Excel Statistical Formulas (Count, CountIF, SumIf)

COUNT

- Counts **numbers** in a range (ignores text, errors, and empty cells).

- It doesn't count text, empty cells, or logical values (like TRUE/FALSE).

- It only counts cells that contain numbers.

Syntax:

COUNT(value1, [value2], ...)

- `value1` , `value2` , ...: These are the values or ranges you want to count. You can input individual numbers, cell references, or ranges.

Example 1: Counting numeric values in a range

If you have the following data in cells `A1:A5` :

A
10
20
Apple
30
40

The formula:

```
=COUNT(A1:A5)
```

will return `4`, because there are four numeric values (10, 20, 30, and 40), and "Apple" is not a number.

Example 2: Counting multiple ranges

You can also count numeric values from multiple ranges:

```
=COUNT(A1:A5, B1:B5)
```

This will count the numeric values in both ranges `A1:A5` and `B1:B5`.

Example 3: Difference between `COUNT` and `COUNTA`

- `COUNT` : Counts only numeric values.
- `COUNTA` : Counts all non-empty cells, including text, numbers, dates, etc.

For example, with the same data from above, if you used:

```
=COUNTA(A1:A5)
```

It would return `5`, because there are 5 non-empty cells in the range (`10` , `20` , `"Apple"` , `30` , `40`).

Let me know if you'd like more details or examples!

COUNTIF

Q. Find out number of transactions of each state

Sale Date	Customer Name	City	State	Region	Product Category	F
6/25/2023	Meera	Nagpur	Maharashtra	West	Furniture	T
11/1/2023	Vihaan	Coimbatore	Tamil Nadu	South	Stationery	F
4/6/2023	Nishant	Bengaluru	Karnataka	South	Stationery	F
10/15/2023	Vihaan	Madurai	Tamil Nadu	South	Clothing	D
8/7/2023	Aditi	Mumbai	Maharashtra	West	Groceries	L
12/23/2023	Ishita	Chennai	Tamil Nadu	South	Stationery	E
5/1/2023	Aarav	Mysuru	Karnataka	South	Electronics	H
12/23/2023	Riya	Ahmedabad	Gujarat	West	Clothing	D
10/23/2023	Vihaan	Madurai	Tamil Nadu	South	Stationery	F
11/17/2023	Nishant	Chennai	Tamil Nadu	South	Furniture	T
2/15/2023	Vihaan	Ahmedabad	Gujarat	West	Electronics	L
4/21/2023	Aarav	Mysuru	Karnataka	South	Clothing	F
1/12/2023	Ishita	Mumbai	Maharashtra	West	Stationery	E

- First copy the state column & paste it somewhere else

- Remove duplicates

State	
Maharashtra	=COUNTIF(D2:D1001,L2)
Tamil Nadu	208
Karnataka	212
Gujarat	180
Delhi	193

Count numbers **greater than 50**:

```
=COUNTIF(B1:B10, ">50")
```

COUNTIFS

- The COUNTIFS function in Excel is used to count the number of cells that meet multiple criteria across different ranges.

> COUNTIFS(range1, criteria1, [range2], [criteria2], ...)

- range1 : The first range to evaluate (this is where the condition is applied).
- criteria1 : The condition or criteria to apply to range1 .
- [range2], [criteria2], ... : Additional ranges and their corresponding criteria. You can add up to 127 pairs of ranges and criteria.

Q. Calculate total transactions by each state as well as product category.

Remove duplicates:

Product Category
Furniture
Stationery
Clothing
Groceries
Electronics

State/Category	Furniture	Stationery	Clothing	Groceries	Electronics
Maharashtra					
Tamil Nadu					
Karnataka					
Gujarat					
Delhi					

- Paste transpose

State/Category	Furniture	Stationery	Clothing	Groceries	Electronics
Maharashtra	=COUNTIFS($D:$D,$L2,$F:F,M1)	33	45	34	39
Tamil Nadu	41	33	45	43	46
Karnataka	42	46	42	42	40
Gujarat	32	35	41	36	36
Delhi	46	39	33	34	41

Fixed 'L' Fixed '1'

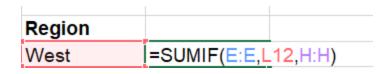| State/Category	Furniture	Stationery	Clothing	Groceries	Electronics
Maharashtra	44	41	49	34	39
Tamil Nadu	41	33	45	43	46
Karnataka	42	46	42	42	40
Gujarat	32	35	41	36	36
Delhi	46	39	33	34	41

SUMIF

Q. Calculate total quantity sold by region.

- Remove dups

```
=SUMIF(range, criteria, [sum_range])
```

- range → Region column

- criteria → West, East, etc.

- [sum_range] → Quantity column

Region	
West	=SUMIF(E:E,L12,H:H)

Region	
West	4073
South	4434
North	2067

SUMIFS

=SUMIFS(sum_range, criteria_range1, criteria1, criteria_range2, criteria2, ...)

Q. Calculate total quantity sold by region as well as product name.

- Remove dups for product name

Product/Region	West	South	North
Table	=SUMIFS($H:$H,$G:$G,$L17,$E:E,M16)		

- [sum_range] → Quantity Column

- criteria_range1 → Product name column

- criteria1 → Table, Ruler, etc. (Items)

- criteria_range2 → Region column

- criteria2 → West

Now we need to decide what to fix?

L	M	N	O
Product/Region	West	South	North
Table	195	126	12
Ruler			
Dress			
Lentils			
Eraser			
Headphones			
Laptop			
Pants			
Shirt			
Rice			
Sugar			
Bed			
Oil			
Jacket			
Pen			
Smartphone			
Tablet			
Sofa			
Notebook			
Chair			

- Fix the columns H, G, E

- Fix the other columns & rows as per the formula function

AVERAGEIF

AVERAGEIF(range, criteria, [average_range])

- **range:** The range of cells that you want to apply the criteria to.

- **criteria**: The condition or test that determines which cells to include in the average. This can be a number, text, expression, or even a cell reference.

- **[average_range]** *(optional)*: The actual range of cells that you want to average. If omitted, Excel averages the values in the **range** itself.

Q. Calculate the average sales amount by each state.

Maharashtra	Tamil Nadu	Karnataka	Gujarat	Delhi
=AVERAGEIF($D:$D,L$39,$J:$J)			28533.112	26873.9131
AVERAGEIF(range, criteria, [average range])				

- **range → State column**
- **criteria → Individual state**
- **[average_range]** → Sales Amount column (*average of* **Sales Amount**)

AVERAGEIFS

Q. Calculate the average sales amount by each state as well as Product name.

	Maharashtra	Tamil Nadu	Karnataka	Gujarat
Table	=AVERAGEIFS($J:$J,$D:$D,M$17,$G:$G,$L18)			

	Maharashtra	Tamil Nadu	Karnataka	Gujarat	Delhi
Table	38662.597	35085.6714	23067.1211	32837.26	15672.7162
Ruler	43785.4579	30057.3227	31485.8511	26490.7678	18489.2182
Dress	30640.4679	29541.2483	24915.6046	36623.4306	17321.0522
Lentils	22604.765	22387.3145	18460.1671	33434.6625	30643.4478
Eraser	21005.8573	38438.6725	27159.828	27662.045	27295.468
Headphones	20493.717	30791.0508	19381.846	24442.228	29032.67
Laptop	30650.07	17166.3818	16054.8045	18891.2243	29154.7867
Pants	23413.6615	19109.5142	30651.6843	18084.935	26026.233
Shirt	27481.5462	27920.5107	17877.335	18763.7483	37175.0175
Rice	38081.8663	23350.7292	19208.8438	31220.0986	30889.6689
Sugar	13318.49	40036.8775	31959.3156	29435.4144	30991.6627
Bed	24333.6321	16080.82	32533.1987	25486.045	23029.4067
Oil	17657.138	37448.0473	22077.2009	21420.6633	25667.204
Jacket	18048.3767	31840.8962	33361.7333	32038.84	44804.7617
Pen	37838.7838	28004.417	39912.095	26236.234	21468.4079