Pickl.AI | POWERED BY TRANSORG ANALYTICS

PRESENTATION

By: Mradul Jain

Module II - Excel Functions

**Formulae might vary depending upon the excel version

Math Functions

Syntax: =SUM(number1, [number2], ...)

Explanation: Adds all the numbers provided as arguments. number1, number2, etc., are the numbers you want to sum up.

Syntax: =AVERAGE(number1, [number2], ...)

Explanation: Returns the average (arithmetic mean) of the numbers. number1, number2, etc., are the numbers you want to average.

Math Functions

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

Explanation: Adds the cells specified by a given condition or criteria. range is the range of cells to evaluate, criteria defines the condition, and sum_range is the actual range to sum if different from the evaluation range.

Syntax: =AVERAGEIF(range, criteria,[average_range])

Explanation: Average the cells specified by a given condition or criteria. range is the range of cells to evaluate, criteria defines the condition, and average_range is the actual range to average if different from the evaluation range.

Math Functions

Syntax: =MIN(number1, [number2], ...)

Explanation: Returns the smallest number in the provided set of numbers.

Syntax: =MAX(number1, [number2], ...)

Explanation: Returns the largest number in the provided set of numbers.

Math Functions

Syntax: =COUNT(value1, [value2], ...)

Explanation: Counts the number of cells that contain numbers in a range.

Syntax: =COUNTIF(range,criteria)

Explanation: Counts the number of cells within a specified range that meet a single condition (criteria).

Syntax: =COUNTA(value1, [value2], ...)

Explanation: Counts the number of non-empty cells in a range.

Math Functions

Syntax: =ROUND(number, num_digits)

Explanation: Rounds a number to a specified number of digits. number is the number you want to round, and num_digits specifies the number of digits to which you want to round.

Syntax: =ROUNDUP(number, num_digits)

Explanation: Rounds a number up, away from zero, to a specified number of digits.

Math Functions

Syntax: =ROUNDDOWN(number, num_digits)

Explanation: Rounds a number down, towards zero, to a specified number of digits.

Math Functions

Syntax: =FLOOR(number, significance)

Explanation: number - The value you want to round down and significance - The multiple to which you want to round the number down. This must be a positive number.

Syntax: =CEIL(number, significance)

Explanation: number - The value you want to round up and significance - The multiple to which you want to round the number up. This must be a positive number.

Math Functions

Function	Syntax	Description	Example	Result
`ROUND`	`ROUND(number, num_digits)`	Rounds a number to a specified number of digits.	`=ROUND(3.456, 2)`	`3.46`
`ROUNDUP`	`ROUNDUP(number, num_digits)`	Rounds a number up, away from zero, to a specified number of digits.	`=ROUNDUP(3.456, 2)`	`3.46`
`ROUNDDOWN`	`ROUNDDOWN(number, num_digits)`	Rounds a number down, towards zero, to a specified number of digits.	`=ROUNDDOWN(3.456, 2)`	`3.45`
`FLOOR`	`FLOOR(number, significance)`	Rounds a number down, towards zero, to the nearest multiple of significance.	`=FLOOR(3.456, 0.1)`	`3.4`
`CEILING`	`CEILING(number, significance)`	Rounds a number up, away from zero, to the nearest multiple of significance.	`=CEILING(3.456, 0.1)`	`3.5`

Math Functions

Syntax: =PRODUCT(number1, [number2], ...)

Explanation: Multiplies all the numbers given as arguments.

Syntax: =SUMPRODUCT(array1, [array2], ...)

Explanation: The first array (or range of cells) whose corresponding elements you want to multiply and then sum.

(Optional) Additional arrays whose corresponding elements are multiplied by the elements in array1. All arrays must have the same dimensions.

Math Functions

Syntax: =SUMPRODUCT(array1, [array2], ...)

Product	Quantity	Price per Unit
A	10	5
B	20	7
C	15	6

Math Functions

Syntax: =ABS(number)

Explanation: Returns the absolute value of a number. number is the value for which you want the absolute value.

Syntax: =MOD(number, divisor)

Explanation: Returns the remainder after a number is divided by a divisor.

Math Functions

Syntax: =SQRT(number)

Explanation: Returns the square root of a number.

Syntax: =POWER(number, power)

Explanation: Returns the result of a number raised to a power.

Math Functions

Syntax: =EXP(number)

Explanation: Returns e raised to the power of a given number.

Syntax: =LOG10(number)

Explanation: Returns the base-10 logarithm of a number.

Syntax : =LN(number)

Explanation: Returns the natural logarithm of a number.

Math Functions

Syntax: =RAND()

Explanation: Returns a random number greater than or equal to 0 and less than 1. The function does not take any arguments, and each time the worksheet recalculates, a new random number is generated.

Syntax: =RANDBETWEEN(bottom, top)

Explanation: Returns a random number between two specified numbers. bottom is the smallest number, and top is the largest.

Hands On Exercise

Logical Functions

Syntax: `IF(logical_test, value_if_true, value_if_false)`

- `logical_test` is the condition you want to check.
- `value_if_true` is the value returned if `logical_test` is TRUE.
- `value_if_false` is the value returned if `logical_test` is FALSE.

Example: `IF(A1 > 10, "Over 10", "10 or less")` - This checks if the value in cell A1 is greater than 10. If TRUE, it returns "Over 10"; otherwise, it returns "10 or less".

Logical Functions

Syntax: `AND(logical1, [logical2], ...)`

- `logical1`, `logical2`, etc., are the conditions you want to check. All conditions must be TRUE for the function to return TRUE.

Example: `AND(A1 > 10, B1 < 5)` - This returns TRUE only if A1 is greater than 10 and B1 is less than 5.

Logical Functions

Syntax: `OR(logical1, [logical2], ...)`

- `logical1`, `logical2`, etc., are the conditions you want to check. If at least one condition is TRUE, the function returns TRUE.

Example: `OR(A1 > 10, B1 < 5)` - This returns TRUE if either A1 is greater than 10 or B1 is less than 5.

Logical Functions

Syntax: `NOT(logical)`

- `logical` is the condition you want to reverse. If `logical` is TRUE, NOT returns FALSE, and vice versa.

Example: `NOT(A1 > 10)` - This returns TRUE if A1 is not greater than 10.

Logical Functions

IFERROR

Syntax: `IFERROR(value, value_if_error)`

- `value` is the formula or value to check for errors.
- `value_if_error` is the value to return if `value` results in an error.

Example: `IFERROR(A1/B1, "Error in calculation")` - This returns "Error in calculation" if dividing A1 by B1 results in an error.

Logical Functions

ISBLANK

Syntax: `` `ISBLANK(value)` ``

- `` `value` `` is the cell or value to check. Returns TRUE if `` `value` `` is blank.

Example: `` `ISBLANK(A1)` `` - This returns TRUE if cell A1 is empty.

ISNUMBER

Syntax: `` `ISNUMBER(value)` ``

- `` `value` `` is the cell or value to check. Returns TRUE if `` `value` `` is a number.

Example: `` `ISNUMBER(A1)` `` - This returns TRUE if cell A1 contains a number.

Logical Functions

ISTEXT

Syntax: `ISTEXT(value)`

- `value` is the cell or value to check. Returns TRUE if `value` is text.

Example: `ISTEXT(A1)` - This returns TRUE if cell A1 contains text.

ISERROR

Syntax: `ISERROR(value)`

- `value` is the cell or value to check. Returns TRUE for any error type.

Example: `ISERROR(A1/B1)` - This returns TRUE if dividing A1 by B1 results in an error.

Logical Functions

ISEVEN

Syntax: `` `ISEVEN(number)` ``

- `` `number` `` is the value to check. Returns TRUE if `` `number` `` is even.

Example: `` `ISEVEN(A1)` `` - This returns TRUE if cell A1 contains an even number.

ISODD

Syntax: `` `ISODD(number)` ``

- `` `number` `` is the value to check. Returns TRUE if `` `number` `` is odd.

Example: `` `ISODD(A1)` `` - This returns TRUE if cell A1 contains an odd number.

Hands On Exercise

Date and Time Functions

Syntax: =TODAY()

Explanation: returns the current date, with no arguments needed.

Syntax: =NOW()

Explanation: returns the current date and time, with no arguments needed.

Date and Time Functions

Syntax: =YEAR(date)

Explanation: returns the year of the passed date

Syntax: =MONTH(date)

Explanation: returns the month of the passed date

Syntax: =DAY(date)

Explanation: returns the day of the passed date

Date and Time Functions

Syntax: =HOUR(time_value)

Explanation: returns the hour of the passed time value

Syntax: =MINUTE(time_value)

Explanation: returns the minute of the passed time value

Syntax: =SECOND(time_value)

Explanation: returns the minute of the passed time value

Date and Time Functions

Syntax: =DATE(year, month, day)

Explanation: returns the date based on the given year, month and day

Syntax: =TIME(hour, minute, second)

Explanation: returns the time based on the given hour, minute and second

Date and Time Functions

Syntax: =WEEKDAY(date, [return_type])

Explanation: returns the day of week for the given date value
Return type is an optional argument to specify the start day of the week. (1 for Sunday, 2 for Monday, etc.)

Syntax: =EOMONTH(start_date, months)

Explanation: returns the end of month based on the start date and the months to add/substract from start date.

Date and Time Functions

Syntax: =DAYS(start_date,end_date)

Explanation: returns the number of days between two dates

Syntax: =TEXT(date, format)

Explanation: returns the date in given format

Date and Time Functions

Syntax:
=DATEDIF(start_date,end_date,unit)

Explanation: returns the difference based on unit

"Y"	The number of complete years in the period.
"M"	The number of complete months in the period.
"D"	The number of days in the period.
"MD"	The difference between the days in start_date and end_date. The months and years of the dates are ignored. **Important:** We don't recommend using the "MD" argument, as there are known limitations with it. See the known issues section below.
"YM"	The difference between the months in start_date and end_date. The days and years of the dates are ignored
"YD"	The difference between the days of start_date and end_date. The years of the dates are ignored.

Hands On Exercise

Statistical Function - AVERAGE

Calculates the average (arithmetic mean) of a group of numbers.

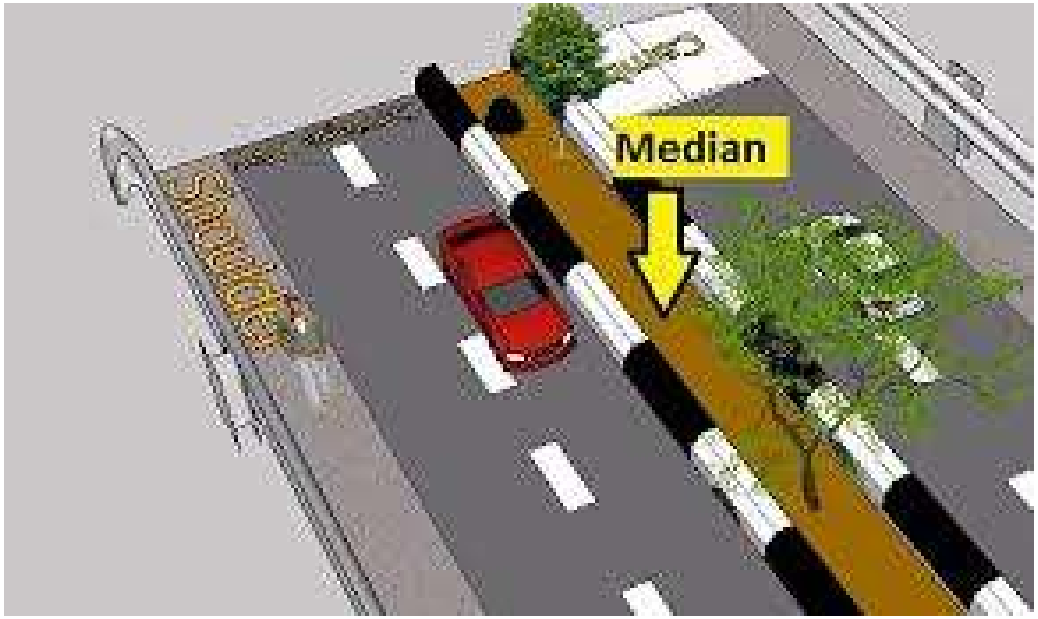
=AVERAGE(number1, [number2], ...)

AVERAGE of the quantity sold ?

Statistical Function - MEDIAN

Returns the median (middle number) in a group of numbers.

MEDIAN(number1, [number2], ...)



MEDIAN of the quantity sold ?

Statistical Function - MODE

MODE.SNGL(number1, [number2], ...)

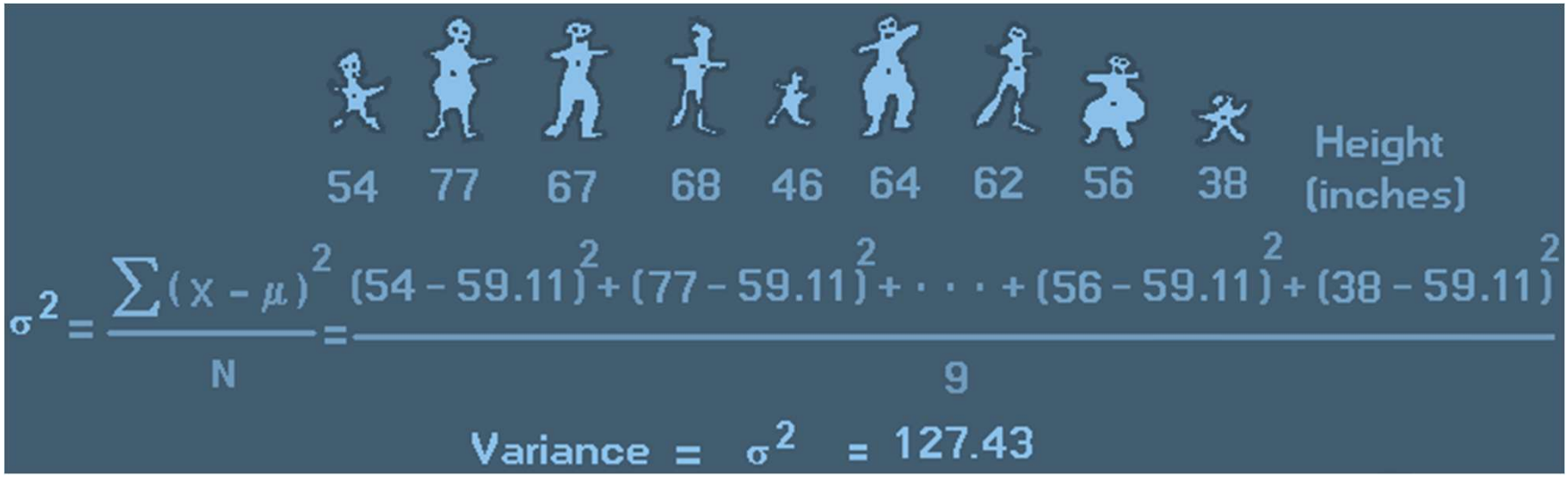
Returns the most frequently occurring number in a group of numbers.

MODE.MULT(number1, [number2], ...)

This will return more than one result if there are multiple modes.
Because this function returns an array of values

MODE of the quantity sold ?

Statistical Function – VARIANCE



Statistical Function – VARIANCE

Calculates the variance of an entire population.

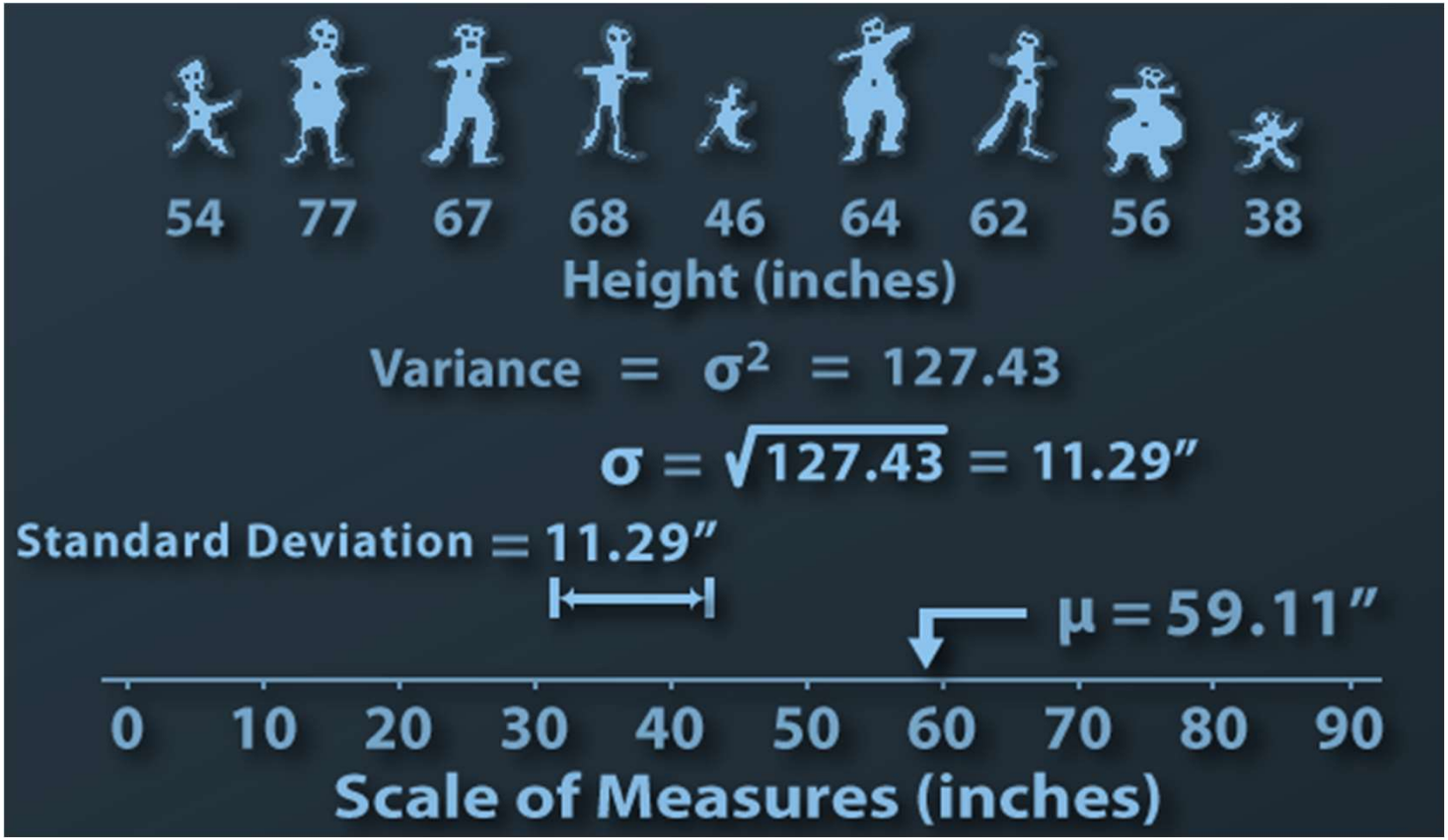
VAR.P(number1, [number2], ...)

Calculates the variance of a sample.

VAR.S(number1, [number2], ...)

VARIANCE of the quantity sold ?

Statistical Function – Standard Deviation



Statistical Function – STANDARD DEVIATION

Calculates the standard deviation of an entire population.

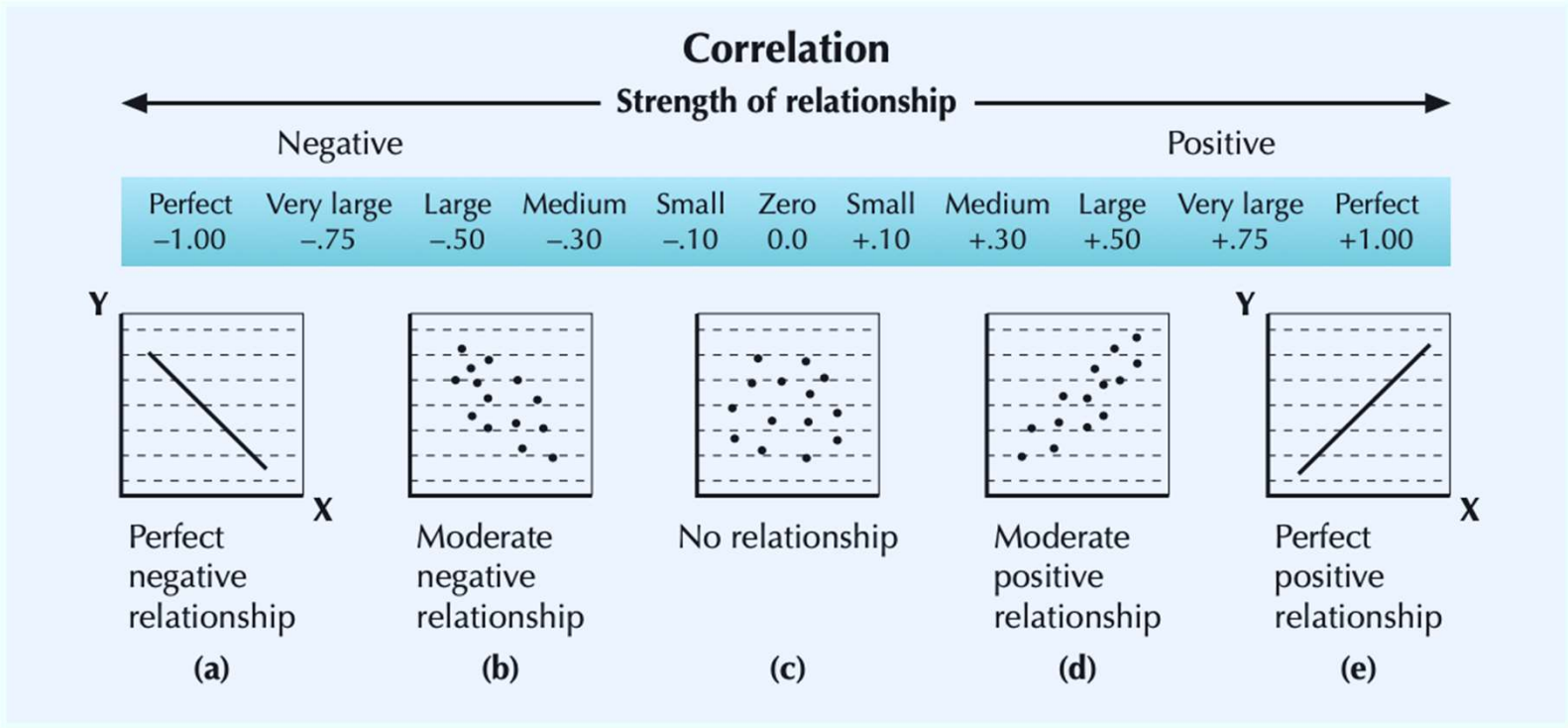
STDEV.P(number1, [number2], ...)

Calculates the standard deviation of a sample.

STDEV.S(number1, [number2], ...)

STANDARD DEVIATION of the quantity sold ?

Statistical Function – Correlation



Statistical Function - CORREL

Calculates the correlation coefficient between two data sets.

CORREL(array1, array2)

Find Correlation between quantity sold and total discount?

Statistical Function - LARGE

Returns the k-th largest value in a data set.

LARGE(array, k)

Statistical Function - SMALL

Returns the k-th smallest value in a data set.

SMALL(array,k)

Statistical Function - PERCENTILE

Returns the k-th percentile of values in a range.

PERCENTILE(array, k)

Filter Function

The **FILTER** function allows you to filter a range of data based on criteria you define.

=FILTER(array,include,[if_empty])

array - Range or array to filter (Return this range)
include - Boolean array, supplied as criteria.
if_empty - [optional] Value to return when no results are returned.
AND = *
OR = +

Filter Function

Filter the rows based on below condition and return all the columns

Ordered City = New York
AND Category = Clothing
AND Shipping Method = Two-Day

Filter Function

Filter the rows based on below condition and return all the columns

Ordered City = New York or Chicago
AND Category = Clothing or Books
AND Shipping Method = Two-Day or Express

Filter Function

Find the total revenue generated by selling Electronics or Toys product with shipping method Overnight

Filter Function

Calculate the median final price for the product category with the most frequent (mode) orders.

Filter Function

For the top 3 largest orders by quantity, calculate the variance in delivery times.