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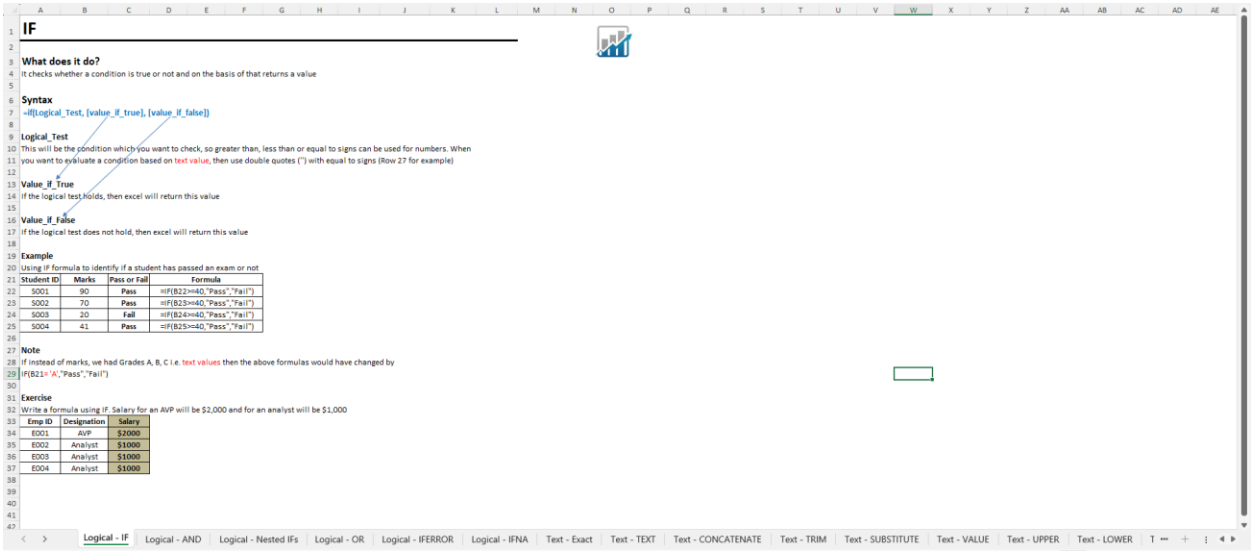
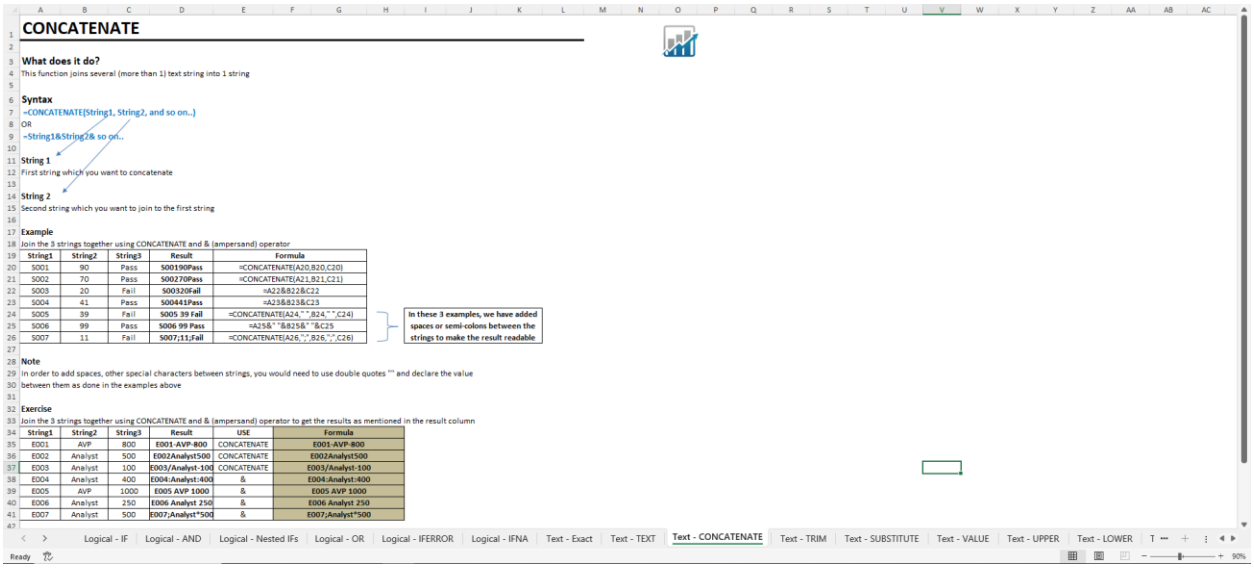
BSCS-C301

Practice Task # 2: MS Excel Functions

This practice task focuses on mastering essential Excel functions to automate data processing and perform complex calculations efficiently. It covers a wide range of logical, text, mathematical, and statistical formulas—such as VLOOKUP, Nested IFs, and TRIM—designed to clean data and extract meaningful insights. By completing these exercises, you will learn to handle real-world data scenarios, including financial modeling, date manipulation, and error handling.





WEEKDAY

What does it do?

This function returns a number between 1 and 7 depending upon the day of the week. Default return is - Sunday would be 1, Monday 2...so on till Saturday which will be 7. Do note that at times, you may have to change the format of the cell to numeric to get the date in

Syntax

=WEEKDAY(SERIAL_NUMBER, [return_type])

Serial Number

Date from which you want to extract the year part

return_type

Default settings i.e. if you do not mention this, Sunday would be 1, Monday 2 and so on. If you select it as 2, Monday will be given 1, Tuesday 2 and so on.

Example

Identify today's weekday number basis different return_type value

Col A	Result	Formula
25/02/2026	4	=WEEKDAY(A20)
25/02/2026	3	=WEEKDAY(A21,2)
25/02/2026	2	=WEEKDAY(A22,3)
25/02/2026	7	=WEEKDAY(A23,14)

Exercise 1

Use WEEKDAY() to calculate weekdays of dates mentioned in 'Date' column using 'Return Value'

Dates	Return Value	Results
01/01/2017	1	1
01/01/2017	2	7
01/01/2017	3	6

Exercise 2

If any of the dates in the column below falls on Tuesday, then change that date to Friday. Use Weekday fucntion to check weekdays with return value 1. You will have to use IF function. 1st has been done as an example

Dates	Weekday	New Date
28/03/2017	3	24/03/2017
29/03/2017	4	29/03/2017
21/03/2017	3	17/03/2017
01/01/2016	6	01/01/2016
01/01/2017	1	01/01/2017
01/01/2015	5	01/01/2015
01/01/2014	4	01/01/2014

VLOOKUP

What does it do?

This function is used to lookup a particular value in a table and then return data from a specific column corresponding to that value

Syntax

=VLOOKUP(LookupValue, Table_Array, Column_Index_Num, [Range_Lookup])

LookupValue

The value which needs to be looked for in a particular table

Table_Array

The table in which we are checking for this value to be present and from which we want to retrieve data. By pressing F2 key when you have selected your table, you fix the range. So when you copy formula from one cell to another, the range does not update automatically

Column_Index_Num

If the value is present in the table, then which column consists of the value we want the function to return

Range_Lookup

It is optional - it has 2 values - TRUE for approximate match and FALSE (which is default value) for exact match of the value we are searching for in a table

Example 1

Below in the **Lookup** table, we have cost for different parts for different car makers. Use VLOOKUP() to get costs infront of items in the second table

Lookup Table	Mercedes	BMW	Audi
GearBox	$2,500	$2,000	$3,000
Engine	$5,000	$4,999	$5,200
Steering	$1,250	$1,302	$1,100
Ignition	$250	$300	$200
CYHead	$300	$290	$310

Maker	Spare	Cost	Formula
Mercedes	Ignition	£250	=VLOOKUP(B31,$A$24:$B$28,2,FALSE)
BMW	GearBox	£2,000	=VLOOKUP(B32,$A$24:$C$28,3,FALSE)
Audi	Engine	£5,200	=VLOOKUP(B33,$A$24:$D$28,4,FALSE)
Audi	Steering	£1,100	=VLOOKUP(B34,$A$24:$D$28,4,FALSE)
Mercedes	Ignition	£250	=VLOOKUP(B35,$A$24:$B$28,2,FALSE)
Mercedes	CYHead	£300	=VLOOKUP(B36,$A$24:$B$28,2,FALSE)
BMW	GearBox	£2,000	=VLOOKUP(B37,$A$24:$C$28,3,FALSE)
BMW	Engine	£4,999	=VLOOKUP(B38,$A$24:$C$28,3,FALSE)

1) The first parameter relates to spare part for which we want to get the costs
2) The second part refers to the data range - so Mercedes spare part information is available in second column ofthe 'Lookup table' - so that is why you select only first 2 columns - 1st one consists of the spare part name which we are searching for and the second one consists of its cost. For BMW that information is available in 3rd column, thus our data range consists of 3 columns for the second paramter
3) The 3rd parameter refers to from which column we want to return the value, for Mercedes that would be 2nd column of the selected range, for BMW it would be 3rd and for Audi it would be 4th
4) FALSE refers to us wanting an exact match and not an approximate one

Example 2

SUM

What does it do?

This function returns the sum of the cells or range selected

Syntax

=SUM(Number 1, Number 2....)

Number 1

The first value to sum

Number 2 and so on

The second (and so on..) value to sum

Example 1

Use SUM function to get the sum of cells

Col A	Col B	Col C	Result	Formula
5	12	17	34	=SUM(A18:C18)
10	18	23	51	=SUM(A19,B19,C19)
20	100	999	1119	=A20+B20+C20

Example 2

Use SUM function to get the sum of cells

Row A	5	9	12	21
Row B	1	56	345	23
Row C	2	6	23	34
Row D	4	12	547	12
Total	12	83	927	90
Formula	=SUM(B24:B27)	=C24+C25+C26+C27	=SUM(D24,D25,D26,D27)	=SUM(E24:E25,E26:E27)

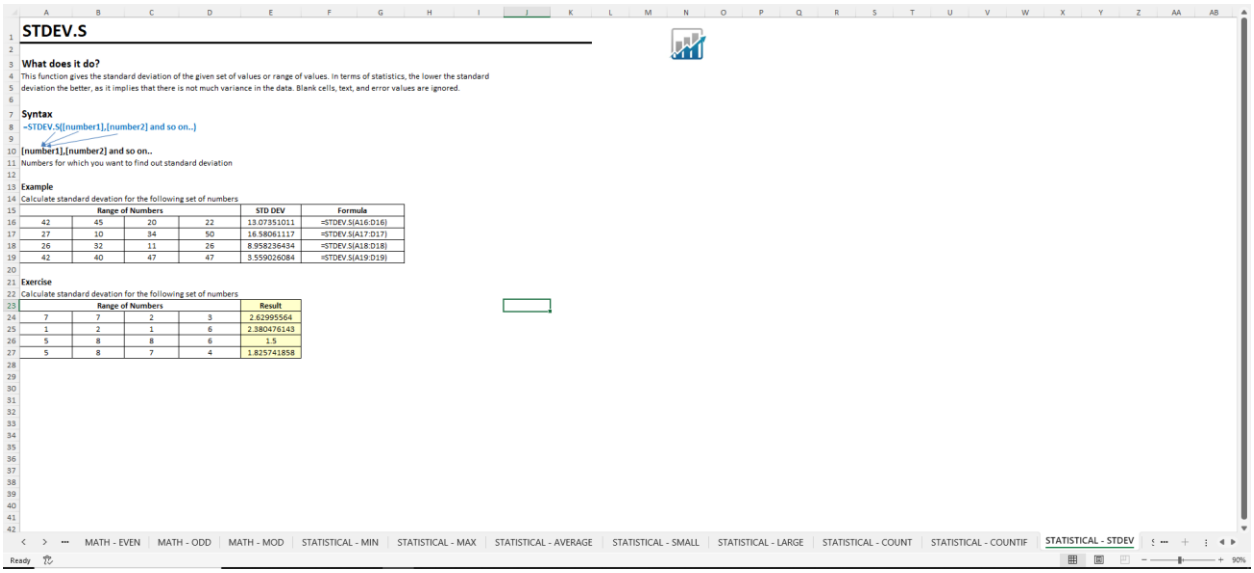
Example 3

Get the SUM of all cells below

Values to be summed			Total	Formula
5		3	16	=SUM(A34,A36,C34,C36,B35:B36)
	1			
1	2	4		

Note

If you want to sum the entire column I suppose, all you need to do is =SUM(I:I), it will select the entire column I and give you the sum of the numbers in it. Similarly, you can select the entire row as well. If you write, =SUM(41:42), it will return the sum of all numbers in Rows 41 and 42.



STDEV.S

What does it do?

This function gives the standard deviation of the given set of values or range of values. In terms of statistics, the lower the standard deviation the better, as it implies that there is not much variance in the data. Blank cells, text, and error values are ignored.

Syntax

=STDEV.S([number1],[number2] and so on..)

[number1],[number2] and so on..

Numbers for which you want to find out standard deviation

Example

Calculate standard devation for the following set of numbers

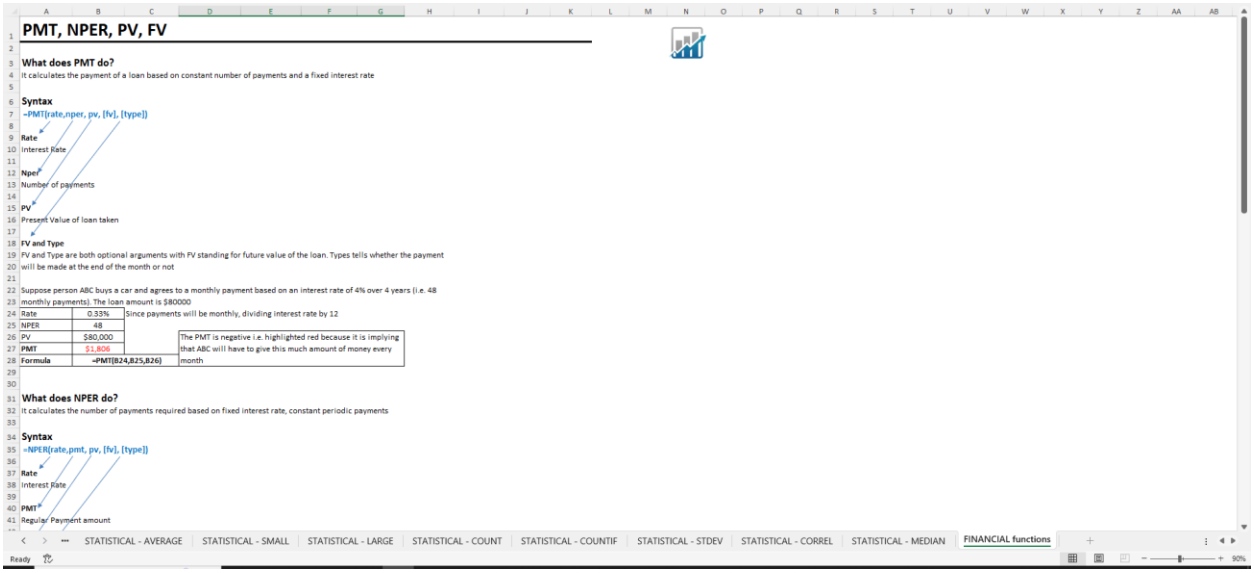
Range of Numbers				STD DEV	Formula
42	45	20	22	13.07351011	=STDEV.S(A16:D16)
27	10	34	50	16.58061117	=STDEV.S(A17:D17)
26	32	11	26	8.958236434	=STDEV.S(A18:D18)
42	40	47	47	3.559026084	=STDEV.S(A19:D19)

Exercise

Calculate standard devation for the following set of numbers

Range of Numbers				Result
7	7	2	3	2.62995564
1	2	1	6	2.380476143
5	8	8	6	1.5
5	8	7	4	1.825741858

MATH - EVEN | MATH - ODD | MATH - MOD | STATISTICAL - MIN | STATISTICAL - MAX | STATISTICAL - AVERAGE | STATISTICAL - SMALL | STATISTICAL - LARGE | STATISTICAL - COUNT | STATISTICAL - COUNTIF | STATISTICAL - STDEV



PMT, NPER, PV, FV

What does PMT do?

It calculates the payment of a loan based on constant number of payments and a fixed interest rate

Syntax

=PMT(rate,nper, pv, [fv], [type])

Rate

Interest Rate

Nper

Number of payments

PV

Present Value of loan taken

FV and Type

FV and Type are both optional arguments with FV standing for future value of the loan. Types tells whether the payment will be made at the end of the month or not

Suppose person ABC buys a car and agrees to a monthly payment based on an interest rate of 4% over 4 years (i.e. 48 monthly payments). The loan amount is $80000

Rate	0.33%	Since payments will be monthly, dividing interest rate by 12
NPER	48	
PV	$80,000	
PMT	$1,806	The PMT is negative i.e. highlighted red because it is implying that ABC will have to give this much amount of money every month
Formula	**=PMT(B24,B25,B26)**	

What does NPER do?

It calculates the number of payments required based on fixed interest rate, constant periodic payments

Syntax

=NPER(rate,pmt, pv, [fv], [type])

Rate

Interest Rate

PMT

Regular Payment amount

STATISTICAL - AVERAGE | STATISTICAL - SMALL | STATISTICAL - LARGE | STATISTICAL - COUNT | STATISTICAL - COUNTIF | STATISTICAL - STDEV | STATISTICAL - CORREL | STATISTICAL - MEDIAN | FINANCIAL functions