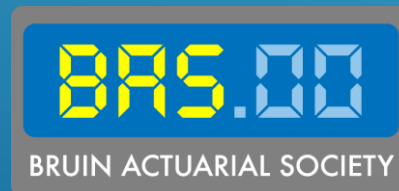


# EXCEL REVIEW

Bruin Actuarial Society



# Keyboard Shortcuts

	Windows/PC	Mac
Jump to end of data table	Ctrl + (Up/Down/Left/Right)	Ctrl + (Up/Down/Left/Right)
Jump to end of data table + highlight entire region	Ctrl + Shift + (Up/Down/Left/Right)	Ctrl + Shift + (Up/Down/Left/Right)
Cycle through absolute cell references	Fn + F4	Cmd + T

# VLOOKUP

VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])

Value you're looking for (must be in the **FIRST** column of table array)

Table with relevant data

Number of the column with the value you want returned

**True (default):**  
Approximate match  
(data must be sorted in ascending order)  
**False:** Exact match

# VLOOKUP (lookup\_value, table\_array, col\_index\_num, [range\_lookup])

- Use quotation marks when looking for a specific value

	A	B	C	D	E
1	<i>Name</i>	<i>Student ID</i>	<b>Formula</b>		<b>Output</b>
2	Joe Bruin	272577814	=VLOOKUP("Joe Bruin",\$A\$2:\$B\$4,2,FALSE)		272577814
3	John Doe	644907243	=VLOOKUP("Jane Doe",\$A\$2:\$B\$4,2,FALSE)		534763964
4	Jane Doe	534763964	=VLOOKUP("Johnny",\$A\$2:\$B\$4,2,FALSE)		#N/A

# VLOOKUP (lookup\_value, table\_array, col\_index\_num, [range\_lookup])

- Approximate match will return the largest value that does not exceed the lookup value

	A	B	C	D	E	F
1	Percent	Grade			Formula	Output
2	0	F		52	=VLOOKUP(D2,\$A\$2:\$B\$6,2,TRUE)	F
3	60	D		85	=VLOOKUP(D3,\$A\$2:\$B\$6,2,TRUE)	B
4	70	C		92	=VLOOKUP(D4,\$A\$2:\$B\$6,2,TRUE)	A
5	80	B		63	=VLOOKUP(D5,\$A\$2:\$B\$6,2,TRUE)	D
6	90	A		75	=VLOOKUP(D6,\$A\$2:\$B\$6,2,TRUE)	C
7				70	=VLOOKUP(D7,\$A\$2:\$B\$6,2,TRUE)	C

# SUMIFS

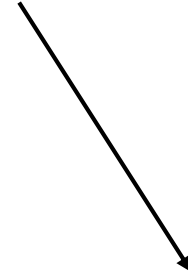
SUMIFS(sum\_range, criteria\_range1, criteria1, [criteria\_range2, criteria2], ...)



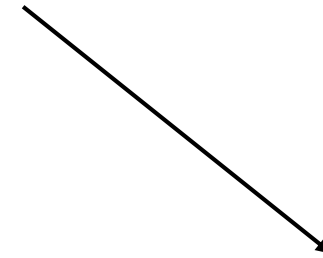
Range of values to be summed



First range of criteria you're looking at



First criteria you're looking for



Can look at one or multiple criteria

SUMIFS(sum\_range, criteria\_range1, criteria1, [criteria\_range2, criteria2], ...)

	A	B	C	D	E	F
1	Gender	Age	Number of Claims		Formula	Output
2	M	24	0		=SUMIFS(C2:C14,A2:A14,"F",B2:B14,">30")	1
3	M	37	1		=SUMIFS(C2:C14,A2:A14,"F")	3
4	M	38	0		=SUMIFS(C2:C14,C2:C14,"1")	5
5	M	31	2			
6	M	28	2			
7	F	36	0			
8	F	25	1			
9	M	60	0			
10	F	27	1			
11	F	61	0			
12	F	35	1			
13	M	32	1			
14	M	54	2			

# COUNTIFS and AVERAGEIFS

- COUNTIFS and AVERAGEIFS are useful formulas that use similar syntax as SUMIFS
- As their names imply, COUNTIFS can be used to determine the count over a specified range when certain criteria are met while AVERAGEIFS can be used to determine the average



# PivotTables



- Select a table or range of data and place it on a new worksheet or the existing one

Create PivotTable

Choose the data that you want to analyze.

Select a table or range

Table/Range: 'Sales Data'!\$A\$4:\$H\$448

Use an external data source

Choose Connection... No data fields have been retrieved.

Choose where to place the PivotTable.

New worksheet

Existing worksheet

Table/Range:

Cancel OK

	A	B	C	D	E	F	G	H	I
Sum of Sales									
Column Labels									
Row Labels	January	February	March	April	May	November	December	Grand Total	
Frozen Yogurt	228816	164259	96570	24552	4482	51246	105984	675909	
Ice Cream	156849	190458	69768	378864	286704	201333	156825	1440801	
Popsicles	21321	44883	86679	42606	132183	18504	68211	414387	
Tasty Treats	105516	133470	198126	248490	41283	115506	42570	884961	
Grand Total	512502	533070	451143	694512	464652	386589	373590	3416058	

# PivotTables: Filter

- Dropdown arrows beside row/column labels

Sum of Sales	Column Labels <span>-T</span>		
Row Labels <span>-T</span>	Bishop	Parker	Grand Total
Frozen Yogurt	\$ 111,132.00	\$ 168,435.00	\$ 279,567.00
Popsicles	\$ 82,413.00	\$ 58,257.00	\$ 140,670.00
Grand Total	\$ 193,545.00	\$ 226,692.00	\$ 420,237.00

Type

Sort

Ascending z↓ Descending

Sort by: Type

Filter

By label: Choose One

By value: Choose One

Q Search

(Select All)

Frozen Yogurt

Ice Cream

Popsicles

Tasty Treats

Clear Filter

- Drag a field down in the filters section.

Month	April <span>-T</span>		
Sum of Sales	Column Labels <span>-T</span>		
Row Labels <span>-T</span>	Bishop	Parker	Grand Total
Popsicles	\$ 14,202.00	\$ 14,202.00	\$ 28,404.00
Grand Total	\$ 14,202.00	\$ 14,202.00	\$ 28,404.00

Filters

: Month i

# PivotTables: Slicer

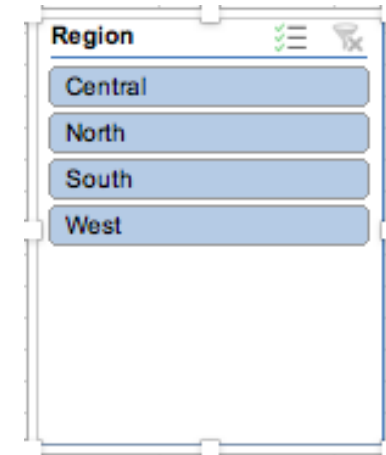
- More robust and accessible way to filter the results of a PivotTable
  - PivotTable Analyze > Insert Slicer

The screenshot shows the Microsoft Excel interface with the PivotTable Analyze ribbon selected. The 'Insert Slicer' button is circled in blue. Below the ribbon, a PivotTable is displayed with the following data:

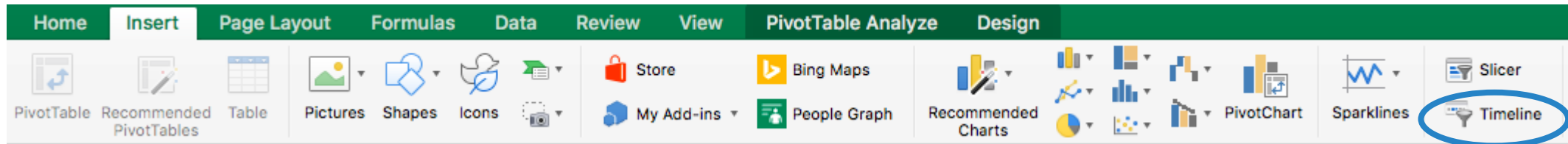
Month	(All)					
Sum of Sales	Column Labels					
Row Labels	Bishop	Lee	Parker	Pullen	Watson	Grand Total
Frozen Yogurt	\$ 111,132.00	\$ 176,229.00	\$ 168,435.00	\$ 120,258.00	\$ 99,855.00	\$ 675,909.00
Ice Cream	\$ 293,892.00	\$ 295,341.00	\$ 312,702.00	\$ 247,527.00	\$ 291,339.00	\$ 1,440,801.00
Popsicles	\$ 82,413.00	\$ 58,266.00	\$ 58,257.00	\$ 83,889.00	\$ 131,562.00	\$ 414,387.00
Tasty Treats	\$ 128,997.00	\$ 228,492.00	\$ 269,775.00	\$ 89,433.00	\$ 168,264.00	\$ 884,961.00
Grand Total	\$ 616,434.00	\$ 758,328.00	\$ 809,169.00	\$ 541,107.00	\$ 691,020.00	\$ 3,416,058.00

The 'Insert Slicers' dialog box is open, showing the following options:

- Year
- Month
- Type
- Salesperson
- Region



# PivotTables: Timeline



- Quicker way to shift your PivotTable according to dates and time and to zoom in and out of specific time periods

# Goal Seek

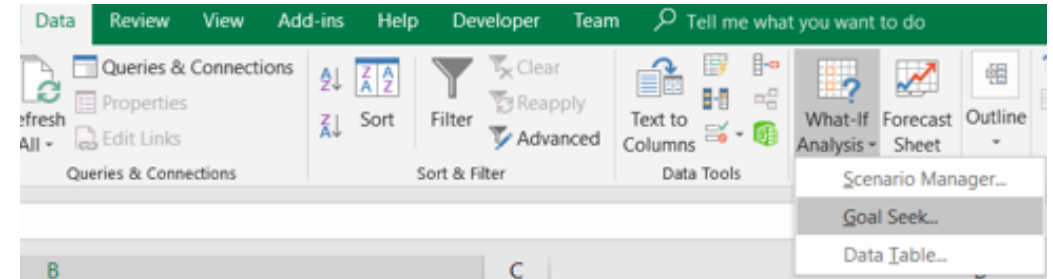
- Solves for a desired output by changing an assumption that drives it
  - Answers “what if” type questions by adjusting one cell entry to see the result
- For example, you want to know how many “NO” voters needed to be converted to win the election ? (needs approval from  $\frac{2}{3}$  (66.67%) of the voters)

Election		Votes	%
	YES	4478	63.90%
	NO	2530	36.10%
	TOTAL	7008	100.00%

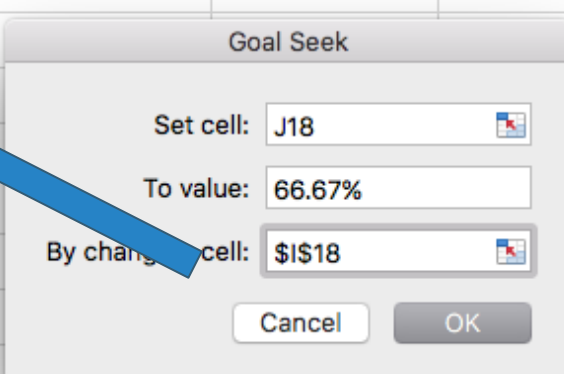
➔ Using Goal Seek we can change the percentage to 66.67% to see how YES votes change.

# Goal Seek

- Data > What-If Analysis > Goal Seek.



Election	Votes	%
YES	4478	63.90%
NO	2530	36.10%
TOTAL	7008	100.00%



Goal Seek

Set cell: J18

To value: 66.67%

By changing cell: \$I\$18

Cancel OK

- Set Cell : click the cell you want to change. ex: 63.90% (J18).
- To value: enter the new “what if” amount. ex: 66.67%.
- By changing cell : tell Excel which cell to change. ex: 4478 (\$I\$18).

# Goal Seek

- Click “OK”. Excel will overwrite the previous cell value with the new one.

Election	Votes	%
YES	4672.2336	66.67%
NO	2530	36.10%
TOTAL	7008	100.00%

Goal Seek Status

Goal Seeking with Cell J18  
found a solution.

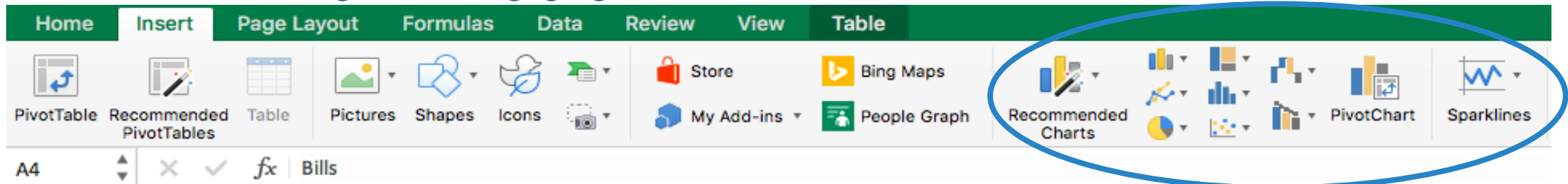
Target value: 0.6667  
Current value: 66.67%

OK  
Cancel  
Step  
Pause

- Notice: The Set cell must contain a formula. ex: 63.90% is YES votes / TOTAL votes.

# Data Visualization

- Presentation of data (both qualitative and quantitative) in a graphical format.
- Why is it useful?
  - Understand the composition, distribution, and overlapping of data
  - Find relationship among data
  - Determine patterns and predict future trends
  - Tell meaningful and engaging stories to decision makers

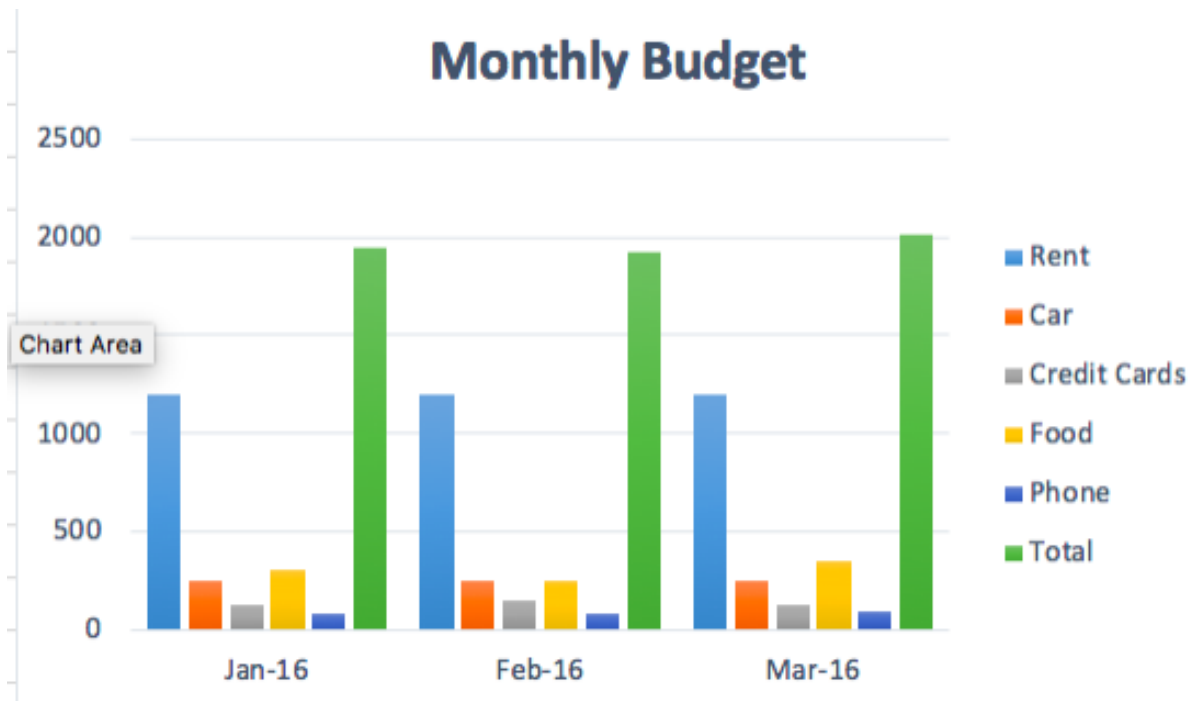




# Data Visualization

- Select Data > Insert a chart > Add chart elements.

Bills	Jan-16	Feb-16	Mar-16	Total	Percent
Rent	1200	1200	1200	3600	0.611724724
Car	250	250	250	750	0.127442651
Credit Cards	125	150	120	395	0.067119796
Food	300	250	350	900	0.152931181
Phone	75	75	90	240	0.040781648
Total	1950	1925	2010	5885	1



- After creating the chart...

- change the title, legend, row/column, color
- find the best chart to visualize your data
- manipulate the chart (lower right corner)

Bills	Jan-16	Feb-16	Mar-16
Rent	1200	1200	1200
Car	250	250	250
Credit Cards	125	150	120
Food	300	250	350
Phone	75	75	90
Total	1950	1925	2010

# Data Visualization

## ■ Chart Design Tab:



## ■ Format Tab:

