

L	M	N	O	P
NAME	JOINING DATE	EMAIL	DEPT	SALARY
VARUN	12-Dec-24	varun123@gmail.com	sales	30000
MADHU	30-Jan-25	madhucustomer@gmail.com	legal	24000
RISHA	04-Feb-25	risha123@gmail.com	retail	32000
NEHLI	14-Feb-25	nehl123@gmail.com	accounts	34000
CHATRA	08-Mar-25	chatra123@gmail.com	accounts	36000
SAMER	22-Mar-25	samer123@gmail.com	human resources	6400
VIRAT	20-Apr-2025	virat123@gmail.com	legal	37000
ANUSHKA	30-May-2025	anushka123@gmail.com	sales	45000
TRISHA	08-Jun-2025	trisha123@gmail.com	sales	39000
AKJUN	09-Jun-2025	akjun123@gmail.com	Business Development	63000

L	M	N	O	P
NAME	JOINING DATE	EMAIL	DEPT	SALARY
VARUN	12-Dec-24	varun123@gmail.com	sales	30000
MADHU	30-Jan-25	madhucustomer@gmail.com	legal	24000
RISHA	04-Feb-25	risha123@gmail.com	retail	32000
NEHLI	14-Feb-25	nehl123@gmail.com	accounts	34000
CHATRA	08-Mar-25	chatra123@gmail.com	accounts	36000
SAMER	22-Mar-25	samer123@gmail.com	human resources	6400
VIRAT	20-Apr-2025	virat123@gmail.com	legal	37000
ANUSHKA	30-May-2025	anushka123@gmail.com	sales	45000
TRISHA	08-Jun-2025	trisha123@gmail.com	sales	39000
AKJUN	09-Jun-2025	akjun123@gmail.com	Business Development	63000

L	M	N	O	P
NAME	JOINING DATE	EMAIL	DEPT	SALARY
VARUN	12-Dec-24	varun123@gmail.com	sales	30000
MADHU	30-Jan-25	madhucustomer@gmail.com	legal	24000
RISHA	04-Feb-25	risha123@gmail.com	retail	32000
NEHLI	14-Feb-25	nehl123@gmail.com	accounts	34000
CHATRA	08-Mar-25	chatra123@gmail.com	accounts	36000
SAMER	22-Mar-25	samer123@gmail.com	human resources	6400
VIRAT	20-Apr-2025	virat123@gmail.com	legal	37000
ANUSHKA	30-May-2025	anushka123@gmail.com	sales	45000
TRISHA	08-Jun-2025	trisha123@gmail.com	sales	39000
AKJUN	09-Jun-2025	akjun123@gmail.com	Business Development	63000

L	M	N	O	P
NAME	JOINING DATE	EMAIL	DEPT	SALARY
VARUN	12-Dec-24	varun123@gmail.com	sales	30000
MADHU	30-Jan-25	madhucustomer@gmail.com	legal	24000
RISHA	04-Feb-25	risha123@gmail.com	retail	32000
NEHLI	14-Feb-25	nehl123@gmail.com	accounts	34000
CHATRA	08-Mar-25	chatra123@gmail.com	accounts	36000
SAMER	22-Mar-25	samer123@gmail.com	human resources	6400
VIRAT	20-Apr-2025	virat123@gmail.com	legal	37000
ANUSHKA	30-May-2025	anushka123@gmail.com	sales	45000
TRISHA	08-Jun-2025	trisha123@gmail.com	sales	39000
AKJUN	09-Jun-2025	akjun123@gmail.com	Business Development	63000

Date: [] [] [] []

Experiment No.: []

Page No. []

Lab program 01

CONDITIONAL FORMATTING , IF, COUNTIF, SUMIF , AVEPAGE , CONCAT

1 Conditional formatting rule

- is used to change the appearance of cells in a range based on your specified conditions

2 IF Function

- is a premade function in Excel, which returns values based on true or false condition

ex : = IF (E2 > 50000; "HIGH PERFORMANCE"; "Average Performance")
Syntax: = IF(logical test, [value_if_true], [value_if_false])

3 COUNTIF Function

- is a predefined function in Excel, which counts cells as specified. It is typed =COUNTIF

Syntax: = COUNTIF(

4 SUMIF Function

- is a predefined function, which calculates the sum of values in a range based condition

Syntax: = SUMIF(range, criteria, [sum_range])

				AVERAGE(E2:E11)		
1	NAME	JOINING DATE	EMAIL	DEPT	SALARY	AVERAGE
2	VARUN	12-Dec-24	varun12@gmail.com	sales	30000	60000
3	MADHU	30-Jan-25	madhuvr12@gmail.com	legal	24000	57711.1
4	NISHA	04-Feb-25	nisha.vr12@gmail.com	retail	57000	61525.00
5	NHEMIL	14-Feb-25	nhemilvr12@gmail.com	accounts	34000	61200
6	CHATTRA	06-Mar-25	chattra.vr12@gmail.com	accounts	38000	65781.3
7	SAMEER	22-Mar-25	sameer.vr12@gmail.com	human resources	64000	96000
8	VIRAT	20-Apr-25	virat.vr12@gmail.com	legal	100000	76360
9	ANUSHKA	30-Jun-25	anushka.vr12@gmail.com	sales	45000	66666
10	TRISHA	08-Aug-25	trisha.vr12@gmail.com	sales	50000	75000
11	ARJUN	09-Aug-25	arjun.vr12@gmail.com	business development	62000	63666

				CONCAT(A2:D2)	
1	NAME	JOINING DATE	EMAIL	DEPT	CONCAT
2	VARUN	12-Dec-24	varun12@gmail.com	sales	VARUNsales
3	MADHU	30-Jan-25	madhuvr12@gmail.com	legal	MADHUlegal
4	NISHA	04-Feb-25	nisha.vr12@gmail.com	retail	NISHAretail
5	NHEMIL	14-Feb-25	nhemilvr12@gmail.com	accounts	NHEMILaccounts
6	CHATTRA	06-Mar-25	chattra.vr12@gmail.com	accounts	CHATTRAaccounts
7	SAMEER	22-Mar-25	sameer.vr12@gmail.com	human resources	SAMEERhuman resources
8	VIRAT	20-Apr-25	virat.vr12@gmail.com	legal	VIRATlegal
9	ANUSHKA	30-Jun-25	anushka.vr12@gmail.com	sales	ANUSHKAsales
10	TRISHA	08-Aug-25	trisha.vr12@gmail.com	sales	TRISHAsales
11	ARJUN	09-Aug-25	arjun.vr12@gmail.com	business development	ARJUNbusiness development

Date: [] [] [] [] []

Experiment No.:

Page No. [2]

5 AVERAGE Function

- is a premade function, which calculates the average (arithmetic mean). It is typed = AVERAGE

Syntax: = AVERAGE(num1 , num2 . . .)

6 CONCAT Function

- This function is used to link multiple cells without adding any delimiter between the combined cell values. It is typed = CONCAT (-)

Syntax: = CONCAT(cell1, delimiter, cell2)

example of delimiter = comma, semicolon,
quot " or ' braces { } pipes / \



concat -> is used to combine texts, values numbers or cells
into a continuous string

Output

	A	B	C	D	E	F
1	Name	Region	Orders	Sales	CATEGORY	INDEX
2	Alice	North	25	1200	Medium	West
3	Bob	South	30	1500	medium	1300
4	Carol	East	20	900	low	
5	Dave	West	35	1600	high	
6	Eva	North	28	1300	medium	
7	Frank	South	22	1100	medium	
8	Grace	East	18	800	low	
9	Helen	West	40	2000	high	
10	Ian	North	32	1400	medium	
11	Jane	South	27	1250	medium	

	A	B	C	D	E	F
1	Name	Region	Orders	Sales	CATEGORY	MATCH
2	Alice	North	25	1200	Medium	3
3	Bob	South	30	1500	medium	4
4	Carol	East	20	900	low	
5	Dave	West	35	1600	high	
6	Eva	North	28	1300	medium	
7	Frank	South	22	1100	medium	
8	Grace	East	18	800	low	
9	Helen	West	40	2000	high	
10	Ian	North	32	1400	medium	
11	Jane	South	27	1250	medium	

	A	B	C	D	E	F
1	Name	Region	Orders	Sales	CATEGORY	UNIQUE
2	Alice	North	25	1200	Medium	North
3	Bob	South	30	1500	medium	South
4	Carol	East	20	900	low	East
5	Dave	West	35	1600	high	West
6	Eva	North	28	1300	medium	
7	Frank	South	22	1100	medium	
8	Grace	East	18	800	low	
9	Helen	West	40	2000	high	
10	Ian	North	32	1400	medium	
11	Jane	South	27	1250	medium	

Experiment No.: 2

Page No. 3

Program Q2

INDEX, MATCH, UNIQUE, IFS, COUNTIFS, SUMIFS, AVERAGEIFS

1. INDEX

- is a function returns a value or the reference to a value from within a table or range

Syntax: =INDEX (array, row_num, [column_num])
example: =INDEX (A3:D12, 2, 2)

Array → Array is required, it is a range of cells

row_num → is required, selects the row in array from which to return a value

column_num → Optional, Selects the column in array.

2. MATCH

- searches for a specified item in a range of cells and then returns the relative position of that item in the range
syntax= MATCH (lookup_value, lookup_array, [match_type])
ex = MATCH (99, C11:C13, 0)

lookup_value → The value that you want to match

lookup_array → The range of cells

match_type → The number -1, 0, or 1

3. UNIQUE

- returns a list of unique values in a list or range

Syntax: = UNIQUE (array, [by_col], [exactly_once])

example: =unique (B3:D4, false) or =unique (B3:D4, true)

	A	B	C	D	E	F	G	H
1	Name	Region	Orders	Sales	IFS			
2	Alice	North	25	1200	medium			
3	Bob	South	30	1500	medium			
4	Carol	East	20	900	low			
5	Dave	West	35	1600	high			
6	Eva	North	28	1300	medium			
7	Frank	South	22	1100	medium			
8	Grace	East	18	800	low			
9	Helen	West	40	2000	high			
10	Ian	North	32	1400	medium			

E2 : =COUNTIFS(B2:B11,"north")

	A	B	C	D	E
1	Name	Region	Orders	Sales	COUNTIFS
2	Alice	North	25	1200	3
3	Bob	South	30	1500	
4	Carol	East	20	900	
5	Dave	West	35	1600	
6	Eva	North	28	1300	
7	Frank	South	22	1100	
8	Grace	East	18	800	
9	Helen	West	40	2000	
10	Ian	North	32	1400	
11	Jane	South	27	1250	

	A	B	C	D	E
1	Name	Region	Orders	Sales	SUMIFS
2	Alice	North	25	1200	1200
3	Bob	South	30	1500	
4	Carol	East	20	900	
5	Dave	West	35	1600	
6	Eva	North	28	1300	
7	Frank	South	22	1100	
8	Grace	East	18	800	
9	Helen	West	40	2000	
10	Ian	North	32	1400	
11	Jane	South	27	1250	

E2 : =AVERAGEIFS(D2:D11,B2:B11,"North")

	A	B	C	D	E
1	Name	Region	Orders	Sales	AVERAGEIFS
2	Alice	North	25	1200	1300
3	Bob	South	30	1500	
4	Carol	East	20	900	
5	Dave	West	35	1600	
6	Eva	North	28	1300	
7	Frank	South	22	1100	
8	Grace	East	18	800	
9	Helen	West	40	2000	
10	Ian	North	32	1400	
11	Jane	South	27	1250	

Date: [] [] [] [] []

Experiment No.: []

Page No. []

4 IFS Function

- is used to check whether one or more conditions are met and returns a value that corresponds to the first true condition.

Syntax : =IFS([logical_test1,value1],[logical_test2,value2],...,[logical_testn,value n])

Example : =IFS(C3>90,"A",C3>80,"B")

5 COUNTIFS

- is a premade function which counts cells in a range based on one or more true or false condition.

Syntax : =COUNTIFS(criteria_range,criteria1,[criteria_range2,criteria2],...)

Example : =COUNTIFS(B2:B11,"North")

6 SUMIFS Function

- is a premade function in Excel, which calculates the sum of a range based one or more true or false condition.

Syntax : =SUMIFS(sum_range,criteria_range,criteria1,[criteria_range2,criteria2],...)

7 AVERAGEIFS Function

- is a function which calculates the average of a range based on one or more true or false condition.

Syntax : =AVERAGEIFS(average_range,criteria_range,criteria1)

Output:

	A	B	C	D	E	F	G	H
1	ID	Name	Region	Orders	Sales		VLOOKUP	
2	101	Alice	North	25	1200			
3	102	Bob	South	30	1500			
4	103	Carol	East	20	900			
5	104	Dave	West	35	1800			
6	105	Eva	North	28	1300			
7	106	Frank	South	22	1100			
8	107	Grace	East	18	800			
9	108	Helen	West	40	2000			
10	109	Ian	North	32	1400			
11	110	Jane	South	27	1200			

	A	B	C	D	E	F	G	H
1	ID	Name	Region	Orders	Sales		VLOOKUP	
2	101	Alice	North	25	1200			
3	102	Bob	South	30	1500			
4	103	Carol	East	20	900			
5	104	David	West	35	1800			
6	105	Eva	North	28	1300			
7	106	Frank	South	22	1100			
8	107	Grace	East	18	800			
9	108	Helen	West	40	2000			
10	109	Ian	North	32	1400			
11	110	Jane	South	27	1200			

	A	B	C	D	E	F	G	H
1	ID	Name	Region	Orders	Sales		COUNT	
2	101	Alice	North	25	1200			
3	102	Bob	South	30	1500			
4	103	Carol	East	20	900			
5	104	David	West	35	1800			
6	105	Eva	North	28	1300			
7	106	Frank	South	22	1100			
8	107	Grace	East	18	800			
9	108	Helen	West	40	2000			
10	109	Ian	North	32	1400			
11	110	Jane	South	27	1200			

Lab program 3

VLOOKUP, HLOOKUP, XLOOKUP, COUNT, COUNTA

1 VLOOKUP

- Stands for vertical lookup, that is responsible for looking for a particular value in the leftmost column of a table, it then return a value in the same row from a column you specify

Syntax

=VLOOKUP([lookup-value], [table-array], [col-index-num], [range_lookup])

- lookup_value = look for first column of a table

- table_array = the table from which the value is retrieved

- range_lookup = Exact match like true or false

example = VLOOKUP(A2; A1:E8; 3)

2 XLOOKUP

- searches a range or an array and then returns the item corresponding to the first match it finds, if no match exists, then xlookup can return the closest match.

Syntax

=XLOOKUP([lookup-value], [lookup_array], [return_array], [if-not-found], [match-mode], [search-mode])

example = XLOOKUP("105", B1:F1, B3:F3)

3 COUNT

- this function is generally used to count a range of cells containing numbers or data excluding Blanks

A1 : E1 : COUNTA(A2:H8)

	A	B	C	D	E	F	G	H
1	B1	Name	Region	Orders	Sales			
2	101	Alice	North	25	1250			
3	102	Bob	South	30	1500			
4	103	Carol	East	20	900			
5	104	David	West	45	1800			
6	105	Eve	North	28	1300			
7	106	Frank	South	22	1100			
8	107	Grace	East	18	800			
9	108	Heinz	West	40	1600			
10	109	Ian	North	32	1400			
11	110	Jane	South	27	1250			
12						COUNTA		

E5 : =HLOOKUP(104,B2:G3,2,FALSE)

	A	B	C	D	E	F	G
1							
2		101	102	103	104	105	106
3	SALES	1200	1500	900	1600	1300	1100
4							
5		HLOOKUP			1600		

Date: _____ Experiment No.: _____ Page No. 6

Syntax :
 $=\text{COUNT}(\text{value}_1, [\text{value}_2] \dots)$

example
 $=\text{COUNT}(B2 : B14)$

4 COUNTA Function
- counts the number of cells that are not empty
in a range

Syntax :
 $=\text{COUNTA}(\text{value}_1, [\text{value}_2] \dots)$

example
 $=\text{COUNTA}(B2 : B14)$

5 HLOOKUP Function
- Stands for Horizontal lookup. This function makes
function search for a certain value in a row (the so called
table array) in order to return a value from a different
row in the same column.

Syntax
 ~~$=\text{HLOOKUP}([\text{value}], [\text{range}], [\text{row number}], [\text{false or true}])$~~

Output

D2	A	B	C	D	E
1	DATA			FORMULA	
2	manisha	LEFT		=LEFT(A2,4)	mani

D2	A	B	C	D	
1	DATA			FORMULA	
2	nanditha	RIGHT		=RIGHT(A2,3)	tha

D2	A	B	C	D	
1	DATA			FORMULA	
2	bhavani	MID		=MID(A2,1,4)	bhav

D2	A	B	C	D	
1	DATA			FORMULA	
2	kamaleshha	LEN		=LEN(A2)	9

Date _____

Experiment No.: 4

Page No. [7]

Lab program 04

LEFT, MID, RIGHT, LEN, SUBSTITUTE, SEARCH, ISNUMBER
 Extract a specific number of character from the
 left or in end of a text string

1. LEFT Function

- is used to retrieve a chosen amount of character
 counting from left side of an Excel cell. The chosen
 number has to be greater than 0 and is set to 1 by default.
 Syntax : =LEFT [text, [num-chars])
 example : =LEFT (A2) or =LEFT (A2;3)

2. RIGHT Function

- will return a specified num of char from the end
 of a given text string generally it is used by combining
 it with other function value, sum, count, date, etc...

Syntax : =RIGHT (text, [num-chars])

example : =RIGHT (A2;3)

3. MID Function

- is designed to pull a substring from the middle
 of the original text string

Syntax : =MID (text, start-num, num-chars)

example : =MID (A2;1;2;3)

4. LEN Function

- it returns the num of characters in a text string

Syntax : =LEN (text)

example : =LEN (A2)

D2				=SEARCH("chasha",A2)
	A	B	C	D
	DATA			FORMULA
	chasha	shacha	SEARCH	1

D2					=ISNUMBER(A2)
A	B	C	D		
1	DATA			FORMULA	
2	64	ISNUMBER		TRUE	

D2				
A	B	C	D	E
			=SUBSTITUTE(A2,"mom","mumie")	
DATA		SUBSTITUTE		selvi mumie selvi

8/10

Date _____

Experiment No.:

Page No. 8

5 SEARCH Funktion

- locate one text string within a second text string
and return the number of the starting position of the
first text string and second.

Syntax : = SEARCH (find_text , within_text [start_num])
example : = SEARCH ("n",Binter")

6. ISNUMBER Function

- This function checks if a cell in Excel contains a num or not - it will return true if the value a not false value.

Syntax = ISNUMBER(value)

⇒ SUBSTITUTE Function

- Substitute function substitutes new_text for old_text in a text_string? use substitute when you want to replace specific text in text_string REPLACE you want to replace in text_string

syntax = SUBSTITUTE(text, old_text, new_text,
[instance_num])

we used to find the pastor of one tent inside another
tent.

Output

C1	A	B	C	D
TODAY:			22-08-2025	=TODAY()

C1	A	B	C	D
NOW:			22-08-2025 22:33	=NOW()

C1	A	B	C	D	E
YEAR:			2025		=YEAR("20-APR-2025")

C1	A	B	C	D	E
MONTH:			8		=MONTH("10-AUG-2005")

Date: _____ Experiment No.: 5 Page No. 9

Lab program 05

TODAY, NOW, YEAR, MONTH, NETWORKDAYS, EOMONTH

1. TODAY Function

- returns the serial number of the current date in Excel. The Today function updates automatically.

Syntax: =TODAY()

2. NOW Function

- returns the serial number of current date and time. The now function is considered 'volatile' meaning that it updates automatically whenever worksheet is opened.

Syntax: =NOW()

3. YEAR Function

- returns the year corresponding to a date. This can be useful for isolating the year element of a date.

Syntax: =YEAR(serial-num)

4. MONTH Function

- returns the nth month of the year ranging from 1 to 12. This can be useful for isolating the month element of a date.

Syntax: =MONTH(serial-num)

E1	A	B	C	D	E	F	G	H	I	J
1	NETWORKDAYS FUNCTION:				14					
2										

C1	A	B	C	D	E
1	EOMONTH:		30-09-2023		
2					
3					
4	DATE	YEAR	MONTH		
5	12-06-2023	2006	1		
6	20.JAN.2001	2001	12		
7	03-12-2025	2025	4		
8	24 Apr 07	2007	9		
9	2005.6.4	2005	9		

Date

Experiment No.:

Page No.

5. NETWORKDAYS Function

- used to determine the number of working days between two dates the formula calculates the days in an inclusive manner, meaning that the start and end days are included in the count.

Syntax

= NETWORKDAYS (start_date, end_date, [holiday])

Start_date - represents the start date

End_date - represents the end date

Holiday - the range of dates to be excluded from the working day calculation

6. EOMONTH Function

- determines the last day of an earlier or later month than the month being referenced

Syntax

= EOMONTH (start_date, months)

last date of the month after odd/even months from a given date
no working days between 2 days

Output:

	A	B	C	D	E	F
1	STUDENT	SUBJECT	MARKS			=OFFSET(B2,1,1)
2	MANI	KANNADA	99			OFFSET
3	NAMI	SCIENCE	95			81
4	PRAJ	ENGLISH	90			
5	JANH	MATH	89			
6	FARAH	HINDI	91			

	D	E	F	G	
			CHOOSE	MANI	

	A	B	C	D	E	F
1	STUDENT	SUBJECT	MARKS			=LET(x,MAX(C2:C6),x+5)
2	MANI	KANNADA	99			
3	NAMI	SCIENCE	95			
4	PRAJ	ENGLISH	90			
5	JANH	MATH	89			
6	FARAH	HINDI	91			

	A	B	C	D	E	F
1	STUDENT	SUBJECT	MARKS			=MAX(C2:C6)
2	MANI	KANNADA	99			
3	NAMI	SCIENCE	95			
4	PRAJ	ENGLISH	90			
5	JANH	MATH	89			
6	FARAH	HINDI	91			

- Date _____ Experiment No. 06 Page No. 11
- ### Program 06
- OFFSET, CHOOSE, LET, MAX, SORT, SORTBY, RANK
- #### 1. OFFSET Function
- returns a cell or range of cells that is a given number of rows and columns from a given cell or range
 - Syntax : =OFFSET [reference, rows, cols, [height], [width]]
 - Ex : =OFFSET (A1, 3, 1)
 - reference - a cell or range of adjacent cells from which you base the offset
 - rows - The no of rows to move from straightpoint, up or down
 - cols - The no of cols you want the formula to move starting
- #### 2. CHOOSE function
- returns a value from a list using a given position or index.
 - Syntax : =CHOOSE (index_num, value1, [value2], ...)
- #### 3. LET Function
- allows you to assign names to calculation results and define variables inside a formula so that the formula looks clear and works faster.
 - Syntax : =LET ([names, name_value1, [name2], [name_value2], calculation])
- #### 4. MAX Function
- is a premade function, which finds the highest number in a range. The function ignores cells with text

	A	B	C	D	E	F	G	H
1	STUDENT	SUBJECT	MARKS					
2	MANI	KANNADA	99					
3	NAMI	SCIENCE	95					
4	PRAJ	ENGLISH	90					
5	MANY	MATH	89					
6	FARAH	HINDI	85					

SORT

MANI	KANNADA	99
NAMI	SCIENCE	95
FARAH	HINDI	85
PRAJ	ENGLISH	90
MANY	MATH	89

	A	B	C	D	E	F	G	H
1	STUDENT	SUBJECT	MARKS					
2	MANI	KANNADA	99					
3	NAMI	SCIENCE	95					
4	PRAJ	ENGLISH	90					
5	MANY	MATH	89					
6	FARAH	HINDI	85					

SORTBY:DEC5

MANI	NAMI	FARAH	PRAJ	MANY
------	------	-------	------	------

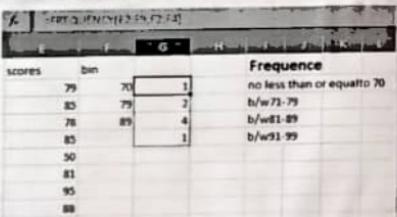
	A	B	C	D	E	F	G	H
1	STUDENT	SUBJECT	MARKS					
2	MANI	KANNADA	99					
3	NAMI	SCIENCE	95					
4	PRAJ	ENGLISH	90					
5	MANY	MATH	89					
6	FARAH	HINDI	85					

RANK

1

- Date _____ Experiment No.: _____ Page No. 12
- it will only work with numbers
 Syntax : = MAX (C2 : C7)
- ### 5. SORT Function
- Ranges can be sorted using the SORT ascending and descending commands. The SORT commands work for text too, using A-Z order.
- Syntax : = SORT (A2 : D22)
- ### 6. SORTBY Function
- is designed to sort one range or array based on the values in another range or array. Sorting can be done by one or multiple columns.
- Syntax : = SORTBY (array, by - array1, [sort - order1], [by - array2, sort - order2], ...)
- ### 7. Rank Function
- The rank of a number is its size relative to other values in a list.
- Syntax : = RANK (number, ref [order])

	D	E	F	G	
					Filter
name	joining date	dep			
mark	31-Dec-21	human			brain
brain	31-Dec-22	sales			agatha
alan	14-Jan-22	legal			
tony	14-Jan-22	ratalf			
agatha	01-Feb-22	sales			
lana	01-Feb-22	account			
heather	04-Aug-22	account			



SEQUENCE {4,5,7,5}					
H	I	J	K	L	
0	5	10	15	20	
25	30	35	40	45	
50	55	60	65	70	
75	80	85	90	95	

Rand array			
0.066373	0.712269	0.126781	0.844975
0.041998	0.783777	0.108742	0.075014

...the teeth

Program 07

Filter, Frequency, Sequence, Pandarray, Iferror

filter function

Filter Function
- allows you to filter a range of data based on criteria you define
`filter([range], [criterion], [include false-empty?])`

Syntax - `FILTER(arry, include, [if-excl])`
example - `=FILTER(D2:D8, F2:F8 = "Sales")`

2. Frequency Function

- calculates how often values occur within a range of
value and the return a vertical array of numbers
(*size*, *type*, *array*)

Syntax - =FREQUENCY (data_array, bins_array)
Example - =FREQUENCY (E2:E9, F2:F7)

Sequence Function

Sequence function - allow you to generate a list of sequential numbers in array such that 1, 2, 3, 4.

Syntax: = sequence [rows, [cols], [start], [step])
Example: = Sequence {4, 5, 0, 9})

Pandayay /

randomarray - returns an array of numbers in random or returns an array of random numbers. you can specify the number of rows & cols to fill, min, max, value and whether to return whole numbers or decimal values

=IFERROR(1/0,"error")			
T	U	V	W
22/44	0.5		
1/0	error		

Date

--	--	--	--	--

Experiment No.:

Page No. 14

Syntax : Pandarray [rows], [columns], [num] Error),
 (value num])

Example : Pandarray (3, 3, 8, 10, True)

5 IFERROR function

is used to trap and handle errors in formula.
 It returns a value you specify if a formula evaluates
 to error; otherwise it returns the result of the
 formula.

Syntax : = IFERROR (value, value-if-error)

Example - IFERROR (1/0, "error")

Output

GOAL SEEK

Bottle uni	800	Items	200	100	30000	40000	50000
Price	10000	Price	300	200	60000	80000	100000
Total	8000000	Total	60000	300	90000	120000	150000

Furniture	0	Bookcase Bush Son	261.96	L
Furniture	Chairs	Hon Delu	731.94	
Furniture	Tables	Bretford I	957.578	
Furniture	Furn/Navy Eldon Exp		48.86	
Furniture	Tables	Chromax	1706.26	
	0		3444.56	Furniture Total
Office Sup	0	Office Suf Labels	Self Adhe	14.62
Office Sup	Suf Storage	Eldon Fol		22.368
Office Sup	Art	Newell		7.28
Office Sup	Binders	DXL Angl		18.504
Office Sup	Appliance	Belkin Fst		114.9
Office Sup	Paper	Xerox 19F		15.552
	0		193.224	Office Supplies Total
Technolog	0	Technology Phones	Mitel 532	907.152
Technolog	Phones	Kontrol 21		911.424
	0		1818.58	Technology Total
Grand Tot	0		5456.36	Grand Total

Date _____

Experiment No.

Page No. 15

Program 5

PIVOT TABLES , WHAT-IF ANALYSIS , DATA VALIDATION
SUBTOTALS WITH PAGES

PIVOT TABLES

- is a powerful tool to calculate, summarise and analyse data that lets you see comparisons, patterns and trends in your data

- Enter the data in Google sheet
 - Go to insert tab and click on pivot Table then it displays the dialogue box
 - Select the rows and columns and values

2. WHAT - IF - ANALYSIS

- various situations or scenarios are contemplated through the manipulation of variables

How to use Goal Seek in Google Sheets

- Open Google Sheets and go to Extension > Add-ons > Get add-ons

- You will see the Goal seek sidebar on the left of your spreadsheet, including "settings", "false states", and "history".

- click on the cell containing the profit formula then click on the grid icon beside "set cell" in sidebar

- click on cell containing the value you want to change, then click on the grid icon beside "By changing cell" in the sidebar

	Lab-Camp Product No	Item	Quantity	Discount	Profit	
1	Individually Pack Items	202,78	2	0	45,7136	
2	None	771,98	0	215,342		
3	None	Self Adhesive	14,42	2	0	2,8714
4	None	Brewster CI	153,575	3	0,0	38,0215
5	None	Film Roll	22,388	2	0,2	2,1334
6	None	Gluing Film Tape	48,86	0	14,3884	
7	None	None	7,28	0	1,9368	
8	None	None	507,152	0	8,2	30,7172

Date

Experiment No.

Page No. 16

- (i) To change the name of tolerance, and/or, the time limit, click on "Options".
- (ii) Once everything is ready, click "Solve". It takes a minute to calculate the solution.

3. How to use Data Validation in Google Sheets

- (i) Go to "Data" tab, click "Data Validation" & get a dialog box on the right side of the sheet
- (ii) Click + Add rule
- (iii) Select a range where you want to make Data Validation
- (iv) Choose one of the criteria & input values according to criteria
- (v) Check the advanced option of "Show help text for a selected cell".
- (vi) Choose one of two options
- (vii) Click "Done" to make the setting effective.

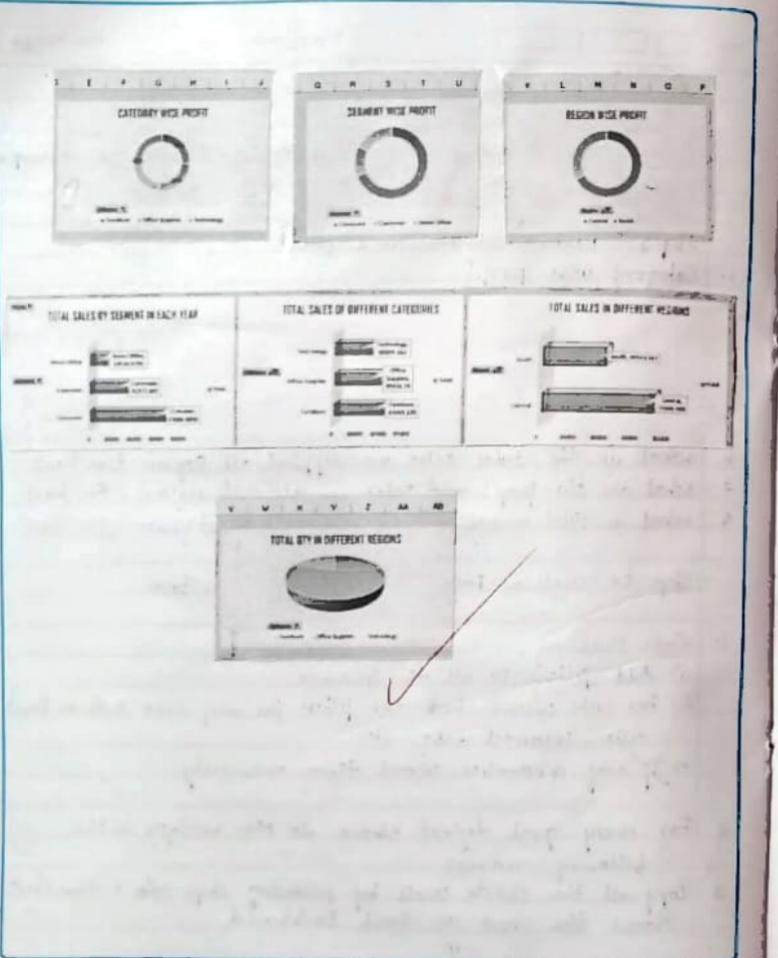
4. Subtotals with Range

- You can automatically calculate subtotals & grandtotal in a list for a column by using subtotal command

- (i) Sort the data in descending order using sort option in Data tab. Sort on region data
- (ii) Click on subtotal option from data tab → select region in at each value change field.
- (iii) Ok function → select sum
- (iv) Add subtotal to → select sum
- (v) You will get subtotal region wise.

Output :

Product Name	Category	Sub Category	Region	Quantity	Unit Price	Total Sales
Apple iPhone X	Electronics	Smartphones	North America	1000	1000	1000000
Apple iPhone 8	Electronics	Smartphones	North America	1500	1000	1500000
Samsung Galaxy S9	Electronics	Smartphones	North America	800	1200	960000
Samsung Galaxy S8	Electronics	Smartphones	North America	1200	1000	1200000
Microsoft Surface Pro 4	Electronics	Laptops	North America	500	1500	750000
Microsoft Surface Book	Electronics	Laptops	North America	300	2000	600000
Dell XPS 13	Electronics	Laptops	North America	400	1800	720000
Lenovo Yoga 900	Electronics	Laptops	North America	300	1600	480000
ASUS ZenBook UX301LA	Electronics	Laptops	North America	200	1400	280000
HP Spectre x360	Electronics	Laptops	North America	150	1800	270000
MacBook Pro 13-inch	Electronics	Laptops	North America	100	2000	200000
MacBook Air	Electronics	Laptops	North America	100	1200	120000
Apple MacBook Pro	Electronics	Laptops	North America	50	2200	110000
Apple MacBook	Electronics	Laptops	North America	50	1400	70000
Microsoft Surface Book 2	Electronics	Laptops	North America	20	2500	50000
Microsoft Surface Laptop	Electronics	Laptops	North America	20	1800	36000
ASUS ROG G752VY	Electronics	Gaming Laptops	North America	10	2800	28000
ASUS ROG GL552VX	Electronics	Gaming Laptops	North America	10	2500	25000
ASUS ROG Zephyrus	Electronics	Gaming Laptops	North America	5	3000	15000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	2200	11000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	2000	10000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	1800	9000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	1600	8000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	1400	7000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	1200	6000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	1000	5000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	800	4000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	600	3000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	400	2000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	200	1000
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	100	500
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	50	250
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	25	125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	12.5	62.5
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	6.25	31.25
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	3.125	15.625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	1.5625	7.8125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.78125	3.90625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.390625	1.953125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.1953125	0.9765625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.09765625	0.48828125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.048828125	0.244140625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0244140625	0.1220703125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.01220703125	0.06103515625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.006103515625	0.030517578125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0030517578125	0.0152587890625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00152587890625	0.00762939453125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000762939453125	0.003814697265625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0003814697265625	0.0019073486328125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00019073486328125	0.00095367431640625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000095367431640625	0.000476837158203125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000476837158203125	0.0002384185791015625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00002384185791015625	0.00011920928955078125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000011920928955078125	0.000059604644775390625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000059604644775390625	0.0000298023223876953125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000298023223876953125	0.00001490116119384765625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000001490116119384765625	0.000007450580596923828125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000007450580596923828125	0.0000037252902984619140625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000037252902984619140625	0.00000186264514923095703125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000186264514923095703125	0.000000931322574615478515625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000931322574615478515625	0.0000004656612873077392578125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000004656612873077392578125	0.00000023283064365386962890625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000023283064365386962890625	0.000000116415321827194814453125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000116415321827194814453125	0.0000000582076609135974072265625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000582076609135974072265625	0.000000029103830456798703613125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000029103830456798703613125	0.0000000145519152283993518065625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000145519152283993518065625	0.000000007275957614199675903125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000007275957614199675903125	0.0000000036379788070998389515625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000036379788070998389515625	0.00000000181898940354991947578125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000181898940354991947578125	0.000000000909494701774959737890625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000909494701774959737890625	0.0000000004547473508874798689453125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000004547473508874798689453125	0.00000000022737367544373993447265625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000022737367544373993447265625	0.0000000001136868377218699672363125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000001136868377218699672363125	0.00000000005684341886093498361815625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000005684341886093498361815625	0.000000000028421709430467491809078125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000028421709430467491809078125	0.0000000000142108547152237259045390625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000142108547152237259045390625	0.00000000000710542735761186279779765625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000710542735761186279779765625	0.00000000000355271367880593139889890625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000355271367880593139889890625	0.000000000001776356839402965699449453125
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000001776356839402965699449453125	0.0000000000008881784197014828497224765625
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000008881784197014828497224765625	0.0000000000000444089209850741424861234375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000444089209850741424861234375	0.00000000000000222044604925370712180617875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000222044604925370712180617875	0.000000000000001110223024626853560903089375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000001110223024626853560903089375	0.0000000000000005551115123134267805450446875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000000005551115123134267805450446875	0.00000000000000027755575615671339027522234375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000027755575615671339027522234375	0.00000000000000013877787807835669513761111875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000013877787807835669513761111875	0.000000000000000069388939039178347568805559375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000069388939039178347568805559375	0.0000000000000000346944695195891737834477796875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000000000346944695195891737834477796875	0.00000000000000001734723475979458689172388984375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000001734723475979458689172388984375	0.000000000000000008673617379897293445891944971875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000008673617379897293445891944971875	0.0000000000000000043368086899486467229497247859375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000000000043368086899486467229497247859375	0.00000000000000000216840434497432236147486239296875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000216840434497432236147486239296875	0.000000000000000001084202172487161180737431196484375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000001084202172487161180737431196484375	0.00000000000000000054210108622438059036871655924375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000054210108622438059036871655924375	0.00000000000000000027105054311219029518435827762375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000027105054311219029518435827762375	0.00000000000000000013552527155609514759217913881875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000013552527155609514759217913881875	0.000000000000000000067762635778047573796089569409375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000000067762635778047573796089569409375	0.0000000000000000000338813178890237868980447847046875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000000000000338813178890237868980447847046875	0.00000000000000000001694065894451189344902239235234375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000001694065894451189344902239235234375	0.0000000000000000000084703294722559467245111967761875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000000000000084703294722559467245111967761875	0.00000000000000000000423516473612767336225598388309375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000000423516473612767336225598388309375	0.000000000000000000002117582368063836681127991941546875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000000002117582368063836681127991941546875	0.0000000000000000000010587911840319183405549959707734375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000000000000010587911840319183405549959707734375	0.000000000000000000000529395592021559170277499785386875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000000000529395592021559170277499785386875	0.0000000000000000000002646977960107795851372499892934375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.0000000000000000000002646977960107795851372499892934375	0.000000000000000000000132348898005389792568624999646875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000000000132348898005389792568624999646875	0.00000000000000000000006617444900269494628331249998234375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000000006617444900269494628331249998234375	0.00000000000000000000003308722450134747314165624999116875
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.00000000000000000000003308722450134747314165624999116875	0.000000000000000000000016543612250673736570828124995084375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000000000016543612250673736570828124995084375	0.000000000000000000000008272806112836868285414062497254375
ASUS ROG GL552VW	Electronics	Gaming Laptops	North America	5	0.000000000000000000000008272806112836868285414062497254375	0.00000000000000000000000413640305641843414270703124



- Date _____ Experiment No.: _____ Page No. 18
4. In this Excel Dashboard Sheet : go to pivot chart tools ribbon
→ select Analyze option → select insert slice → select columns on which you need to insert slice
 5. Connect all the slices using following steps
Go to Slicer tools → check on options → select pivot table connections → check all the pivot tables you need to connect
 6. This dashboard will be interactive when you select data from the slices? your charts will dynamically update to display the selected options.
- ~~d~~