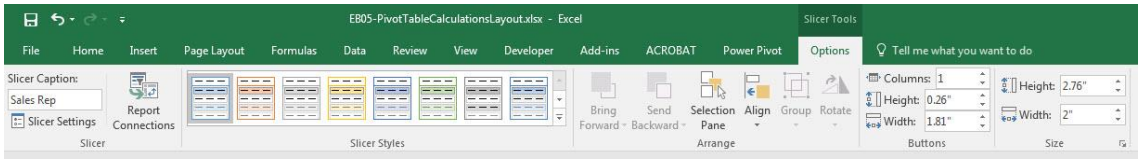



| Sum of Sales | Region | | | | |
|---|---|---|---|---|---|
| Product | East | Northwest | South | West | Grand Total |
| Aspen | $241,599.00 | $250,896.98 | $217,838.15 | $228,567.83 | $938,901.96 |
| Bellen | $270,388.31 | $252,095.16 | $283,205.68 | $231,234.26 | $1,036,923.41 |
| Carlota | $230,834.88 | $232,762.97 | $253,127.66 | $246,633.45 | $963,358.96 |
| Majestic Beaut | $254,395.42 | $192,929.50 | $231,054.83 | $253,568.20 | $931,947.95 |
| Quad | $514,954.28 | $515,297.14 | $554,282.15 | $453,621.59 | $2,038,155.16 |
| Yanaki | $482,779.47 | $498,191.88 | $522,780.03 | $520,873.91 | $2,024,625.29 |
| **Grand Total** | **$1,994,951.36** | **$1,942,173.63** | **$2,062,288.50** | **$1,934,499.24** | **$7,933,912.73** |

iii. In the Insert Slicer Dialog box we can check the filed that we would like, like in this picture:

1. 


iv. If we want to add formatting to the Slicer, with the Slicer selected, we can use the Slicer Tools Options Ribbon Tab, like in this picture:

1. 


12) Summary of how to create PivotTable:

i. Click in one cell in Proper Data Set

ii. Insert Ribbon Tab, Tables group, PivotTable button.

iii. From Field List, drag field name to Rows area or Columns area. These are the conditions/criteria for the calculation in the Values area of the PivotTable.

iv. From Field List drag the field you would like to make a calculation on to values area.

v. With a cell selected in the PivotTable, click on PivotTable Tools Design Ribbon Tab, go to the Layout group, click drop-down for Report Layout and then click on “Show in Tabular Form”.

vi. To add Number Formatting to the Values area of the PivotTable, click in one cell in the Values area of the PivotTable, Right-click the cell and click on “Number Format…”, then in the Number Formatting dialog box select the Number Formatting that you would like and then click OK.

vii. If you want to change the summary calculation in the Values area, right-click the Values area in the PivotTable Report, point to “Summarize Values By” and then select a calculations such as “Average”.

13) Making Calculations with Conditions or Criteria

i. "Calculations with Conditions or Criteria " is an important concept in business because most reports contain calculations with conditions or criteria

ii. Example of adding sales with one condition using SUMIFS. Here we are adding the sales for "Northwest":

1.

| | Date | Region | SalesRep | Sales |
|---|---|---|---|---|
| 14 | 10/20/17 | West | Gigi | $620 |
| 15 | 10/20/17 | Northwest | Gigi | $484 |
| 16 | 10/20/17 | West | Freddy | $376 |

| Region | Total |
|---|---|
| Northwest | =SUMIFS($D$14:$D$35,$B$14:$B$35,F14) |
| Southwest | |
| West | |

iii. Example of adding sales with one condition using PivotTable. The selected cell shows adding the sales for "Northwest":

1.

| | Date | Region | SalesRep | Sales |
|---|---|---|---|---|
| 14 | 10/20/17 | West | Gigi | $620 |
| 15 | 10/20/17 | Northwest | Gigi | $484 |
| 16 | 10/20/17 | West | Freddy | $376 |
| 17 | 10/20/17 | Northwest | Freddy | $1,141 |
| 18 | 10/20/17 | Northwest | Chin | $725 |
| 19 | 10/20/17 | West | Chin | $222 |
| 20 | 10/20/17 | West | June | $1,038 |
| 21 | 10/21/17 | Northwest | Chin | $154 |
| 22 | 10/21/17 | Northwest | Gigi | $205 |
| 23 | 10/21/17 | Southwest | Gigi | $895 |
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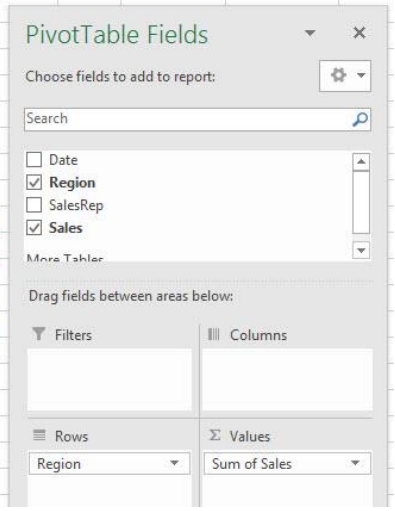
| 25 | 10/22/17 | Northwest | June | $596 |
| 26 | 10/24/17 | Southwest | Gigi | $799 |
| 27 | 10/24/17 | Northwest | Gigi | $651 |
| 28 | 10/24/17 | West | June | $1,235 |
| 29 | 10/24/17 | Southwest | Chin | $684 |
| 30 | 10/24/17 | Northwest | June | $127 |
| 31 | 10/24/17 | West | June | $269 |

| Region | Sum of Sales |
|---|---|
| Northwest | $4,791 |
| Southwest | $3,117 |
| West | $6,215 |
| Grand Total | $14,123 |

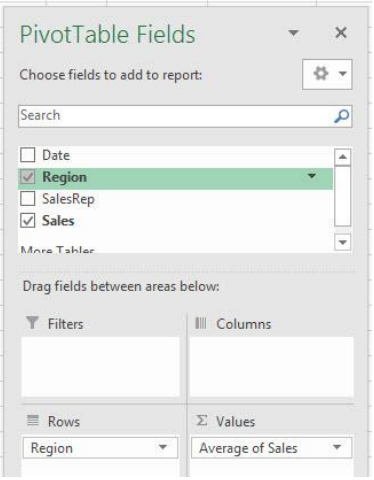



iv. Example of averaging sales with one condition using PivotTable. The selected cell shows an average of sales in "Northwest" Region:

1.

| | Date | Region | SalesRep | Sales |
|---|---|---|---|---|
| 14 | 10/20/17 | West | Gigi | $620 |
| 15 | 10/20/17 | Northwest | Gigi | $484 |
| 16 | 10/20/17 | West | Freddy | $376 |
| 17 | 10/20/17 | Northwest | Freddy | $1,141 |
| 18 | 10/20/17 | Northwest | Chin | $725 |
| 19 | 10/20/17 | West | Chin | $222 |
| 20 | 10/20/17 | West | June | $1,038 |
| 21 | 10/21/17 | Northwest | Chin | $154 |
| 22 | 10/21/17 | Northwest | Gigi | $205 |
| 23 | 10/21/17 | Southwest | Gigi | $895 |
| 24 | 10/21/17 | West | Chin | $1,254 |
| 25 | 10/22/17 | Northwest | June | $596 |
| 26 | 10/24/17 | Southwest | Gigi | $799 |
| 27 | 10/24/17 | Northwest | Gigi | $651 |
| 28 | 10/24/17 | West | June | $1,235 |
| 29 | 10/24/17 | Southwest | Chin | $684 |
| 30 | 10/24/17 | Northwest | June | $127 |
| 31 | 10/24/17 | West | June | $269 |

| Region | Average of Sales |
|---|---|
| Northwest | $479 |
| Southwest | $779 |
| West | $777 |
| Grand Total | $642 |




v. Example of adding sales with two condition / criteria using PivotTable. The interesting cell is an example of adding sales that were by the SalesRep "Chin" in the Region "Northwest":

1.

| Sum of Sales | Region | | | |
|---|---|---|---|---|
| SalesRep | Northwest | Southwest | West | Grand Total |
| June | $1,269 | | $2,542 | $3,811 |
| Chin | $1,041 | $1,423 | $1,476 | $3,940 |
| Freddy | $1,141 | | $376 | $1,517 |
| Gigi | $1,340 | $1,694 | $1,821 | $4,855 |
| **Grand Total** | **$4,791** | **$3,117** | **$6,215** | **$14,123** |

# New Keyboard Shortcut:

1) Keyboard to open Create PivotTable dialog box when a single cell is selected in the Proper Date Set = Alt, N, V.
2) Keyboard to put PivotTable on New Sheet when a single cell is selected in the Proper Date Set = Alt, N, V, Enter.
3) The keyboard to jump to the bottom of a column (jump to last row before an empty cell) = Ctrl + Down Arrow.
4) The keyboard to jump to cell A1 = Ctrl + Home.