MICROSOFT EXCEL INTERMEDIATE COURSE

CLASS REFERENCE NOTES

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REVIEW OF EXCEL FUNCTIONS

Using Excel Functions

EXCEL FUNCTIONS HELP US ACHIEVE OTHERWISE MANUAL TASKS IN A SOMEWHAT AUTOMATED AND EFFICIENT MANNER. THIS SAVES A LOT OF TIME.

TO USE AN EXCEL FUNCTION, ONE MUST START TYPING IN THE TARGET CELL WITH THE = SIGN, FOLLOWED BY THE NAME OF THE FUNCTION, AN OPEN PARENTHESIS, SUPPLYING THE ARGUMENTS AND A CLOSING PARENTHESIS.

ALL EXCEL FUNCTIONS HAVE ARGUMENTS. THESE ARE CALLED THE SYNTAX. THE ARGUMENTS ARE ALWAYS SEPARATED BY COMMA AND CAN BE SEEN AFTER TYPING THE = SIGN WITH THE FUNCTION NAME AND AN OPEN PARENTHESIS (.

TO MAKE IT EASIER TO WRITE FROMULAS IN EXCEL USING FUNCTIONS, PRESS THE KEYBOARD SHORTCUT CTRL + A AFTER THE OPENING PARENTHESIS. ALL THE FUNCTION ARGUMENTS WILL BE LISTED IN SEPARATE BOXES IN THE FUNCTION ARGUMENT DIALOGUE BOX

REVIEW OF EXCEL FUNCTIONS

Text Functions

TEXT FUNCTIONS:

TEXT FUNCTIONS ENABLE US TO USE FUNCTIONS IN EXCEL TO WORK EFFICIENTLY WITH TEXT-STRINGS. EXAMPLES OF THESE FUNCTIONS INCLUDE:

1. PROPER(): TO WRITE TEXTS PROPERLY WITH EACH WORK BEGINNING WITH INITIAL CAPS AND ALL OTHER LETTERS IN LOWER CASES
2. LOWER(): TO CONVERT ALL LETTERS IN A TEXT STRING TO LOWER CASES
3. UPPER(): THE OPPOSITE OF LOWER(). TO CONVERT ALL LETTERS IN A TEXT STRING TO LOWER CASES.
4. LEFT(): TO EXTRACT A NUMBER OF LETTERS FROM A TEXT STRING, STARTING FROM THE LEFT.
5. RIGHT(): THE OPPOSITE OF LEFT(). TO EXTRACT A NUMBER OF LETTERS FROM A TEXT STRING, STARTING FROM THE RIGHT.
6. MID(): TO EXTRACT A NUMBER OF LETTERS FROM A TEXT STRING, STARTING FROM ANYWHERE WITHIN THE TEXT.
7. LEN(): TO COUNT THE NUMBER OF CHARACTERS IN A TEXT STRING.
8. FIND(): To get the position of a character within a text string. This is case sensitive.
9. SEARCH: To get the position of a character within a text string. This is NOT case sensitive.

We will use all of these text functions on the texts in the exercise file as shown below.

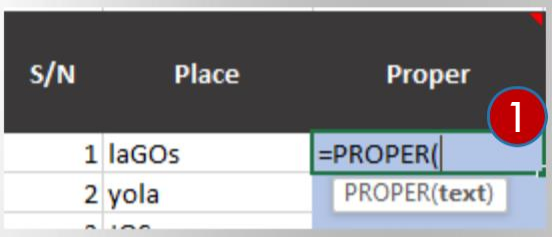
	A	B
1	Text Functions	
2		
3		
4	S/N	Place
5	1	laGOs
6	2	yola
7	3	JOS
8	4	UYo
9	5	onitsha
10	6	OSUN
11	7	iMO
12	8	iloRIN

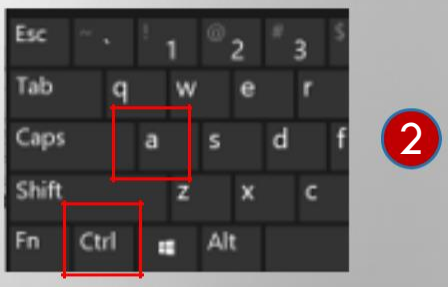
REVIEW OF EXCEL FUNCTIONS

Text Functions

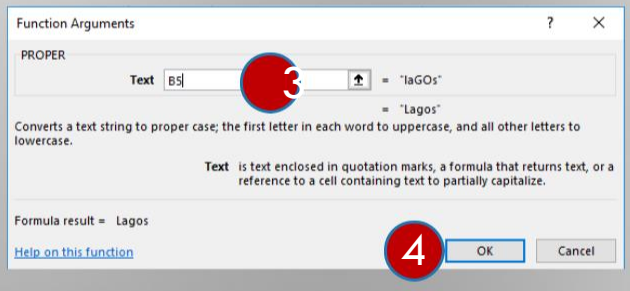
PROPER()

TO WRITE THE TEXTS IN COLUMN B PROPERLY, USING COLUMN C AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:





1. ON CELL C5, TYPE =PROPER(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A
3. CLICK INSIDE THE ARGUMENT BOX AND SELECT CELL B5
4. PRESS OK
5. DRAG DOWN THE FROMULA FROM C5 TO C12

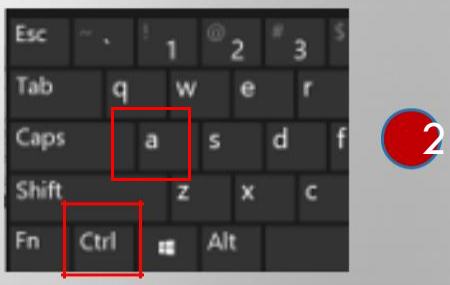


REVIEW OF EXCEL FUNCTIONS

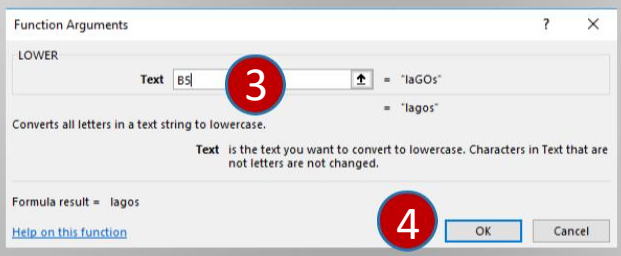
Text Functions

LOWER()

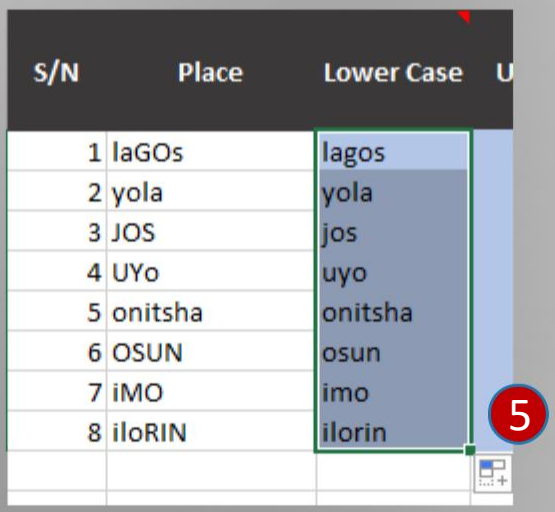
TO CONVERT THE TEXTS IN COLUMN B ALL TO LOWER CASE, USING COLUMN D AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:



1. ON CELL D5, TYPE =LOWER(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A



3. CLICK INSIDE THE ARGUMENT BOX AND SELECT CELL B5
4. PRESS OK
5. DRAG DOWN THE FROMULA FROM D5 TO D12

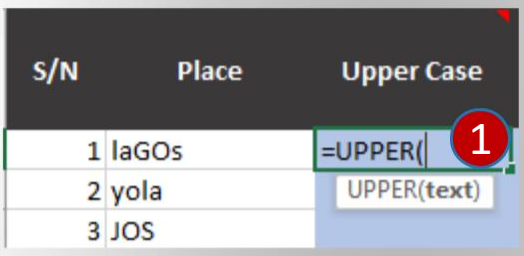


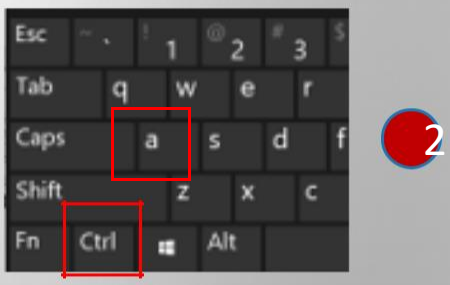
REVIEW OF EXCEL FUNCTIONS

Text Functions

UPPER()

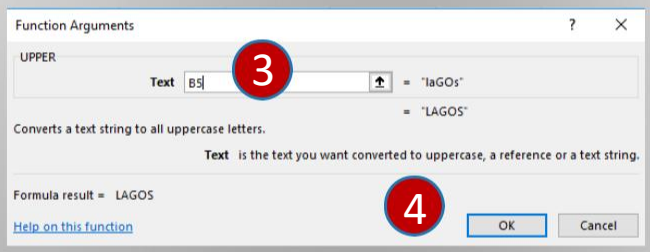
TO CONVERT THE TEXTS IN COLUMN B ALL TO UPPER CASE, USING COLUMN E AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:





1. ON CELL E5, TYPE =LOWER(
2. HOLD DOWN YOU CTRL

   KEY ON YOUR KEYBOARD AND PRESS THE LETTER A



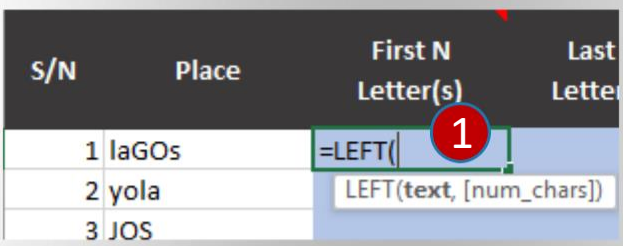
3. CLICK INSIDE THE ARGUMENT BOX AND SELECT CELL B5
4. PRESS OK
5. DRAG DOWN THE FROMULA FROM E5 TO E12

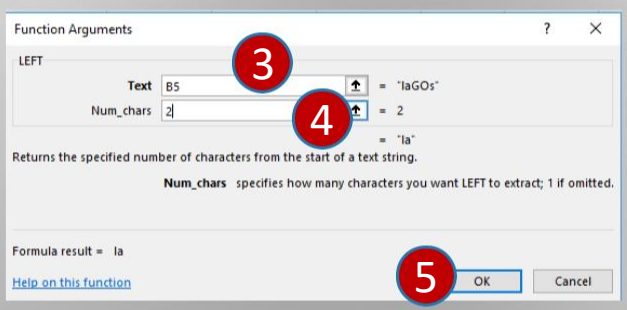
REVIEW OF EXCEL FUNCTIONS

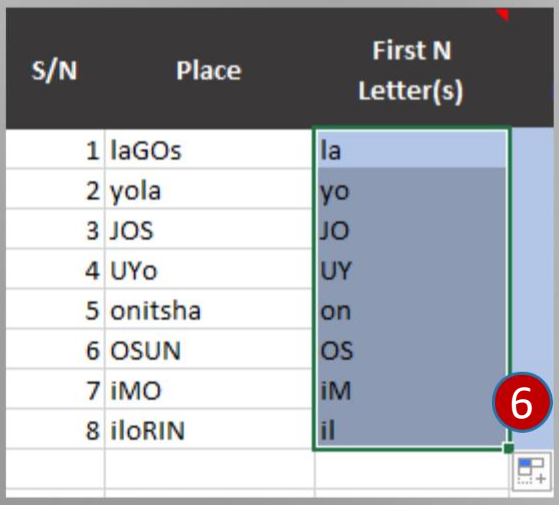
Text Functions

LEFT()

TO EXTRACT THE FIRST 2 LETTERS FROM TEXTS IN COLUMN B STARTING FROM THE LEFT AND USING COLUMN F AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:







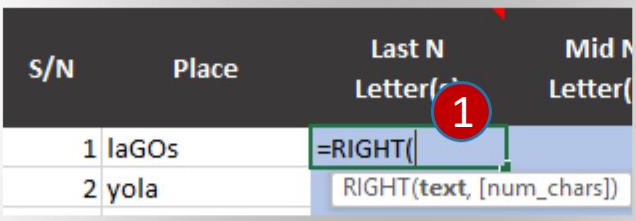
1. ON CELL F5, TYPE =LEFT(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A
3. CLICK INSIDE THE 1ST ARGUMENT BOX AND SELECT CELL B5
4. IN THE 2ND ARGUMENT BOX, TYPE 2
5. PRESS OK
6. DRAG DOWN THE FROMULA FROM F5 TO F12

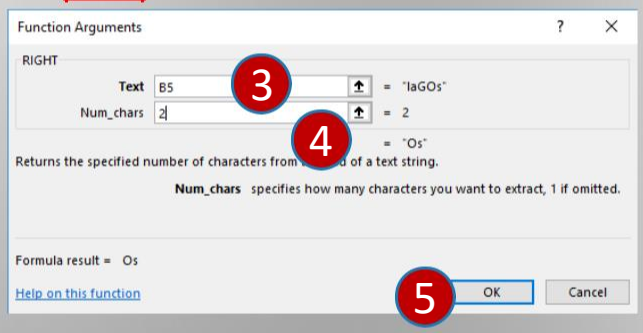
REVIEW OF EXCEL FUNCTIONS

Text Functions

RIGHT()

TO EXTRACT THE LAST 2 LETTERS FROM TEXTS IN COLUMN B STARTING FROM THE RIGHT AND USING COLUMN G AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:





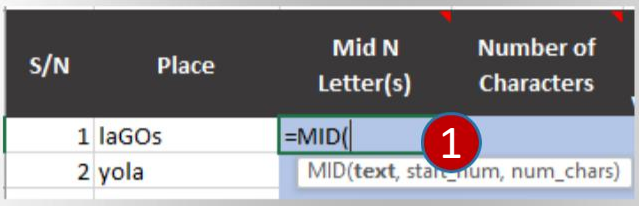
1. ON CELL G5, TYPE =RIGHT(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A
3. CLICK INSIDE THE 1ST ARGUMENT BOX AND SELECT CELL B5
4. IN THE 2ND ARGUMENT BOX, TYPE 2
5. PRESS OK
6. DRAG DOWN THE FROMULA FROM G5 TO G12

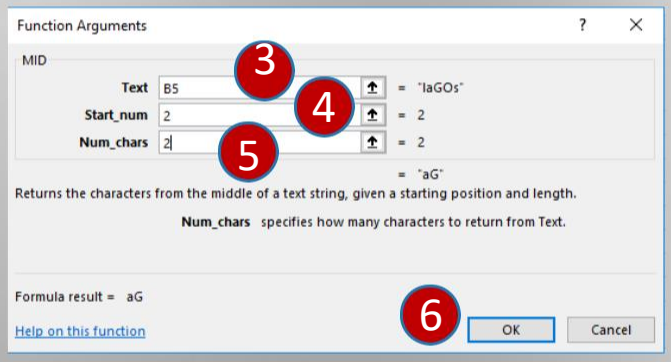
REVIEW OF EXCEL FUNCTIONS

Text Functions

MID()

TO EXTRACT 2 LETTERS FROM THE TEXTS IN COLUMN B STARTING FROM THE 2ND TEXT RIGHT AND USING COLUMN H AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:





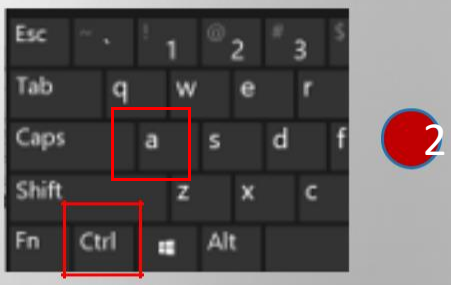
1. ON CELL H5, TYPE =MID(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A
3. CLICK INSIDE THE 1ST ARGUMENT BOX AND SELECT CELL B5
4. IN THE 2ND ARGUMENT BOX, TYPE 2
5. IN THE 3RD ARGUMENT BOX, TYPE 2
6. PRESS OK
7. DRAG DOWN THE FROMULA FROM H5 TO H12

REVIEW OF EXCEL FUNCTIONS

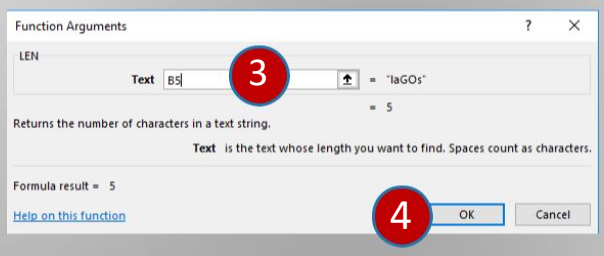
Text Functions

LEN()

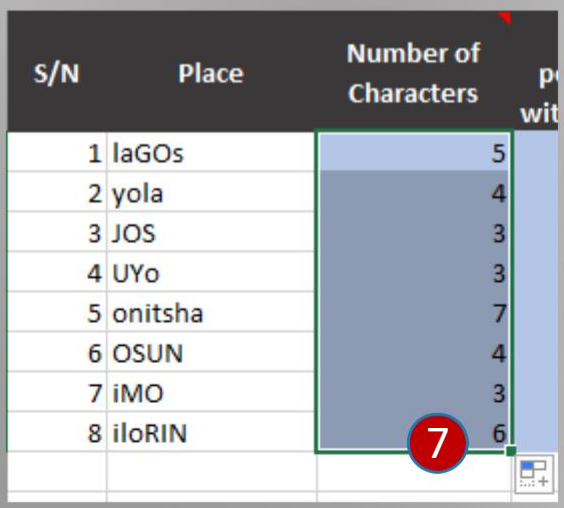
TO KNOW THE NUMBER OF CHARACTERS IN THE TEXTS ON COLUMN B USING COLUMN I AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:



1. ON CELL I5, TYPE =LEN(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A



3. CLICK INSIDE THE 1ST ARGUMENT BOX AND SELECT CELL B5
4. PRESS OK
5. DRAG DOWN THE FROMULA FROM I5 TO I12

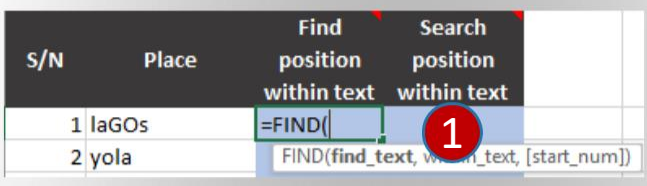


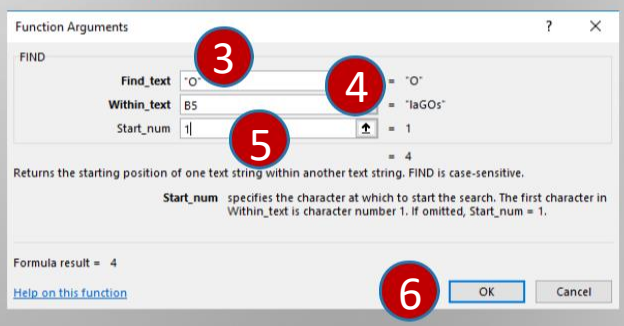
REVIEW OF EXCEL FUNCTIONS

Text Functions

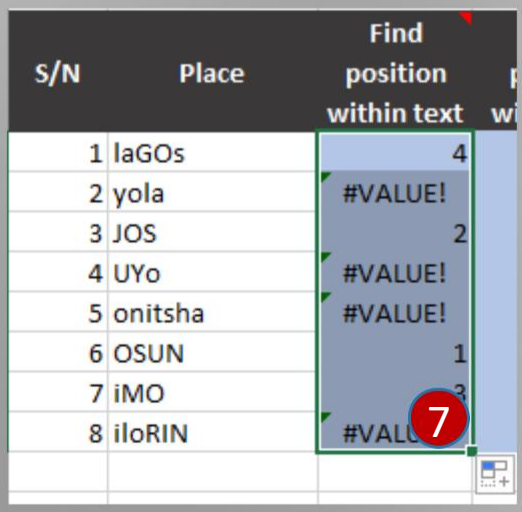
FIND()

TO KNOW THE POSITION OF LETTER "O" IN THE TEXTS ON COLUMN B USING COLUMN J AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:





1. ON CELL J5, TYPE =FIND(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A
3. CLICK INSIDE THE 1ST ARGUMENT BOX AND TYPE O
4. CLICK INSIDE THE 2ND ARGUMENT BOX AND SELECT CELL B5
5. CLICK INSIDE THE 3RD ARGUMENT BOX AND TYPE 1
6. PRESS OK
7. DRAG DOWN THE FROMULA FROM J5 TO J12



NOTE: FIND IS CASE SENSITIVE. THAT IS THE REASON WE HAVE #VALUE ERROR FOR SOME TEXTS WHERE THE LETTER O IS IN SMALL CASE. WHILE WE USED FIND FOR CAPITAL O.

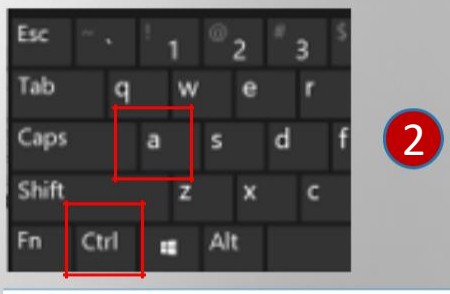
REVIEW OF EXCEL FUNCTIONS

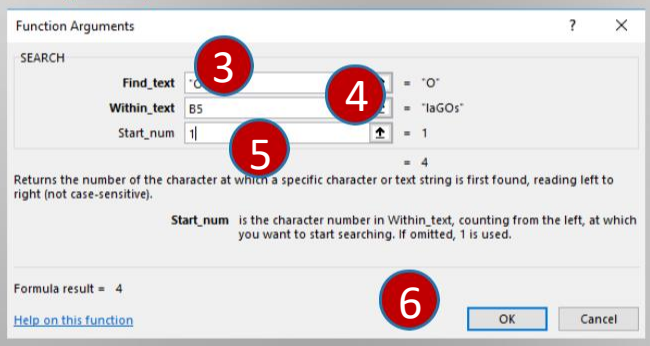
Text Functions

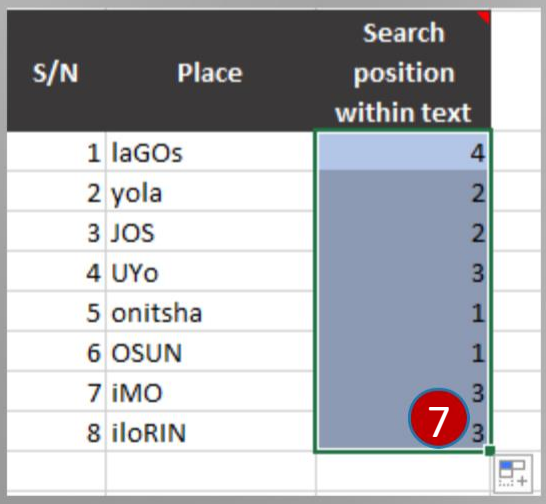
SEARCH()

TO KNOW THE POSITION OF LETTER "O" IN THE TEXTS ON COLUMN B USING COLUMN K AS OUR RESULT DESTINATION FOLLOW THE STEPS BELOW:

1. ON CELL K5, TYPE =FIND(
2. HOLD DOWN YOU CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A
3. CLICK INSIDE THE 1ST ARGUMENT BOX AND TYPE O
4. CLICK INSIDE THE 2ND ARGUMENT BOX AND SELECT CELL B5
5. CLICK INSIDE THE 3RD ARGUMENT BOX AND TYPE 1
6. PRESS OK
7. DRAG DOWN THE FROMULA FROM K5 TO K12







NOTE: SEARCH IS NOT CASE SENSITIVE. UNLIKE FIND, SEARCH PRODUCES VALID RESULTS IRRESPECTIVE OF THE CASE WE HAVE PUT THE LETTER O

REVIEW OF EXCEL FUNCTIONS

Text Functions

COMBINING FUNCTIONS

FOR SOME MORE COMPLEX REQUIREMENTS, WE MAY NEED TO COMBINE TWO OR MORE FUNCTIONS.

IN THIS CASE, WE WOULD BE SUPPLYING AN ARGUMENT IN THE SYNTAX OF AN EXCEL FUNCTION WITH ANOTHER FUNCTION.

FOR EXAMPLE, IF A FUNCTION HAS 2 ARGUMENTS AS TEXT AND STARTING POSITION. WE CAN USE THE SEARCH FUNCTION TO RETURN THE STARTING POSITION BY SEARCHING FOR THE POSITION OF A CHARACTER.

USING OUR KNOWLEDGE OF TEXT FUNCTIONS, WE CAN ATTEMPT TO SOLVE THE PROBLEM OF SPLITTING FIRST NAME AND LAST NAME WHERE BOTH ARE SEPARATED BY COMMA.

The approach in writing complex formulas is always breaking it down into simple problems and looking for a function that can solve each of the broken down problems.

S/N	Full Name	First Name	Last Name
1	Frank Lampard		
2	Alex Fergie		
3	Lionel Messi		
4	Steven Gerrard		
5	Alessandro Nesta		
6	David James		
7	Patrick Viera		
8	Christain Vieri		
9	David Beckham		
10	Sunday Oliseh		

We can use the LEFT() function to extract the first name.

For Frank Lampard, it will be taking the first 5 letters from the left.

For Alex Fergie, it will be the first 4 letters from the left.

Left will work fine, but how can we dynamically find the number of characters from the left in such a way that it will always tell the correct number on each text?

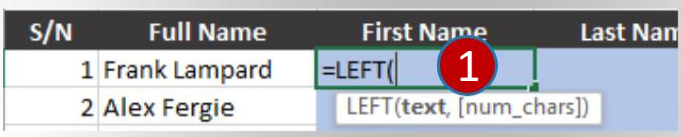
If we find the position of space character and minus 1 from it, we should be fine.

REVIEW OF EXCEL FUNCTIONS

Text Functions

COMBINING FUNCTIONS

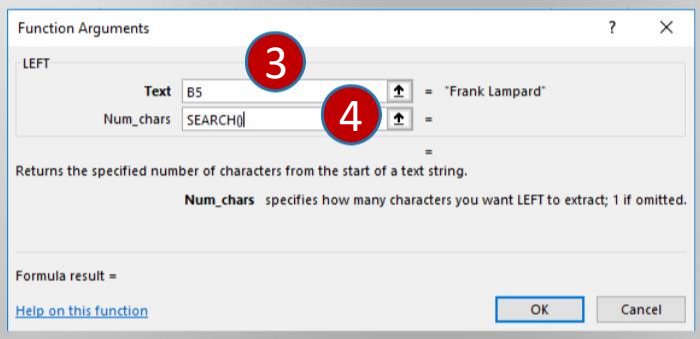
TO EXTRACT THE FIRST NAME, FOLLOW THE FOLLOWING STEPS:



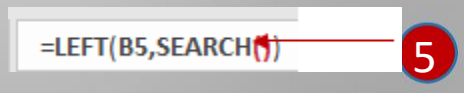
1. ON CELL C5, TYPE = LEFT(

2. HOLD DOWN CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A

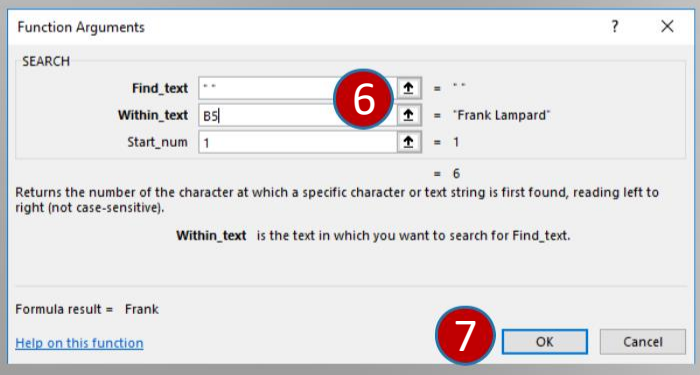
3. IN THE 1ST ARGUMENT BOX, SELECT CELL B5



4. IN THE 2ND ARGUMENT BOX, TYPE SEARCH().
   NOTE: WE ARE USING THE SEARCH FUNCTION TO HELP US KNOW THE POSITION OF THE SPACE AS THAT WILL DETERMINE HOW MANY CHARACTERS WE WANT FROM THE LEFT. ALL CHARACTERS BEFORE THE SPACE. ENSURE TO OPEN AND CLOSE PARENTHESIS AFTER TYPING SEARCH.



5. GO TO THE FORMULA BAR AND CLICK ON THE SEARCH TO OPEN THE ARGUMENT BOX FOR SEARCH.



6. IN THE 1ST BOX, PRESS YOUR SPACE BAR, IN THE 2ND BOX SELECT CELL B5 AND TYPE 1 IN THE 3RD BOX.
7. CLICK OK
8. DRAG DOWN THE FORMULA.

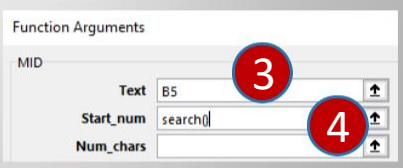
REVIEW OF EXCEL FUNCTIONS

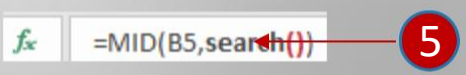
Text Functions

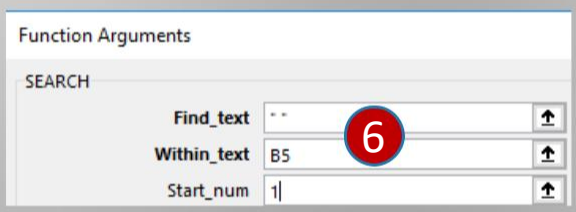
COMBINING FUNCTIONS

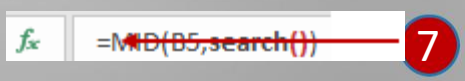
TO EXTRACT THE LAST NAME, FOLLOW THE FOLLOWING STEPS:

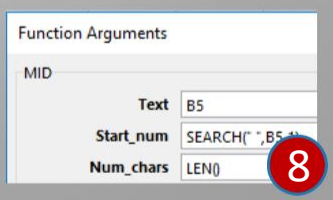
1. ON CELL C5, TYPE = MID(
2. HOLD DOWN CTRL KEY ON YOUR KEYBOARD AND PRESS THE LETTER A
3. IN THE 1ST ARGUMENT BOX, SELECT CELL B5
4. IN THE 2ND ARGUMENT BOX, TYPE SEARCH().
   NOTE: WE ARE USING THE SEARCH FUNCTION TO HELP US KNOW THE POSITION OF WHERE THE LAST NAME STARTS FROM
5. GO TO THE FORMULA BAR AND CLICK ON THE SEARCH TO OPEN THE ARGUMENT BOX FOR SEARCH.
6. IN THE 1ST BOX, PRESS YOUR SPACE BAR, IN THE 2ND BOX SELECT CELL B5 AND TYPE 1 IN THE 3RD BOX.
7. GO BACK TO THE FORMULA BAR AND CLICK MID TO GO BACK TO MID ARGUMENT BOX
8. IN THE 3RD BOX, TYPE LEN()
   NOTE: WE ARE USING LEN TO FIND THE NUMBER OF CHARACTERS IN THE TEXT SO WE CAN COVER ADEQUATELY FOR ENOUGH CHARACTERS TO PICK THE LAST NAME.
9. SELECT LEN FROM THE FORMULA BAR. THEN SELECT CELL B5 IN THE 1ST BOX OF LEN. THEN CLICK OK
10. DRAG DOWN THE FORMULA

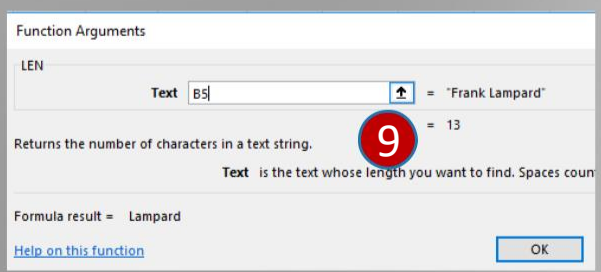












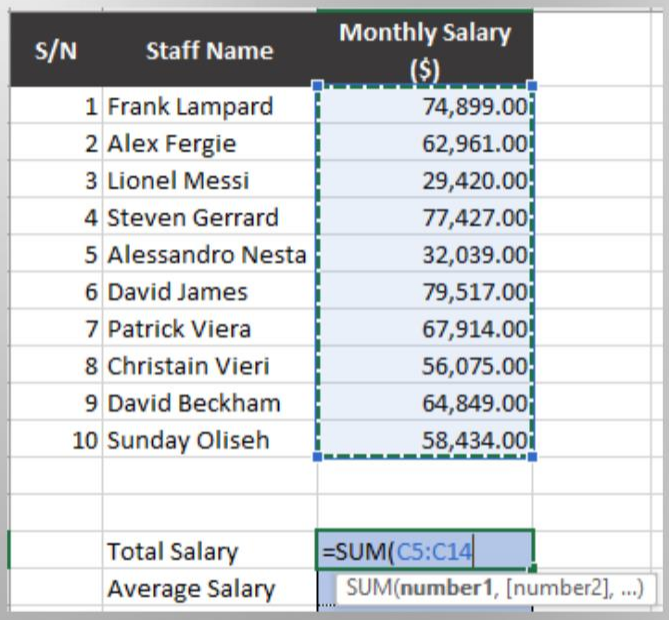
S/N	Full Name	Last Name
1	Frank Lampard	Lampard
2	Alex Fergie	Fergie
3	Lionel Messi	Messi
4	Steven Gerrard	Gerrard
5	Alessandro Nesta	Nesta

REVIEW OF EXCEL FUNCTIONS

Aggregate Functions

AGGREGATE FUNCTIONS ARE SIMPLE MATHEMATICAL FUNCTIONS THAT AGGREGATES A SET OF NUMBERS AND RETURNS A SINGLE VALUE. EXAMPLES INCLUDE: SUM(), AVERGE(), MIN() AND MAX()

1. SUM: USED TO SUM UP SELECTED NUMBERS, CELLS OR RANGE OF CELLS
2. AVERAGE(): USED TO GET THE AVERAGE OF SELECTED NUMBERS, CELLS OR RANGE OF CELLS
3. MIN(): USED TO GET THE SMALLEST OF SELECTED NUMBERS, CELLS OR RANGE OF CELLS
4. MAX(): USED TO GET THE LARGEST OF SELECTED NUMBERS, CELLS OR RANGE OF CELLS.



S/N	Staff Name	Monthly Salary ($)
1	Frank Lampard	74,899.00
2	Alex Fergie	62,961.00
3	Lionel Messi	29,420.00
4	Steven Gerrard	77,427.00
5	Alessandro Nesta	32,039.00
6	David James	79,517.00
7	Patrick Viera	67,914.00
8	Christain Vieri	56,075.00
9	David Beckham	64,849.00
10	Sunday Oliseh	58,434.00
	Total Salary	=SUM(C5:C14
	Average Salary	SUM(**number1**, [number2], ...)

TO GET CALCULATE THE ABOVE FOR OUR EXERCISE, IN THE TARGET CELL, JUST TYPE = FOLLOWED BY THE NAME OF THE FUNCTION AND AN OPEN PARENTHESIS. THEN DRAG TO SELECT/HIGHLIGHT CELLS C5 TO C14

REVIEW OF EXCEL FUNCTIONS

Cell Referencing

EXCEL IS ALL ABOUT CELLS. ANYTIME YOU SELECT ANOTHER CELL WHILE WRITING A FORMULA, YOU ARE REFERENCING THE SELECTED CELL. IF YOU HAVE TO REPLICATE THAT FORMULA ON OTHER CELLS, YOU MAY EXPECT YOUR REFERENCED CELL TO CHANGE. IT WILL MOVE IN THE SAME DIRECTION YOU HAVE REPLICATED AND THE SAME NUMBER OF CELLS.

FOR EXAMPLE, IF YOUR FORMULA ON CELL C1 IS REFERENCING CELL A1 AND YOU COPY DOWN 2 STEPS, YOUR REFERENCE WILL NOW BE A3. IF YOU COPY RIGHT 1 STEP, YOUR FORMULA WILL NOW START REFERENCING B1. ETC.

THIS BEHAVIOR MAY BE UNWANTED FOR VARIOUS REASONS IN CALCULATIONS. THEREFORE, WE NEED TO HAVE CONTROL OVER HOW THIS REFERENCING MOVES AND CHANGES WHEN A FORMULA IS REPLICATED ON OTHER CELLS.

Types of Cell Referencing:

1. Relative Referencing: Nothing is locked, the referenced cell can change in any direction.
2. Row Lock: The row is locked so the referencing can't change going up or down, but it can change going left or right
3. Column Lock: The column is locked so the referencing can't change going left or right but it can change going up and down
4. Absolute Lock: Both row and column are locked. The reference will never change

To toggle the four referencing styles, click F4 or fn F4 on your laptop. The locks are signified by $ sign before the letter or number on the cell.

$ before number means row lock

$ before letter means column lock

$ before both is absolute lock No

$ means no lock. Relative

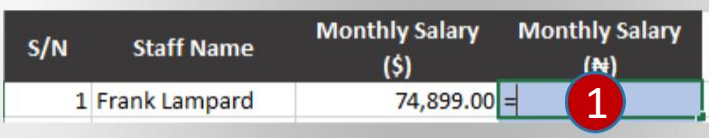
REVIEW OF EXCEL FUNCTIONS

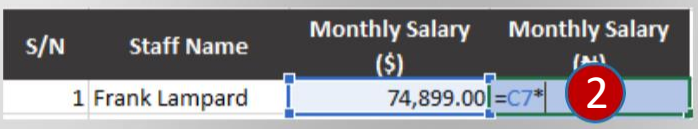
Cell Referencing

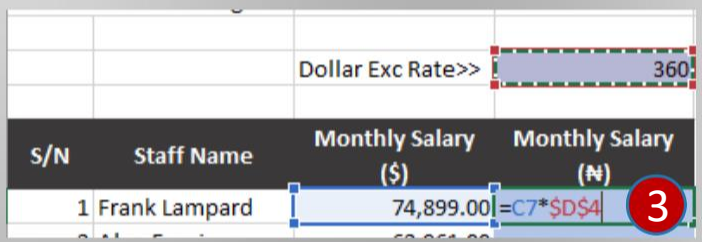
CELL REFERENCING EXERCISE 1:

TO MULTIPLY ALL THE SALARIES BY THE EXCHANGE RATE, WE NEED TO LOCK CELL D4 SO THAT EACH SALARY ON COLUMN C CAN MULTIPLY BY IT WHEN WE WRITE THE FORMULA ON D7 AND COPY DOWN THE FORMULA.

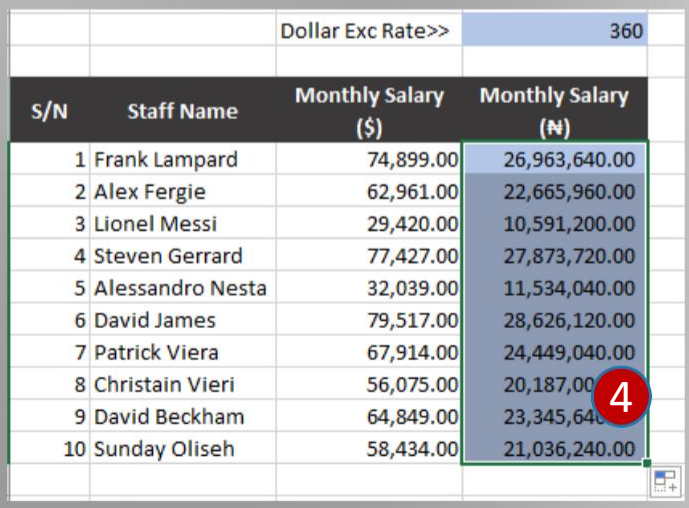
STEPS:







1. ON CELL D7, TYPE =
2. SELECT C7 AND TYPE *
3. SELECT D4 AND PRESS THE F4 KEY ONCE. (OR FN F4 DEPENDING ON BEHAVIOR OF F KEYS ON YOUR LAPTOP)
4. PRESS ENTER AND DRAG THE FORMULA DOWN

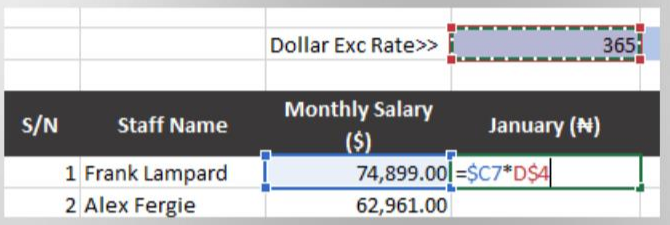


REVIEW OF EXCEL FUNCTIONS

Cell Referencing

CELL REFERENCING EXERCISE 2 – MIXING CELL REFERENCING:

TO MULTIPLY THE SALARIES ON COLUMN C WITH THE EXCHANGE RATES ON ROW 4, WE NEED TO WRITE OUR FORMULA ON CELL D7, THEN DRAG IT RIGHT TO O7 AND DOWN TO O 16 TO REPLICATE ACROSS ALL THE MONTHS AND ALL THE STAFF.



		Dollar Exc Rate>>	365
S/N	Staff Name	Monthly Salary ($)	January (₦)
1	Frank Lampard	74,899.00	=$C7*D$4
2	Alex Fergie	62,961.00	

SINCE THE SALARIES TO MULTIPLY EACH MONTH IS ON COLUMN C, WE NEED TO LOCK C IN OUR FORMULA SO THAT WHEN WE COPY IT TO THE RIGHT FORM ONE MONTH TO ANOTHER, IT CONTINUES TO LOOK AT WHAT IS ON C. WE WILL LEAVE THE ROW FREE SO IT CAN DO THE SAME FOR THE NEXT EMPLOYEE WHEN WE COPY DOWN.

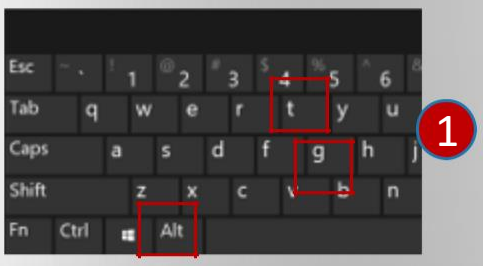
	Dollar Exc Rate>>	365	360	364
Staff Name	Monthly Salary ($)	January (₦)	February (₦)	March (₦)
Frank Lampard	74,899.00	27,338,135.00	26,963,640.00	27,263,236.00
Alex Fergie	62,961.00	22,980,765.00	22,665,960.00	22,917,804.00
Lionel Messi	29,420.00	10,738,300.00	10,591,200.00	10,708,880.00
Steven Gerrard	77,427.00	28,260,855.00	27,873,720.00	28,183,428.00
Alessandro Nesta	32,039.00	11,694,235.00	11,534,040.00	11,662,196.00
David James	79,517.00	29,023,705.00	28,626,120.00	28,944,188.00
Patrick Viera	67,914.00	24,788,610.00	24,449,040.00	24,720,696.00
Christain Vieri	56,075.00	20,467,375.00	20,187,000.00	20,411,300.00
David Beckham	64,849.00	23,669,885.00	23,345,640.00	23,605,036.00
Sunday Oliseh	58,434.00	21,328,410.00	21,036,240.00	21,269,976.00

BECAUSE THE SAME EXCHANGE RATE FOR A MONTH IS WHAT APPLIES TO ALL EMPLOYEES, WE NEED TO LOCK THE ROW SO IT CONTINUES TO LOOK AT THAT CELL. WE WILL LEAVE THE COLUMN FREE BECAUSE WE WANT THE SAME THING TO APPLY WHEN WE COPY RIGHT TO PICK THE EXCHANGE RATE OF THE NEXT MONTH.

THE FORMULA WILL LOOK AS SHOWN IN THE IMAGE TO THE RIGHT

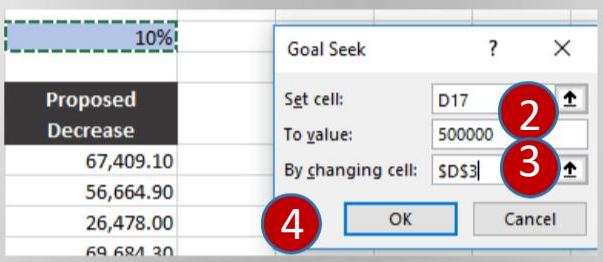
REVIEW OF EXCEL FUNCTIONS

Goal Seek



GOAL SEEK EXERCISE:

GOAL SEEK CAN BE USED TO SET WHAT THE INPUT OF A CALCULATION SHOULD BE TO ACHIEVE A DESIRED OUTPUT.



THE KEYBOARD SHORTCUT TO ACTIVATE GOAL SEEK IS ALT + T + G. ALL PRESSED SEPARATELY.

TO DETERMINE HOW MANY PERCENT WE NEED TO REDUCE SALARIES TO MAKE TOTAL SALARIES 500,000, WE SHOULD:

		Decrease Rate	17%
S/N	Staff Name	Monthly Salary ($)	Proposed Decrease
1	Frank Lampard	74,899.00	62,050.25
2	Alex Fergie	62,961.00	52,160.19
3	Lionel Messi	29,420.00	24,373.07
4	Steven Gerrard	77,427.00	64,144.58
5	Alessandro Nesta	32,039.00	26,542.79
6	David James	79,517.00	65,876.05
7	Patrick Viera	67,914.00	56,263.51
8	Christain Vieri	56,075.00	46,455.47
9	David Beckham	64,849.00	53,724.31
10	Sunday Oliseh	58,434.00	48,409.79
		603,535.00	500,000.00

STEPS:

1. BE ON THE RESULT CELL ON D17, PRESS ALT + T + G
2. INSIDE THE BOX FOR TO VALUE, TYPE 500,000
3. INSIDE THE BOX FOR BY CHANGING CELL, SELECT CELL D3
4. CLICK OK AND CLICK OK

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

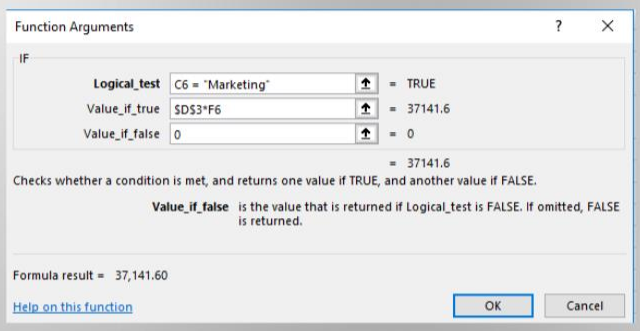
IF()

IF IS A CONDITIONAL FUNCTION. IT ALLOWS US DYNAMICALLY SPECIFY WHAT SHOULD HAPPEN IF A CONDITION IS MET.

IF() HAS 3 ARGUMENTS:

1. LOGICAL TEST: THE CONDITION TO BE TESTED. THIS IS ALWAYS USED WITH THE SIX CONDITIONAL OPERATORS (EQUAL TO =, LESS THAN < , GREATER THAN >, LESS THAN OR EQUAL TO <=, GREATER THAN OR EQUAL TO >=, NOT EQUAL TO <>)
2. VALUE IF TRUE: THE RESULT DESIRED IF THE CONDITION IS MET
3. VALUE IF FALSE: THE RESULT DESIRED IF THE CONDITION IS NOT MET.

Assuming we want to pay a bonus to people working in Marketing Department alone from the IF exercise sheet, then we would write our formula as shown below.



S/N	Name	Department	Gender	KPI	Salary	Bonus Pay
1	Bruce	Marketing	Male	95%	371,416.00	37,141.60
2	Jacob	IT	Male	51%	156,063.00	0.00
3	Melvin	Finance	Male	70%	525,046.00	0.00
4	Alicia	Marketing	Female	85%	578,398.00	57,839.80
5	Paul	Marketing	Male	79%	537,882.00	53,788.20
6	Hannah	Finance	Female	91%	529,960.00	0.00
7	Sarah	Support	Female	67%	305,070.00	0.00
8	Abbott	Finance	Male	50%	212,852.00	0.00
9	Abel	Support	Male	93%	341,394.00	0.00
10	Lucy	Finance	Female	64%	492,432.00	0.00
11	Jack	Support	Male	59%	279,201.00	0.00
12	Aaron	Marketing	Male	90%	427,742.00	42,774.20

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

IF() WITH AND() AND OR()

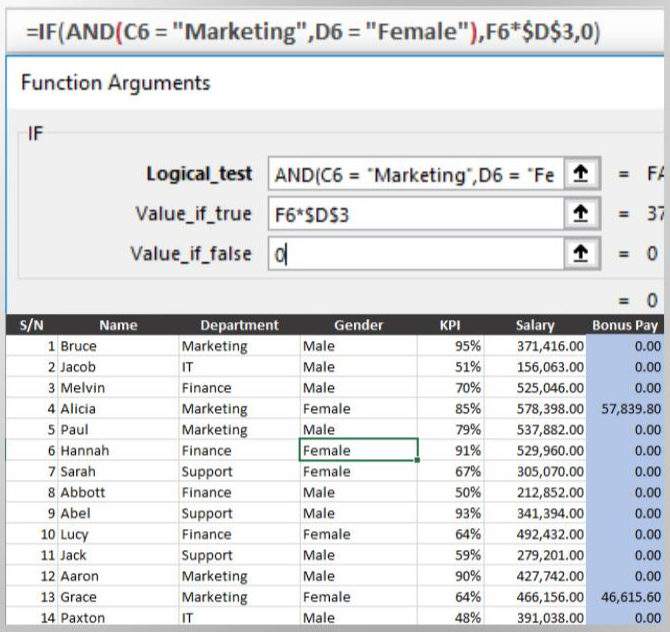
BECAUSE THE IF() FUNCTION CAN TEST ONLY ONE CONDITION, IF WE NEED TO TEST MORE THAN ONE CONDITION, THEN WE NEED TO INTRODUCE AND OR OR DEPENDING ON:

1. IF ALL CONDITIONS MUST BE MET BEFORE APPLYING THE DESIRED RESULT, USE AND()
2. IF ONLY A MINIMUM OF 1 CONDITION NEEDS TO BE MET, USE OR()

a) ASSUMING WE ARE PAYING THE BONUS TO MARKETING STAFF WHO ARE FEMALE

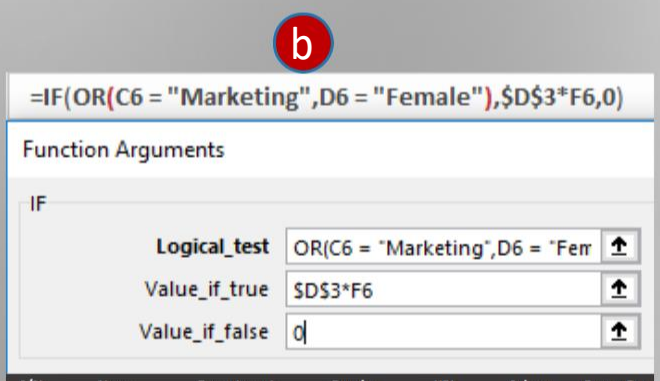
b) ASSUMING WE ARE PAYING THE BONUS TO PEOPLE WHO ARE EITHER IN MARKETING OR ARE FEMALE

a



S/N	Name	Department	Gender	KPI	Salary	Bonus Pay
1	Bruce	Marketing	Male	95%	371,416.00	0.00
2	Jacob	IT	Male	51%	156,063.00	0.00
3	Melvin	Finance	Male	70%	525,046.00	0.00
4	Alicia	Marketing	Female	85%	578,398.00	57,839.80
5	Paul	Marketing	Male	79%	537,882.00	0.00
6	Hannah	Finance	Female	91%	529,960.00	0.00
7	Sarah	Support	Female	67%	305,070.00	0.00
8	Abbott	Finance	Male	50%	212,852.00	0.00
9	Abel	Support	Male	93%	341,394.00	0.00
10	Lucy	Finance	Female	64%	492,432.00	0.00
11	Jack	Support	Male	59%	279,201.00	0.00
12	Aaron	Marketing	Male	90%	427,742.00	0.00
13	Grace	Marketing	Female	64%	466,156.00	46,615.60
14	Paxton	IT	Male	48%	391,038.00	0.00

b



S/N	Name	Department	Gender	KPI	Salary	Bonus Pay
1	Bruce	Marketing	Male	95%	371,416.00	37,141.60
2	Jacob	IT	Male	51%	156,063.00	0.00
3	Melvin	Finance	Male	70%	525,046.00	0.00
4	Alicia	Marketing	Female	85%	578,398.00	57,839.80
5	Paul	Marketing	Male	79%	537,882.00	53,788.20
6	Hannah	Finance	Female	91%	529,960.00	52,996.00
7	Sarah	Support	Female	67%	305,070.00	30,507.00
8	Abbott	Finance	Male	50%	212,852.00	0.00
9	Abel	Support	Male	93%	341,394.00	0.00
10	Lucy	Finance	Female	64%	492,432.00	49,243.20
11	Jack	Support	Male	59%	279,201.00	0.00
12	Aaron	Marketing	Male	90%	427,742.00	42,774.20

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

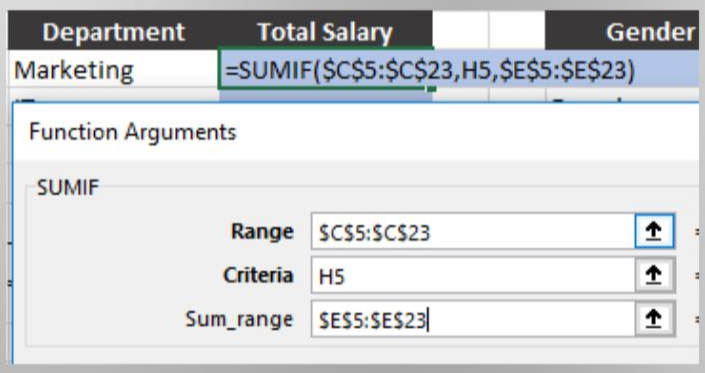
SUMIF()

S/N	Name	Department	Gender	Salary
1	Bruce	Marketing	Male	371,416.00
2	Jacob	IT	Male	156,063.00
3	Melvin	Finance	Male	525,046.00
4	Alicia	Marketing	Female	578,398.00
5	Paul	Marketing	Male	537,882.00
6	Hannah	Finance	Female	529,960.00
7	Sarah	Support	Female	305,070.00
8	Abbott	Finance	Male	212,852.00
9	Abel	Support	Male	341,394.00
10	Lucy	Finance	Female	492,432.00
11	Jack	Support	Male	279,201.00

SUMIF() CAN BE USED SUM UP A RANGE OF CELLS BASED ON A GIVEN CRITERIA.

IT IS A VERY POPULAR FUNCTION FOR PERFORMING DATA ANALYSIS ON EXCEL.

IT IS A USEFUL FUNCTION FOR SUMMARIZING DATA.



SUMIF() HAS 3 ARGUMENTS:

1. RANGE: THE RANGE OF CELLS TO CHECK FOR TESTING
2. CRITERIA: THE CONDITION WE ARE CHECKING FOR
3. SUM RANGE: THE RANGE TO SUM UP

Department	Total Salary
Marketing	2,980,255.00
IT	1,020,619.00
Finance	1,760,290.00
Support	1,070,500.00

TO SUMMARIZE TOTAL SALARY BY DEPARTMENT IN THE SUMIF EXERCISE, WE WILL WRITE A FORMULA AS SHOWN IN THE IMAGE TO THE RIGHT

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

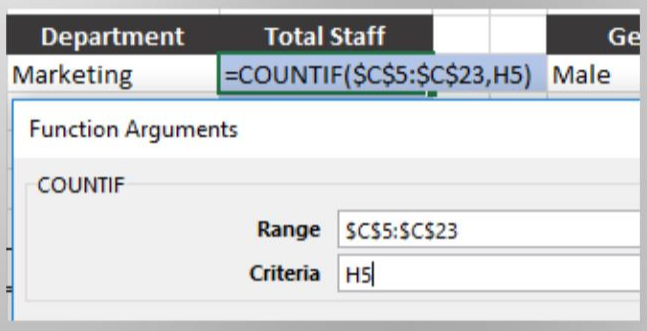
COUNTIF()

S/N	Name	Department	Gender	Salary
1	Bruce	Marketing	Male	371,416.00
2	Jacob	IT	Male	156,063.00
3	Melvin	Finance	Male	525,046.00
4	Alicia	Marketing	Female	578,398.00
5	Paul	Marketing	Male	537,882.00
6	Hannah	Finance	Female	529,960.00
7	Sarah	Support	Female	305,070.00
8	Abbott	Finance	Male	212,852.00
9	Abel	Support	Male	341,394.00
10	Lucy	Finance	Female	492,432.00
11	Jack	Support	Male	279,201.00

COUNTIF() CAN BE USED TO COUNT A RANGE OF CELLS BASED ON GIVEN CRITERIA.

COUNTIF() HAS 2 ARGUMENTS:

1. RANGE: THE RANGE OF CELLS TO CHECK FOR TESTING
2. CRITERIA: THE CONDITION WE ARE CHECKING FOR



TO COUNT THE NUMBER OF STAFF FROM EACH DEPARTMENT, WE WOULD BE WRITING A FORMULA AS SHOWN ON THE IMAGE TO THE RIGHT

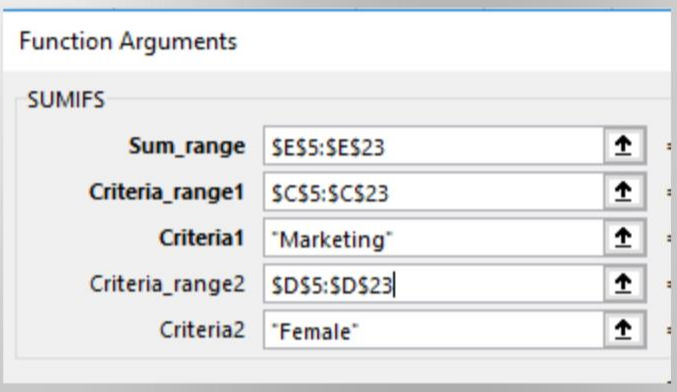
Department	Total Staff
Marketing	7
IT	4
Finance	4
Support	4

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

SUMIFS()

SUMIFS() CAN BE USED TO SUM UP A RANGE OF CELLS BASED ON MORE THAN A SINGLE CRITERIA. UNLIKE SUMIF WHICH IS ONLY FOR A SINGLE CONDITION



SUMIFS() HAS A MINIMUM OF 4 ARGUMENTS:

1. SUM RANGE: THE RANGE OF CELLS TO SUM
2. CRITERIA RANGE 1: THE RANGE OF CELLS TO CHECK FOR THE 1ST CONDITION
3. CRITERIA 1: THE 1ST CONDITION
4. CRITERIA RANGE 2: THE RANGE OF CELLS TO CHECK FOR THE 2ND CONDITION
5. CRITERIA 2: THE SECOND CONDITION

YOU CAN TEST UP TO 127 CONDITIONS.

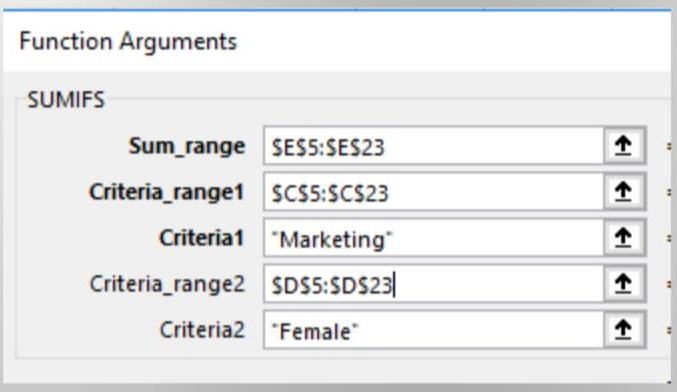
TO SUM UP THE SALARIES OF FEMALE MARKETERS, WE WOULD WRITE OUR FORMULA AS SHOWN IN THE IMAGE TO THE RIGHT

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

SUMIFS()

SUMIFS() CAN BE USED TO SUM UP A RANGE OF CELLS BASED ON MORE THAN A SINGLE CRITERIA. UNLIKE SUMIF WHICH IS ONLY FOR A SINGLE CONDITION



SUMIFS() HAS A MINIMUM OF 4 ARGUMENTS:

1. SUM RANGE: THE RANGE OF CELLS TO SUM
2. CRITERIA RANGE 1: THE RANGE OF CELLS TO CHECK FOR THE 1ST CONDITION
3. CRITERIA 1: THE 1ST CONDITION
4. CRITERIA RANGE 2: THE RANGE OF CELLS TO CHECK FOR THE 2ND CONDITION
5. CRITERIA 2: THE SECOND CONDITION

YOU CAN TEST UP TO 127 CONDITIONS.

TO SUM UP THE SALARIES OF FEMALE MARKETERS, WE WOULD WRITE OUR FORMULA AS SHOWN IN THE IMAGE TO THE RIGHT

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

VLOOKUP()

VLOOKUP() IS USED TO RETURN VALUES FOR AN ITEM, FROM ANOTHER DATA TABLE.

VLOOKUP() HAS 4 ARGUMENTS:

1. LOOKUP VALUE: THE ITEM WHICH WE WANT TO RETURN IT'S VALUES. THIS ITEM MUST APPEAR UNIQUE ON THE 1ST COLUMN OF THE TABLE WE WILL LOOK AT.
2. TABLE ARRAY: THE DATA TABLE WE WILL LOOK AT, TO RETURN THE VALUES WE SEEK.
3. COL_INDEX_NUM: THE COLUMN NUMBER THAT CORRESPONDS TO THE COLUMN WHERE WE WILL FIND THE VALUE WE WANT TO RETURN
4. RANGE_LOOKUP: USUALLY SET TO 0 FOR EXACT MATCH OR 1 FOR APPROXIMATE MATCH. 99.9% OF THE TIME, WE USE THE 0 OPTION. SOMETIMES, WE USE FALSE INSTEAD OF ZERO AND TRUE INSTEAD OF 1

Row ID	Order ID	Order Date	Ship Date	City	State
1	CA-2016-152156	08-Nov-16	11-Nov-16	Henderson	
2	CA-2016-152156	08-Nov-16	11-Nov-16	Henderson	
3	CA-2016-138688	12-Jun-16	16-Jun-16	Los Angeles	
4	US-2015-108966	11-Oct-15	18-Oct-15	Fort Lauderdale	
5	US-2015-108966	11-Oct-15	18-Oct-15	Fort Lauderdale	
6	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	
7	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	
8	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	
9	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	
10	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	

City	State	Postal Co	Region
Aberdeen	South Dakota	57401	Central
Abilene	Texas	79605	Central
Akron	Ohio	44312	East
Albuquerque	New Mexico	87105	West
Alexandria	Virginia	22304	South
Allen	Texas	75002	Central
Allentown	Pennsylvania	18103	East
Altoona	Pennsylvania	16602	East
Amarillo	Texas	79109	Central
Anaheim	California	92804	West

To fill up the states for each city in the VLOOKUP exercise, we would write our formula as shown below:

State	Postal Code	Region	Sales
=VLOOKUP(E4,'Lookup Table'!$A$5:$D$637,2,0)			104,784.00

Function Arguments

VLOOKUP

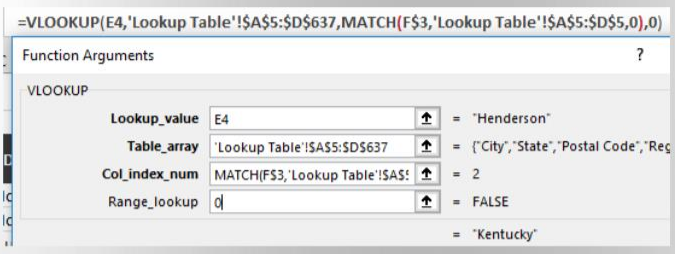
Lookup_value	E4
Table_array	'Lookup Table'!$A$5:$D$637
Col_index_num	2
Range_lookup	0

Row ID	Order ID	Order Date	Ship Date	City	State
1	CA-2016-152156	08-Nov-16	11-Nov-16	Henderson	Kentucky
2	CA-2016-152156	08-Nov-16	11-Nov-16	Henderson	Kentucky
3	CA-2016-138688	12-Jun-16	16-Jun-16	Los Angeles	California
4	US-2015-108966	11-Oct-15	18-Oct-15	Fort Lauderdale	Florida
5	US-2015-108966	11-Oct-15	18-Oct-15	Fort Lauderdale	Florida
6	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	California
7	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	California

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

VLOOKUP() WITH MATCH



INSTEAD OF MANUALLY TYPING THE COLUMN NUMBER ON VLOOKUP() ARGUMENT, WE CAN USE THE MATCH() FUNCTION TO AUTOMATICALLY CHECK THE HEADINGS ON OUR LOOKUP TABLE AND RETURN THE POSITION IT FALLS TO.

Row ID	Order ID	Order Date	Ship Date	City	State
1	CA-2016-152156	08-Nov-16	11-Nov-16	Henderson	Kentucky
2	CA-2016-152156	08-Nov-16	11-Nov-16	Henderson	Kentucky
3	CA-2016-138688	12-Jun-16	16-Jun-16	Los Angeles	California
4	US-2015-108966	11-Oct-15	18-Oct-15	Fort Lauderdale	Florida
5	US-2015-108966	11-Oct-15	18-Oct-15	Fort Lauderdale	Florida
6	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	California
7	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	California
8	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	California
9	CA-2014-115812	09-Jun-14	14-Jun-14	Los Angeles	California

MATCH() HAS 3 ARGUMENTS:

1. LOOKUP VALUE: THE VALUE WE WANT TO MATCH
2. LOOKUP ARRAY: A LIST TO CHECK OUT TO GET THE POSITION OF THE VALUE
3. MATCH TYPE: 0 OR 1 AS IN VLOOKUP()

IF WE WANT TO REPLACE THE MANUALLY TYPED COLUMN INDEX NUMBER WITH MATCH, THEN OUR FORMULA SHOULD LOOK LIKE THE IMAGE ON THE RIGHT

REVIEW OF EXCEL FUNCTIONS

Advanced Functions

INDEX() AND MATCH()

Ticker	Name	Px Last
883 HK Equity	CNOOC LTD	12.72
857 HK Equity	PETROCHINA CO LTD-H	14.48
386 HK Equity	CHINA PETROLEUM & CHEMICAL-H	11.44
2883 HK Equity	CHINA OILFIELD SERVICES-H	16.7
010950 KS Equity	S-OIL CORPORATION	81000
003600 KS Equity	SK HOLDINGS CO LTD	208500

INDEX IS CONSIDERED BY MANY AS THE MOST POWERFUL EXCEL FUNCTION. THE JOB OF INDEX IS VERY SIMPLE: DEFINE AN ARRAY, THEN GO TO A SPECIFIC COLUMN AND A SPECIFIC ROW (A CELL) TO RETURN WHATEVER IS THERE.

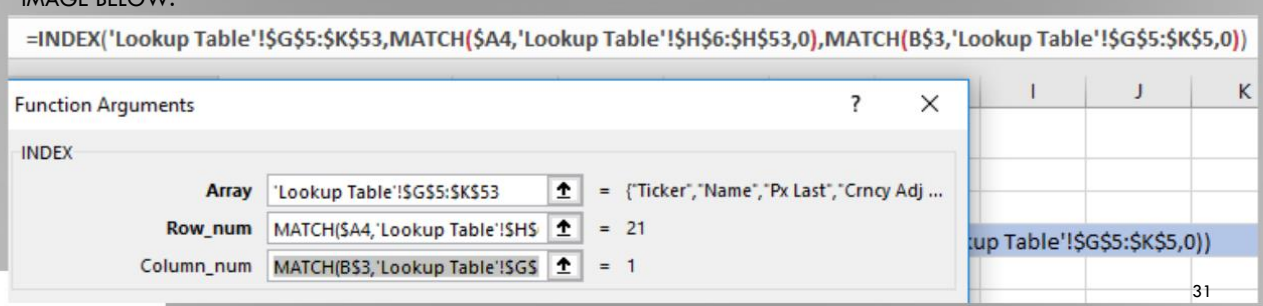
Name	Ticker	Crncy Adj Mkt Cap
SURGUTNEFTEGAZ-CLS	ROSN RU Equity	102,802.30
S-OIL CORPORATION	2883 HK Equity	15,769.12
Bloomberg European Dated Brent	MSEUSIA Index	0.00
BSE SENSEX 30 INDEX	CNE LN Equity	7,015.26
ENI SPA	CVX US Equity	193,788.10
ASHLAND INC	TNBP RU Equity	34,308.34
Bloomberg Arabian Gulf Dubai F	AFCRBONL Comdty	0.00
Bloomberg Arabian Gulf Oman Cr	PGCRDUBA Comdty	0.00
OCCIDENTAL PETROLEUM CORP	SUN US Equity	7,582.88
CONOCOPHILLIPS	ENI IM Equity	145,450.40
TESORO CORP	ASH US Equity	3,120.54

INDEX() HAS 3 ARGUMENTS:

1. ARRAY: A DATA RANGE
2. ROW_NUM: THE ROW NUMBER TO SELECT FROM THE RANGE
3. COL_NUM: THE COLUMN NUMBER FROM THE RANGE.

THE ROW AND COLUMN NUMBER ARGUMENTS CAN BE AUTOMATED WITH THE MATCH() FUNCTION FOR MORE DYNAMIC FORMULAS.

TO RETURN THE TICKER FOR THE COMPANY NAMES IN THE INDEX & MATCH EXERCISE, WE WOULD WRITE THE FORMULA IN THE IMAGE BELOW.



ANALYZING DATA WITH EXCEL

ANALYZING DATA WITH EXCEL

Excel Reporting Methodology

ANALYZING DATA IN EXCEL CAN BE DONE EITHER USING EXCEL FUNCTIONS OF EXCEL TOOLS.

AUTOMATING EXCEL DATA ANALYSIS REQUIRES ONLY 3 TYPES OF WORKSHEETS:

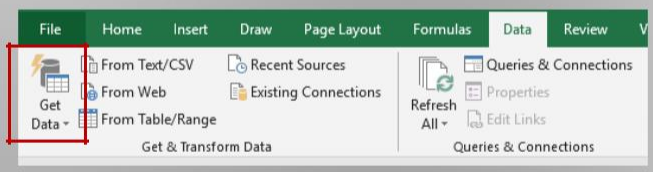
3 SHEETS METHODOLOGY:

1. CONTROL SHEET: USED TO HOUSE LISTS, LOOKUP TABLES AND ANY OTHER ONE-OFF ITEMS THAT IS NOT PART OF THE OUTPUTS.
2. DATA SHEET: A SHEET TO HOUSE THE MAIN DATA SET
3. OUTPUT/REPORT SHEETS: FOR REPORTS, CHARTS AND DASHBOARDS.

Introduction to Power Query

Power Query is an excellent Data Preparation tool. It is a mini Extract, Transform & Load (ETL) tool with the ability to connect to over a hundred data sources, prepare/clean the data and load for analysis.

Power Query can be found in the Data Tab under the Get & Transform Data Group as "Get Data" or "New Query"



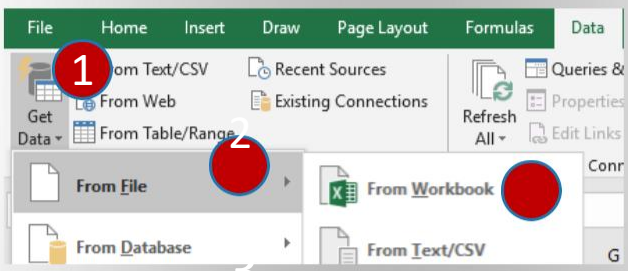
ANALYZING DATA WITH EXCEL

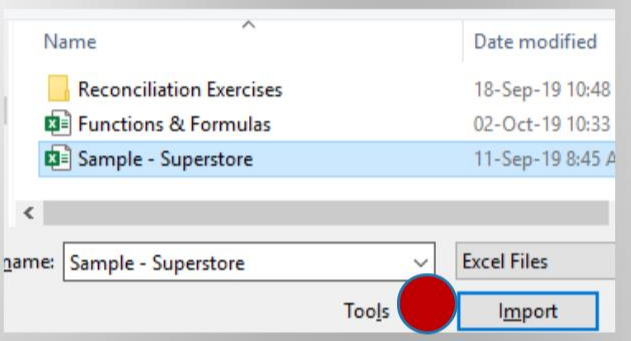
Data Management with Power Query

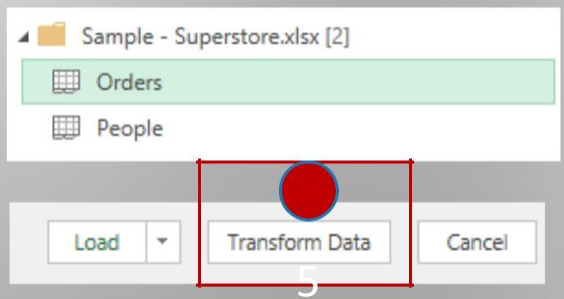
WE CAN USE POWER QUERY TO CONNECT TO THE SAMPLE SUPERSTORE DATA IN THE EXERCISE FOLDER. TO DO THIS FROM A BLANK EXCEL:

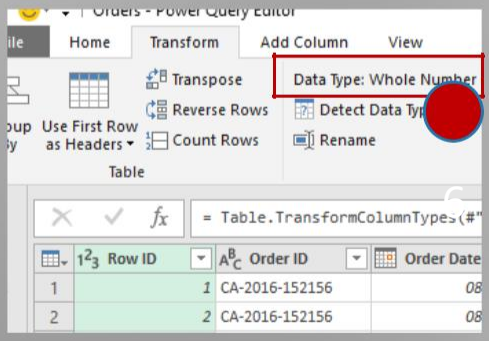
1. FROM DATA TAB, CLICK ON GET DATA
2. UNDER FROM FILE OPTION, SELECT FROM WORKBOOK
3. NAVIGATE TO THE WORKBOOK AND CLICK IMPORT
4. CLICK ON ORDERS
5. CLICK TRANSFORM DATA
6. IN THE QUERY EDITOR, CONFIRM THAT EACH COLUMN HAVE THE CORRECT DATA TYPE BY SELECTING THE COLUMN AND CHECKING THE TRANSFORM TAB
7. ON THE HOME TAB, CLICK CLOSE AND LOAD

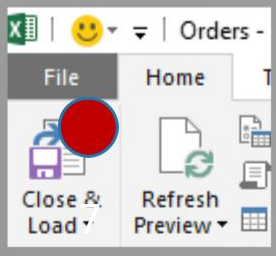
THE MINIMUM TRANSFORMATION EXPECTED IN POWER QUERY IS ENSURING THAT ALL COLUMNS HAVE THE RIGHT DATA TYPES.









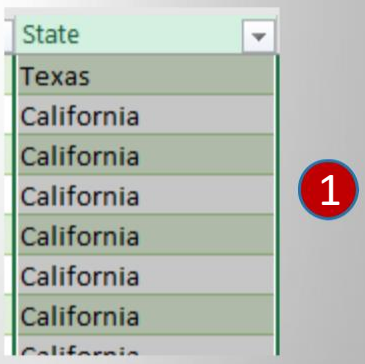


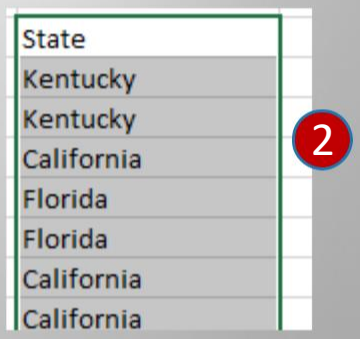
Infosofia Consulting Limited

ANALYZING DATA WITH EXCEL

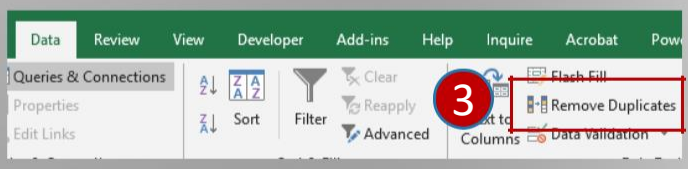
Analyzing Data with Excel Functions

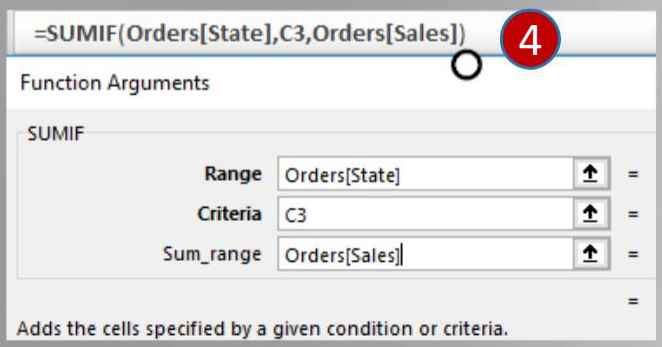
IF WE WANT TO GET THE TOTAL SALES BY STATE FROM THE LOADED SUPER STORE DATA ON A NEW WORKSHEET, WE WOULD CARRY OUT THE FOLLOWING STEPS:





1. COPY ALL THE STATES FROM THE DATA
2. PASTE SPECIAL VALUES IN THE DESTINATION
3. HIGHLIGHT THE PASTED DATA, THEN CLICK ON THE DATA TAB AND SELECT REMOVE DUPLICATES
4. USE SUMIF() AS SHOWN IN THE IMAGE TO THE RIGHT TO GET TOTAL SALES BY STATE





ANALYZING DATA WITH EXCEL

Analyzing Data with Pivot Table

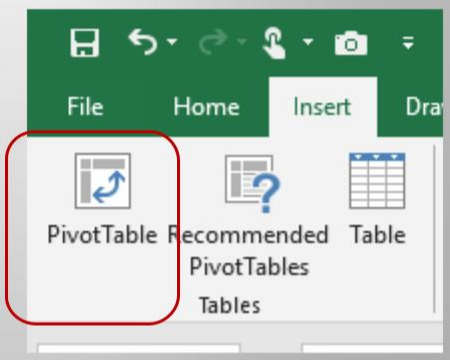
WHEN IT COMES TO ANALYZING DATA ON EXCEL, PIVOT TABLES IS THE WAY TO GO. PIVOT TABLES MAKE DATA ANALYSIS EASY AND ENABLES MORE COMPLEX AND MORE ADVANCED ANALYSIS.

BEFORE CREATING A PIVOT TABLE FROM ANY DATA SET, THE DATA MUST MEET THE FOLLOWING REQUIREMENTS:

1. ONLY A SINGLE ROW OF HEADINGS
2. NO EMPTY ROWS OR EMPTY COLUMNS
3. ALL DATE CATEGORIES MUST APPEAR ON COLUMNS
4. ALL COLUMNS MUST REPRESENT UNIQUE CATEGORIES
5. THERE MUST BE NO TOTALS OR SUB-TOTALS
6. THERE MUST BE NO OBSTRUCTION AROUND THE DATA

Once data has met all the requirements, it's easy to analyze data with a pivot table.

PIVOT Table can be found under the Insert Tab



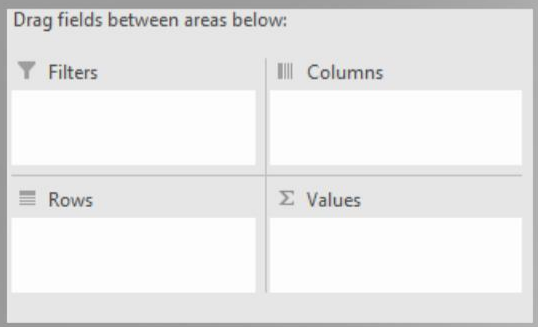
Creating PIVOT tables only require clicking and dragging fields/columns from the data set to 4 buckets. Either of:

Rows: Usually for Categories

Columns: To place values across columns

Values: The numbers to be summarized

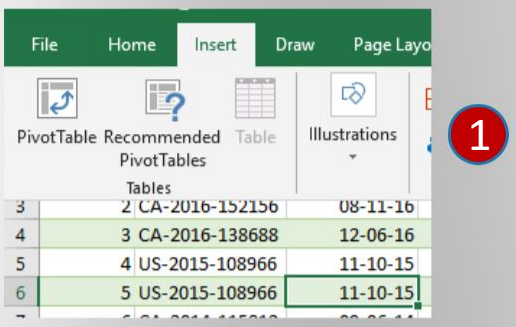
Filters: To use a column as a filter for reports



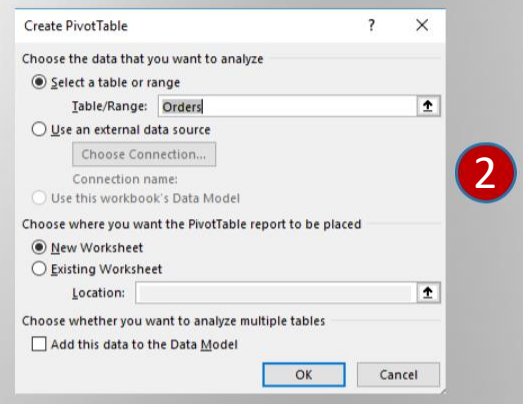
ANALYZING DATA WITH EXCEL

Analyzing Data with Pivot Table

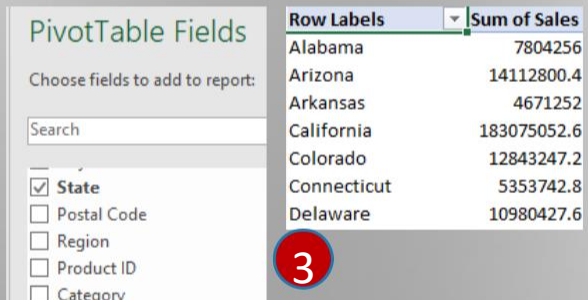
CREATING A PIVOT TABLE REPORT



TO CREATE A REPORT FOR TOTAL SALES BY STATE FOR EXAMPLE, WE WOULD TAKE THE FOLLOWING STEPS:

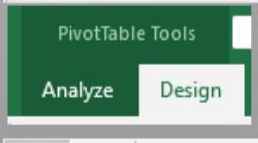


1. BE IN ANY CELL WITHIN THE DATA, THEN CLICK ON INSERT TAB AND SELECT PIVOT TABLE.

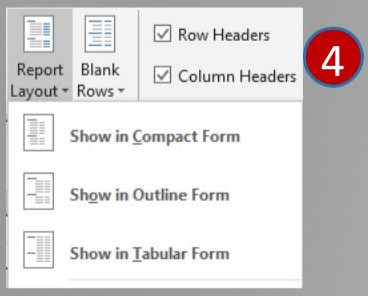


2. FROM THE DIALOG BOX, SELECT NEW WORKSHEET AND CLICK OK

3. FROM THE PIVOT TABLES FIELD, CHECK THE BOX FOR STATE AND SALES



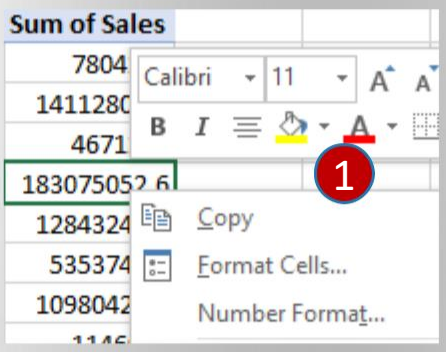
4. CLICK ON DESIGN TAB, UNDER REPORT LAYOUT, SELECT SHOW IN TABULAR FORM



ANALYZING DATA WITH EXCEL

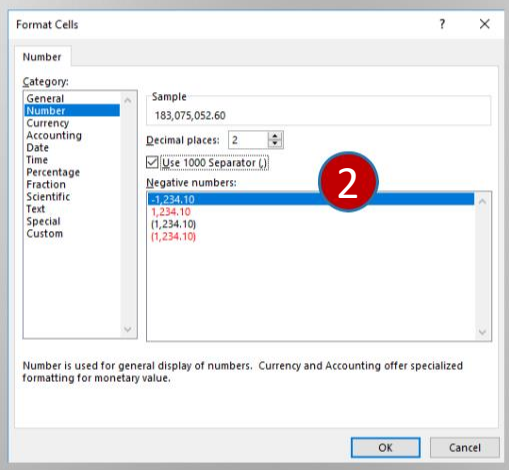
Analyzing Data with Pivot Table

FORMATTING VALUES IN PIVOT TABLES



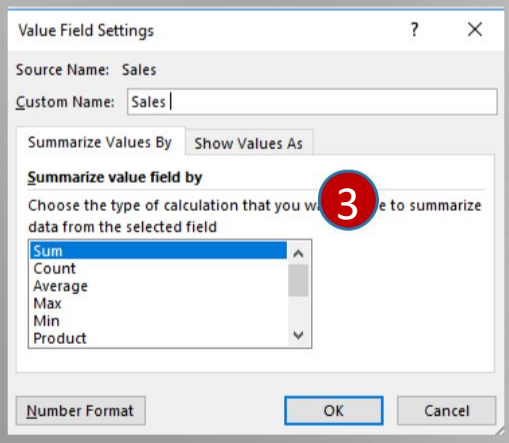
TO FORMAT THE NUMBERS ON SALES TO SHOW PROPERLY:

1. RIGHT-CLICK IN ANY CELL WITHIN THE SALES COLUMN AND SELECT NUMBER FORMAT



2. CLICK ON NUMBER , CHECK THE BOX FOR USE 1000 SEPARATOR THEN CLICK OK

3. TO RENAME THE COLUMN HEADER FROM SHOWING AS SUM OF SALES, DOUBLE CLICK ON THE HEADING AND TYPE ONLY SALES, WITH A SPACE AT THE END. THEN CLICK OK

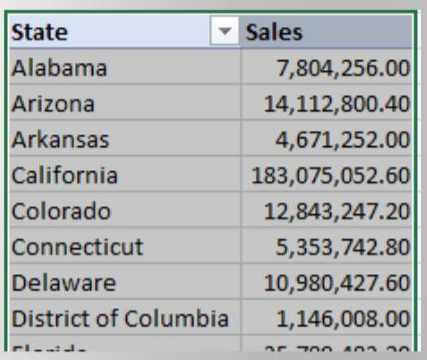


State	Sales
Alabama	7,804,256.00
Arizona	14,112,800.40
Arkansas	4,671,252.00
California	183,075,052.60
Colorado	12,843,247.20
Connecticut	5,353,742.80

ANALYZING DATA WITH EXCEL

Analyzing Data with Pivot Table

CREATING ANOTHER PIVOT TABLE REPORT

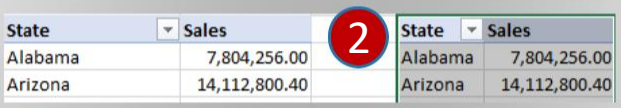


State	Sales
Alabama	7,804,256.00
Arizona	14,112,800.40
Arkansas	4,671,252.00
California	183,075,052.60
Colorado	12,843,247.20
Connecticut	5,353,742.80
Delaware	10,980,427.60
District of Columbia	1,146,008.00

1

TO CREATE ANOTHER REPORT, WE WOULD:

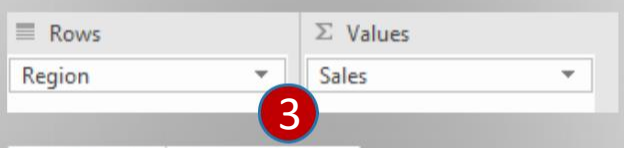
1. HIGHLIGHT AND COPY AN EXISTING PIVOT TABLE REPORT
2. PASTE THAT ON A SEPARATE COLUMN
3. REPLACE THE FIELDS IN THE BUCKETS WITH THE NEW REPORT ONE AFTER THE OTHER



State	Sales
Alabama	7,804,256.00
Arizona	14,112,800.40

2

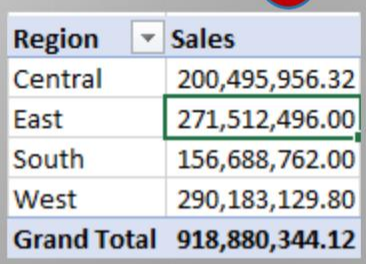
State	Sales
Alabama	7,804,256.00
Arizona	14,112,800.40



Rows: Region

Values: Sales

3



Region	Sales
Central	200,495,956.32
East	271,512,496.00
South	156,688,762.00
West	290,183,129.80
Grand Total	**918,880,344.12**

THE ABOVE METHOD CAN BE USED TO CONTINUE TO CREATE MORE PIVOT TABLE REPORTS ON THE SAME EXCEL WORKSHEET.

ANALYZING DATA WITH EXCEL

Analyzing Data with Pivot Table

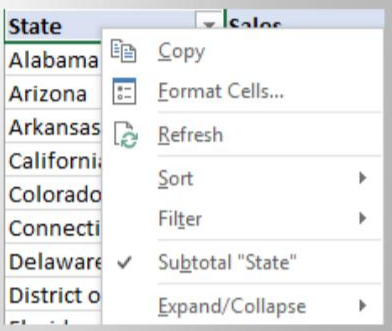
CREATING ADVANCE REPORTS

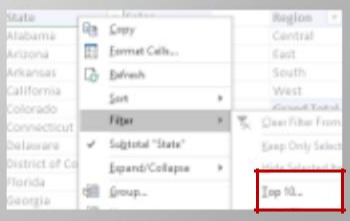
TO CREATE AN ADVANCE REPORT, WE CAN RIGHT CLICK ON ANY CELL WITHIN THE CELLS ON ANY COLUMN FOR MORE OPTIONS.

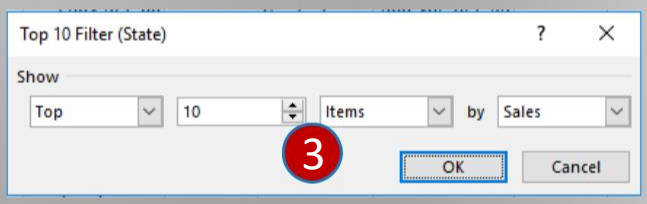
FOR EXAMPLE, TO CONVERT OUR FIRST REPORT ON SALES BY STATE TO SHOW ONLY THE TOP 10 STATES:

1. RIGHT CLICK ON ANY CELL IN THE STATE COLUMN
2. UNDER FILTER, SELECT TOP 10
3. CLICK OK

YOU CAN USE THE DROP DOWN TO CHANGE 10 TO ANY OTHER NUMBER OR CHANGE TOP TO BOTTOM FOR BOTTOM N REPORT





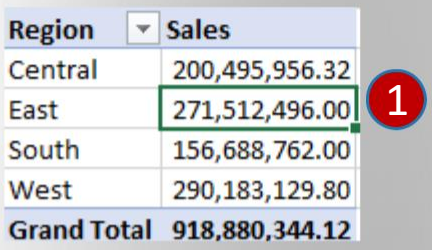


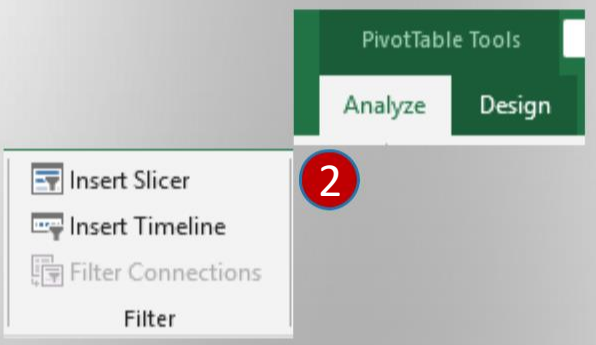
State	Sales
California	183,075,052.60
Florida	35,789,483.20
Illinois	32,066,440.40
Michigan	30,507,845.60
New York	124,350,508.40
Ohio	31,303,254.40
Pennsylvania	46,604,765.60
Texas	68,075,218.32
Virginia	28,254,688.00
Washington	55,456,508.00
Grand Total	**635,483,764.52**

ANALYZING DATA WITH EXCEL

Analyzing Data with Pivot Table

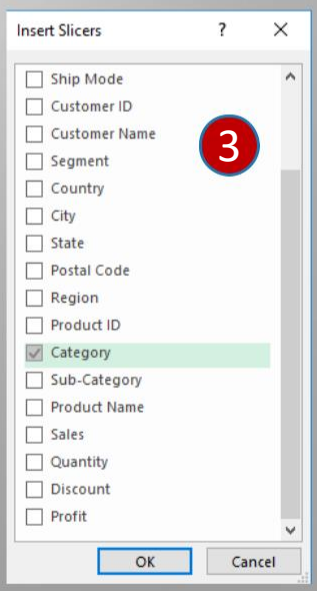
CREATING ADVANCE REPORTS

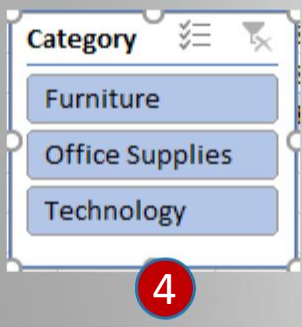


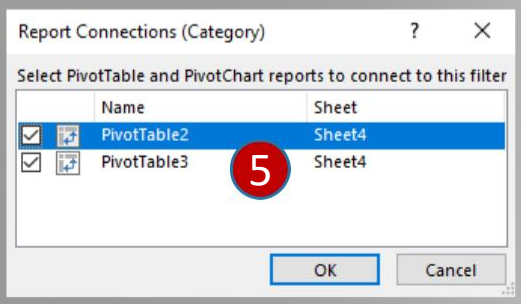


SLICERS MAKE IT EASY TO FILTER REPORTS. FOR EXAMPLE, WE CAN CREATE A SLICER FOR CATEGORY AND USE IT TO FILTER MORE THAN ONE PIVOT TABLE. TO DO THIS WE WOULD TAKE THE FOLLOWING STEPS.

1. BE IN A CELL IN ANY OF THE PIVOT TABLES WE HAVE CREATED
2. CLICK ON ANALYZE TAB AND SELECT INSERT SLICER
3. CHECK THE BOX FOR THE COLUMN TO USE AS SLICER. IN THIS REGARD, CATEGORY THEN CLICK OK
4. MAKE SURE THE SLICER IS SELECTED, THEN CLICK REPORT CONNECTION
5. CHECK THE BOX FOR OTHER PIVOT REPORTS YOU WANT THIS SLICER TO CONTROL







WHEN AN ITEM IS CLICKED ON THE SLICER, IT WILL FILTER DOWN THE WHOLE REPORT TO THE SELECTED ITEM.

REPORT AUTOMATION & RECONCILIATION TECHNIQUES

ANALYZING DATA WITH EXCEL

Report Automation

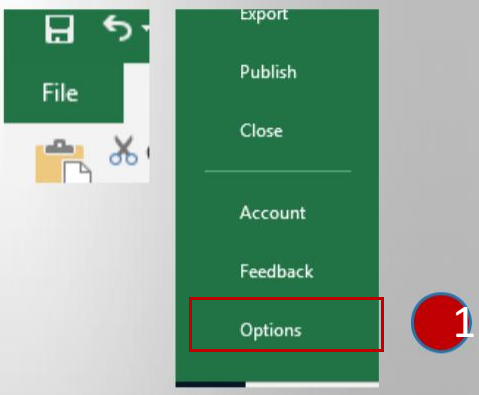
BUILDING AN EXCEL DASHBOARD

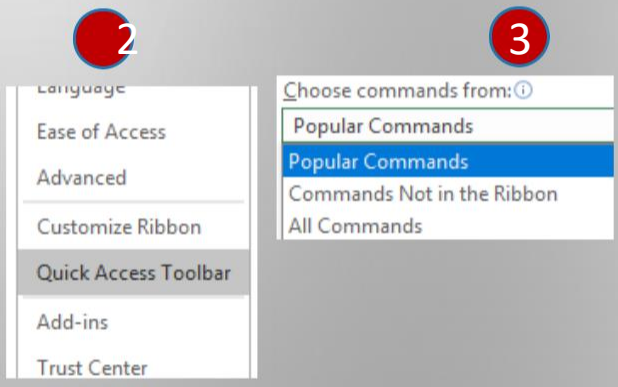
A DASHBOARD IS AN OUTPUT IN EXCEL REPORTING METHODOLOGY.

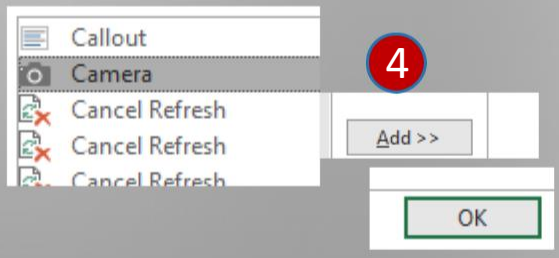
IT INVOLVES CREATING REPOTS AND CHARTS.

IT IS A GOOD PRACTICE TO KEEP YOUR CHARTS AND REPORTS AWAY FROM THE CONTROL OF USERS BY USING THE EXCEL CAMERA TOOL.

ENABLING EXCEL CAMERA TOOL







1. CLICK ON FILE & SELECT OPTIONS
2. SELECT QUICK ACCESS TOOL BAR
3. CHANGE THE DROP DOWN FOR CHOOSE COMMAND FROM TO ALL COMMANDS
4. SCROLL DOWN, CLICK ON CAMERA AND CLICK ADD THEN CLICK OK

THE CAMERA TOOL WILL APPEAR SOMEWHERE IN THE QUICK ACCESS TOOL BAR ON EXCEL.

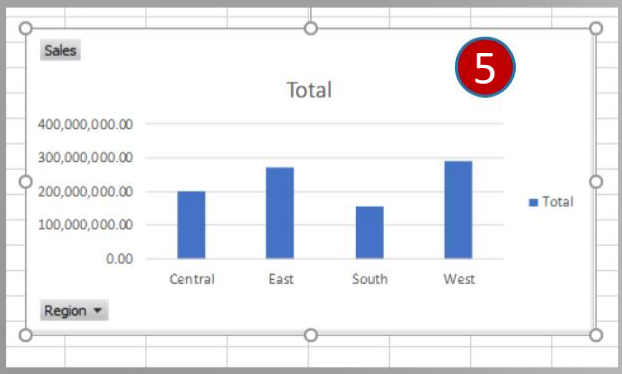
ANALYZING DATA WITH EXCEL

Report Automation

CREATING AN EXCEL CHART

Region	Sales
Central	200,495,956.32
East	271,512,496.00
South	156,688,762.00
West	290,183,129.80
Grand Total	**918,880,344.12**

1



THE EASIEST WAY TO CREATE A CHART IN EXCEL IS TO BE ANYWHERE IN THE DATA AND PRESS THE KEY BOARD SHORTCUT ALT + F1 (OR ALT + FN F1 DEPENDING ON KEYBOARD TYPE).

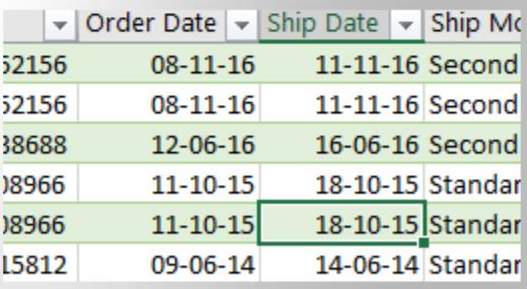
TO CREATE A CHART FOR OUR REGIONAL REPORT. WE WOULD TAKE THE FOLLOWING STEPS:

1. BE IN ANY CELL ON THE SALES BY REGION PIVOT TABLE AND PRESS THE SHORTCUT KEYS ALT + F1
2. WHILE HOLDING THE ALT KEY, WE ADJUST THE CHART TO FIT ON THE GRIDLINES.
3. ONCE WELL FITTED, USING THE KEYBOARD, HIGHLIGHT THE BACKGROUND OF THE CHART AREA
4. CLICK ON THE CAMERA TOOL
5. GO TO YOUR DASHBOARD SHEET AND CLICK TO CREATE A PICTURE OF THE CHART.

ANALYZING DATA WITH EXCEL

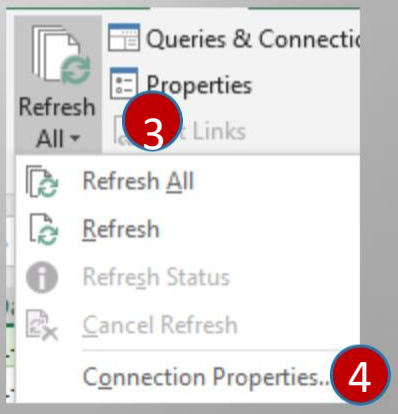
Report Automation

SETTING UP AUTOMATIC REFRESH



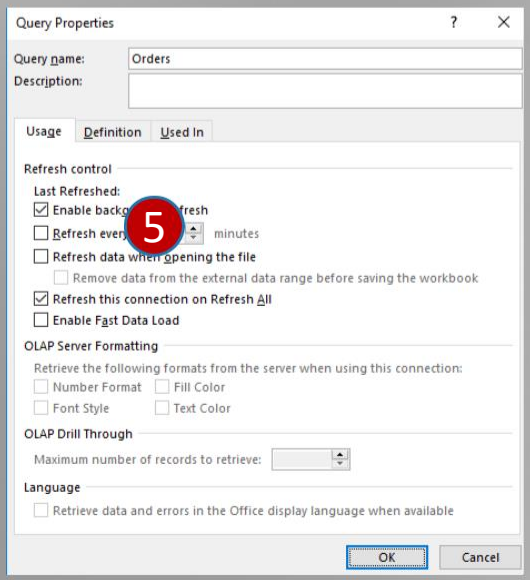
1. GO TO THE DATA SHEET (LOADED WITH POWER QUERY) AND CLICK ON ANY CELL

2. CLICK ON DATA TAB
3. CLICK ON THE DROP DOWN ON REFRESH ALL



4. SELECT CONNECTION PROPERTIES
5. CHECK THE BOX FOR

   REFRESH EVERY AND SET THE TIME YOU DESIRE FOR AUTO REFRESH. THEN CLICK OK



ANALYZING DATA WITH EXCEL

Reconciliation Techniques

RECONCILIATION IN EXCEL

THE ART OR RECONCILIATION IS ALL ABOUT COMPARING TWO THINGS. THERE ARE VARIOUS TECHNIQUES FOR RECONCILING IN EXCEL AND WE WILL ONLY EXAMINE SOME VERY INTERESTING ONES:

1. USING MATCH() FUNCTION TO MATCH TWO LISTS
2. TRACKING VALUES VARIANCE BETWEEN TWO DATA SETS
3. USING CONDITIONAL FORMATTING TO DYNAMICALLY MONITOR DATA BASED ON CONDITIONS
4. USING THE INQUIRE TOOL TO TRACK WORKBOOK CHANGES
5. AUTO TRACKING DIFFERENCES WITH CONDITIONAL FORMATTING.

ALL THE ABOVE HAVE WORKBOOKS IN OUR EXERCISE FOLDER CALLED RECONCILIATION EXERCISES.

ANALYZING DATA WITH EXCEL

Reconciliation Techniques

USING MATCH() FUNCTION TO MATCH TWO LISTS

IF WE HAVE TWO LISTS OF NAMES AND WANT TO FIND OUT WHOSE NAME IS MISSING FROM THE OTHER LIST, WE WOULD BE WRITING A FORMULA WITH THE MATCH FUNCTION ON ONE OF THE LISTS TO CHECK IT AGAINST THE OTHER LIST.

ANY NAME THAT RETURNS NA MEANS IT'S ABSENT ON THE OTHER LIST.

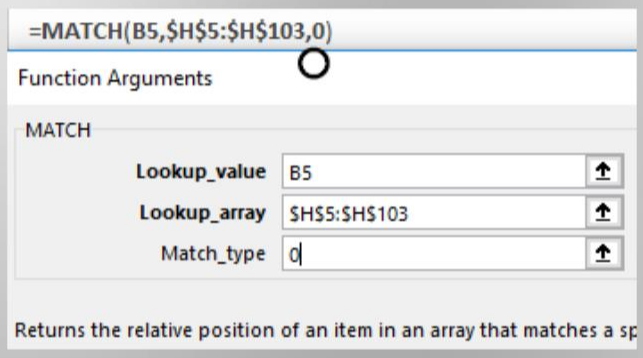
OUR FORMULA WILL LOOK LIKE THE IMAGE SHOWN ON THE RIGHT.

List 1

S/N	Full Name
1	Forrest Downs
2	David Stone
3	Stephen Holt
4	Ciaran Hubbard

List 2

S/N	Full Name
1	Abdurrahman Lopez
2	Aidan Mays
3	Aleena Castro
4	Amelia-Mae Oconnor



List 1

S/N	Full Name	Recon
1	Forrest Downs	28
2	David Stone	20
3	Stephen Holt	#N/A
4	Ciaran Hubbard	#N/A
5	Yoshio Norman	96
6	Norman Randolph	#N/A
7	Elmo Cochran	#N/A
8	Howard Yates	#N/A
9	Gareth Roberts	32
10	Charles Ware	#N/A
11	Victor Avery	#N/A
12	Barclay Neal	11
13	Cain Maldonado	#N/A
14	Kasimir Hartman	40
15	Ryder Bond	82
16	Wesley Noble	93
17	Dolan Stafford	23
18	Kermit Robbins	50

ANALYZING DATA WITH EXCEL

Reconciliation Techniques

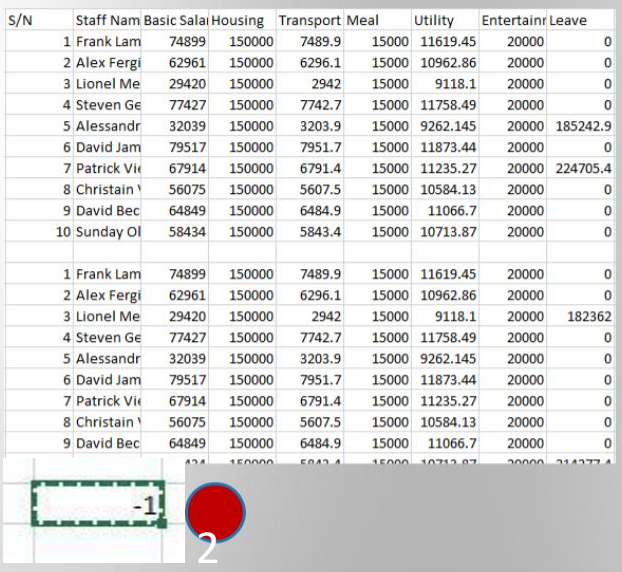
TRACKING VALUE VARIANCE BETWEEN TWO DATA SETS

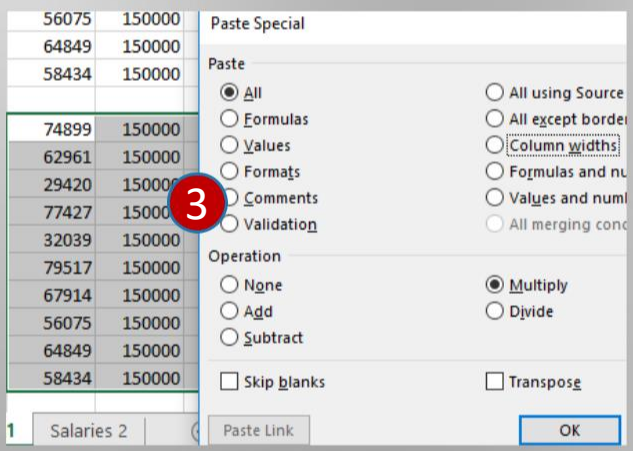
GIVEN THE TWO DATA SETS WE HAVE CONTAINING SALARY DETAILS FOR TWO SEPARATE MONTHS. IT IS OUR ASSUMPTION THAT SALARIES SHOULD REMAIN THE SAME ALL MONTHS EXCEPT FOR SERIOUS EXCEPTIONS LIKE PROMOTIONS, NEW HIRES, LEAVE OR THINGS LIKE THAT.

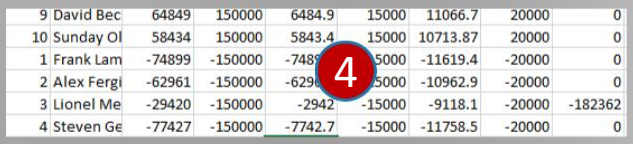
WE WOULD TAKE HE FOLLOWING STEPS TO RECONCILE TWO MONTHS OF SALARY DATA

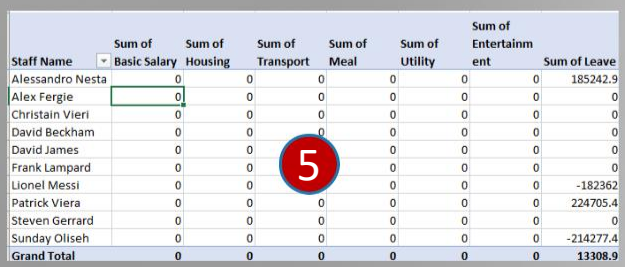
1. COPY THE TWO DATA SETS TO A NEW WORKSHEET AND PASTE SPECIAL VALUES. LEAVING A GAP OF 1 ROW BETWEEN BOTH. DELETE THE HEADINGS FROM THE SECOND DATA SET
2. TYPE -1 IN A SEPARATE CELL AND COPY THAT -1 WITH CTRL + C
3. HIGHLIGHT THE WHOLE VALUES FROM THE SECOND DATA SET AND USE KEYBOARD SHORTCUT ALT + E + S + V + M. THEN CLICK OK
4. DELETE THE ROW GAP BETWEEN THE DATASETS
5. CREATE A PIVOT TABLE FROM THE NEW JOINED DATA.

THE NAMES WITH AMOUNTS ARE THOSE WITH VARIANCE SALARIES AGAINST DIFFERENT MONTHS









ANALYZING DATA WITH EXCEL

Reconciliation Techniques

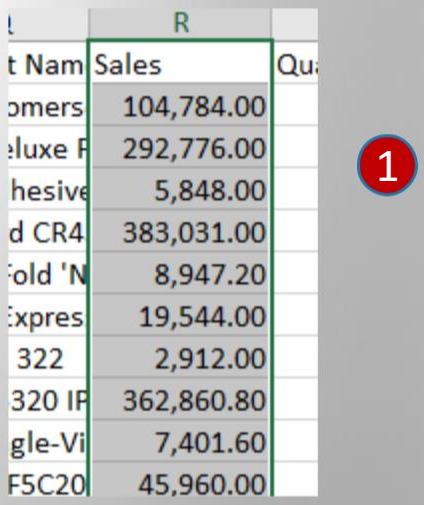
USING CONDITIONAL FORMATTING TO MONITOR DATA BASED ON CONDITIONS

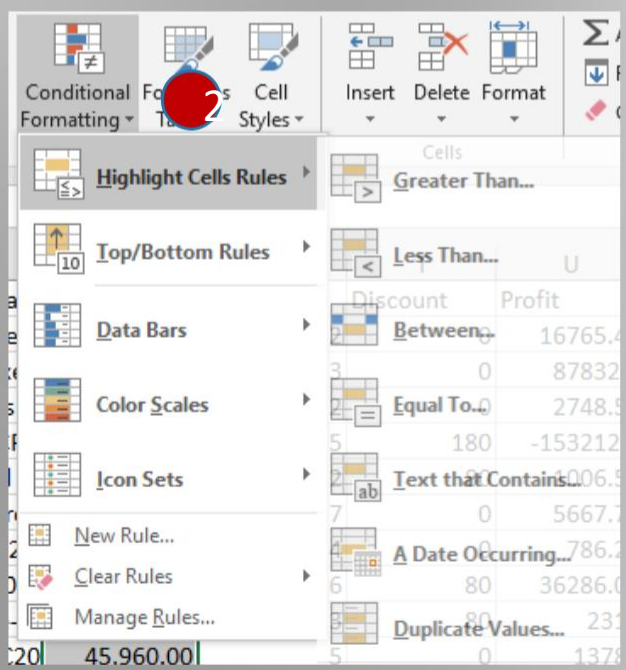
WE CAN USE CONDITIONAL FORMATTING TO DYNAMICALLY COLOR CELLS BASED ON CERTAIN CONDITIONS.

THERE AFTER, WE CAN APPLY A FILTER ON ALL COLORED CELLS.

STEPS:

1. HIGHLIGHT A COLUMN OF INTEREST IN YOUR DATA SET
2. GO TO THE HOME TAB, UNDER CONDITIONAL FORMATTING, SELECT HIGHLIGHT CELL RULES AND PICK A RULE THAT APPLIES TO THE CONDITION YOU WANT.

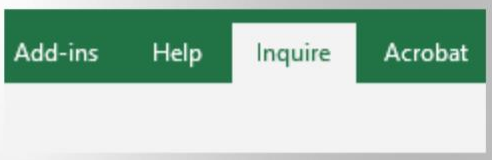




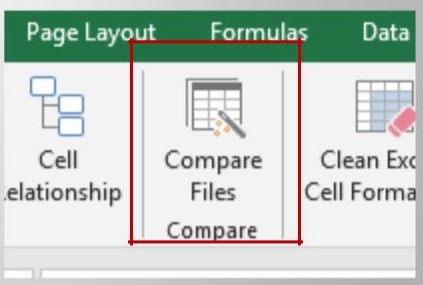
ANALYZING DATA WITH EXCEL

Reconciliation Techniques

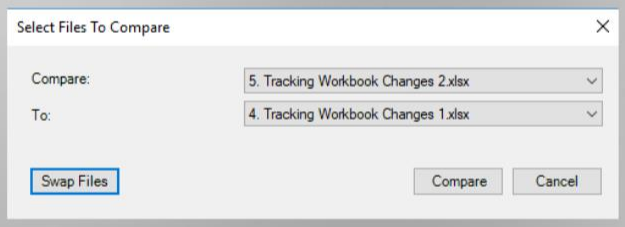
USING INQUIRE TOOL TO TRACK WORKBOOK CHANGES



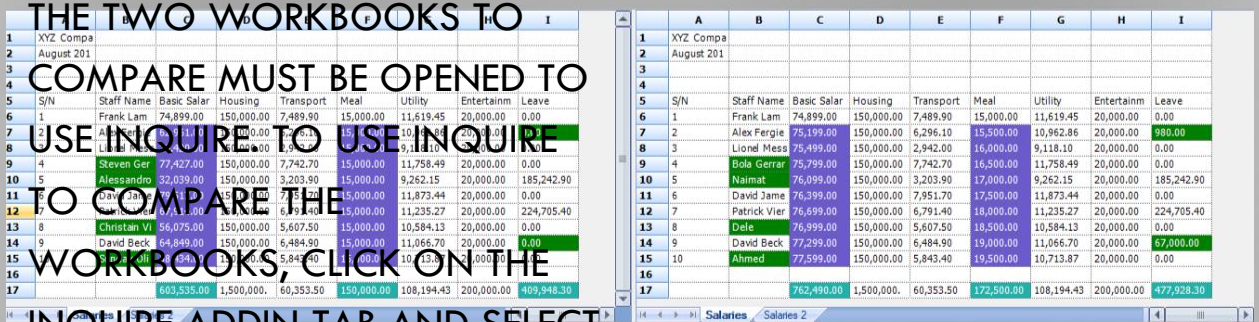
THE INQUIRE TOOL CAN BE USED TO CHECK ALL CHANGES OR DIFFERENCES BETWEEN TWO WORKBOOKS.



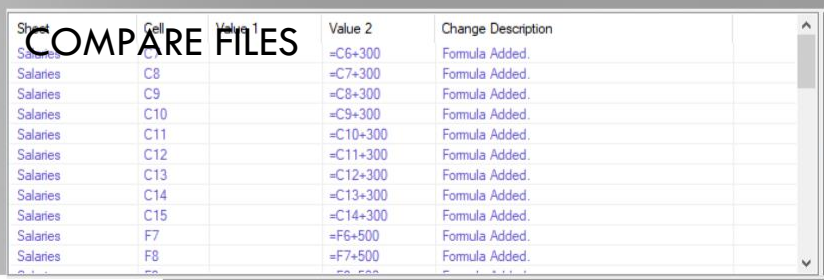
TO DO THIS, THE INQUIRE ADD-IN SHOULD BE ACTIVATED. (THIS CAN BE DONE FROM FILE>>ADDIN>>COMS ADDIN>>INQUIRE).



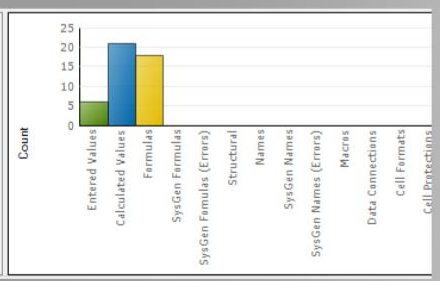
THE TWO WORKBOOKS TO COMPARE MUST BE OPENED TO USE INQUIRE. TO USE INQUIRE TO COMPARE THE WORKBOOKS, CLICK ON THE INQUIRE ADDIN TAB AND SELECT COMPARE FILES



S/N	Staff Name	Basic Salar	Housing	Transport	Meal	Utility	Entertainm	Leave
1	Frank Lam	74,899.00	150,000.00	7,489.90	15,000.00	11,619.45	20,000.00	0.00
2	Alex Fergie	75,199.00	150,000.00	6,296.10	15,500.00	10,962.86	20,000.00	980.00
3	Lionel Mess	75,499.00	150,000.00	2,942.00	16,000.00	9,118.10	20,000.00	0.00
4	Bola Gerrar	75,799.00	150,000.00	7,742.70	16,500.00	11,758.49	20,000.00	0.00
5	Naimat	76,099.00	150,000.00	3,203.90	17,000.00	9,262.15	20,000.00	185,242.90
6	David Jame	76,399.00	150,000.00	7,951.70	17,500.00	11,873.44	20,000.00	0.00
7	Patrick Vier	76,699.00	150,000.00	6,791.40	18,000.00	11,235.27	20,000.00	224,705.40
8	Dele	76,999.00	150,000.00	5,607.50	18,500.00	10,584.13	20,000.00	0.00
9	David Beck	77,299.00	150,000.00	6,484.90	19,000.00	11,066.70	20,000.00	67,000.00
10	Ahmed	77,599.00	150,000.00	5,843.40	19,500.00	10,713.87	20,000.00	0.00
		762,490.00	1,500,000.	60,353.50	172,500.00	108,194.43	200,000.00	477,928.30



Sheet	Cell	Value 1	Value 2	Change Description
Salaries	C6		=C6+300	Formula Added.
Salaries	C8		=C7+300	Formula Added.
Salaries	C9		=C8+300	Formula Added.
Salaries	C10		=C9+300	Formula Added.
Salaries	C11		=C10+300	Formula Added.
Salaries	C12		=C11+300	Formula Added.
Salaries	C13		=C12+300	Formula Added.
Salaries	C14		=C13+300	Formula Added.
Salaries	C15		=C14+300	Formula Added.
Salaries	F7		=F6+500	Formula Added.
Salaries	F8		=F7+500	Formula Added.



ANALYZING DATA WITH EXCEL

Reconciliation Techniques

AUTO-TRACKING DIFFERENCES WITH CONDITIONAL FORMATTING

WE CAN WRITE FORMULAS TO CONDITIONALLY FORMAT CELLS BASED ON THE LOGIC OF OUR FORMULA.

IN OUR EXERCISE, WE WOULD LIKE TO IDENTIFY MONTHS WHERE THE EXCHANGE RATE DROPPED COMPERED TO A PREVIOUS MONTH.

TO DO THIS, WE WOULD TAKE THE FOLLOWING STEPS:

1. HIGHLIGHT FROM THE SECOND VALUE TO THE LAST VALUE (WE ARE NOT HIGHLIGHTING FORM FIRST BECAUSE WE ARE COMPARING AGAINST PREVIOUS MONTHS AND THE FIRST VALUE DOESN'T HAVE A PREVIOUS TO COMPARE AGAINST)
2. ON THE HOME TAB, CLICK CONDITIONAL FORMATTING AND SELECT NEW RULE
3. SELECT USE A FORMULA AND TYPE THE FORMULA SHOWN IN THE IMAGE ON THE RIGHT.
4. CLICK ON FORMAT
5. GO TO FILL AND SELECT A COLOR. THEN CLICK OK