1. Excel

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1. Introduction To Excel

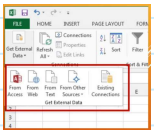
13 April 2022 02:13 PM

1. Introduction To Excel

→ Reading data into Excel using various format

→ Regular Excel format (.xlsx, .xls)

→ Text format (.txt)



2. Pre-defined functions

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2. Pre - Defined Functions

- ROUND(): returns a number rounded to a specified number of digits
- SQRT(): returns square root of a number
- MIN()/MAX(): returns the smallest/largest numeric value in a range of values
- SUM(): returns the sum of a range of values
- AVERAGE(): returns the average or mean value of a range of values
- MEDIAN(): returns the median value of a range of values
- RANK(): used to find the rank of a number in a list of numbers
- LEFT()/RIGHT(): extracts a given number of characters from the left side/right side of a supplied text string
- LEN(): used to find the length of a text string

CustomerId	Surname	CreditScore	Geography	Gender	Age	Tenure	Balance	NumOfProducts	HasCrCard	IsActiveMember	EstimatedS	Exited
15634602	Hargrave	619	France	Female	42	2	0	1	1	1	101348.9	1
15647311	Hill	608	Spain	Female	41	1	83807.86	1	0	1	112542.6	0
15619304	Onio	502	France	Female	42	8	159660.8	3	1	0	113931.6	1
15701354	Boni	699	France	Female	39	1	0	2	0	0	93826.63	0
15737888	Mitchell	850	Spain	Female	43	2	125510.82	1	1	1	79084.1	0
15574012	Chu	645	Spain	Male	44	8	113755.78	2	1	0	149756.7	1
15592531	Bartlett	822	France	Male	50	7	0	2	1	1	10062.8	0
15656148	Obinna	376	Germany	Female	29	4	115046.74	4	1	0	119346.9	1
15792365	He	501	France	Male	44	4	142051.07	2	0	1	74940.5	0
15592389	H?	684	France	Male	27	2	134603.88	1	1	1	71725.73	0
15767821	Bearce	528	France	Male	31	6	102016.72	2	0	0	80181.12	0
15737173	Andrews	497	Spain	Male	24	3	0	2	1	0	76390.01	0
15632264	Kay	476	France	Female	34	10	0	2	1	0	26260.98	0
15691483	Chin	549	France	Female	25	5	0	2	0	0	190857.8	0
15600882	Scott	635	Spain	Female	35	7	0	2	1	1	65951.65	0
15643966	Goforth	616	Germany	Male	45	3	143129.41	2	0	1	64327.26	0
15737452	Romeo	653	Germany	Male	58	1	132602.88	1	1	0	5097.67	1
15788218	Henderson	549	Spain	Female	24	9	0	2	1	1	14406.41	0
15661507	Muldrow	587	Spain	Male	45	6	0	1	0	0	158684.8	0
15568982	Hao	726	France	Female	24	6	0	2	1	1	54724.03	0
15577657	McDonald	732	France	Male	41	8	0	2	1	1	170886.2	0
15597945	Dellucci	636	Spain	Female	32	8	0	2	1	0	138555.5	0
15699309	Gerasimov	510	Spain	Female	38	4	0	1	1	0	118913.5	1
15725737	Mosman	669	France	Male	46	3	0	2	0	1	8487.75	0
15625047	Yen	846	France	Female	38	5	0	1	1	1	187616.2	0

↑ Churn modeling Dataset

① Round function :

= Round (Number, Num_digits)

eg: = ROUND(111.2, 0)

o/p 111

(Drag to perform same for other rows)

(ctrl + Shift + end to select whole column → Fill → Down)

② Square-root Function

= SQRT (number)

SQRT(16) ⇒ 4

(click on cell to pass its value)

③ Max, Min, Average (Aggregation functions)

max ⇒ = MAX(I:I)

min ⇒ = MIN(I:I) (pass entire column)

Average ⇒ = AVERAGE(I:I)

sum ⇒ sum (start cell : End cell)

⑤ Rank

= Rank (value, set of values)

⑥ Left() / Right()

A1: abcd

= LEFT(A1, 2) ← gives 2 no's in Left

o/p ab

= Right(A1, 2) ← gives 2 no's in Right

o/p cd

↑ no. of chars

⑦ Length :

= LEN(A1)

o/p 4

(see filter (key) in Excel)

↑ Sort & Filter

Types of functions in Excel

- Our 10 most popular functions
- Compatibility functions
- Cube functions
- Database functions
- Date and time functions
- Engineering functions
- Financial functions
- Information functions
- Logical functions
- Lookup and reference functions
- Math and trigonometry functions
- Statistical functions
- Text functions
- User defined functions that are installed with add-ins
- Web functions

3. DateTime Functions

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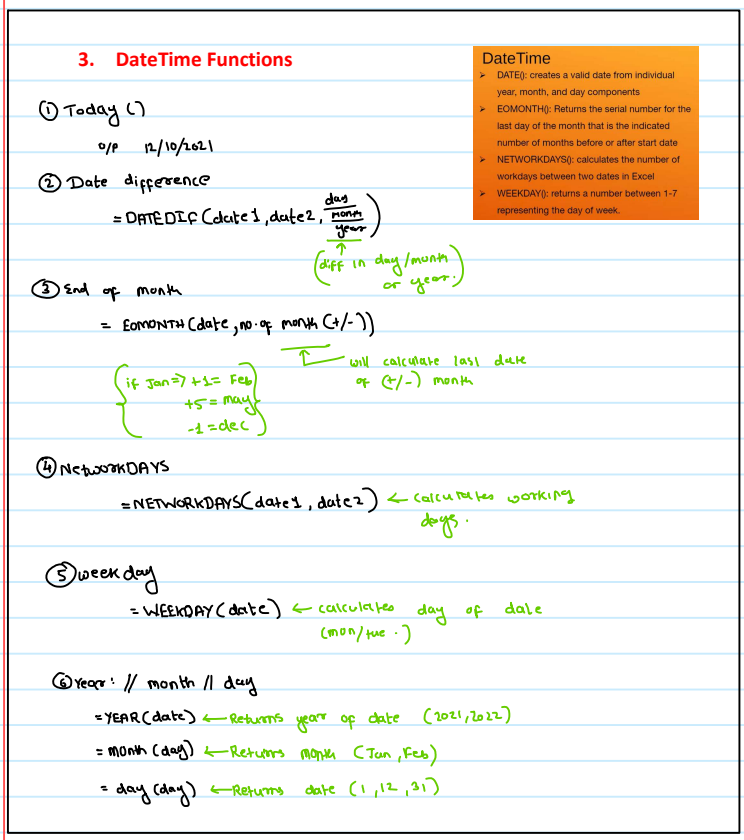

4. String Functions

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Text functions:

① Find() → APPLE (1 2 3 4 5) → FIND("A","Apple") → 1

FIND("L","Apple") → 4

② Replace() → ABC-2017-001 → REPLACE("ABC-2017-001",5,4,"2018")

o/p (ABC-2018-001)

③ Substitute() → SUBSTITUTE("ABC-2018","2017","2018")

Find and Replace

④ MID() → ABC-2017-001

MID(_,5,4) → o/p (2017)

start; No of chars; Extracted text

⑤ SEARCH() : 1 2 3 4 5 ABC-2017-001

=SEARCH("2017")

o/p 5 ← 2017 starting from 5th char

⑥ CONCATENATE : Hello

WORLD

= CONCATENATE("Hello","WORLD")

o/p HelloWORLD

Function	Description
ASC function	Changes full-width (double-byte) English letters or katakana within a character string to half-width (single-byte) characters
BAHTTEXT function	Converts a number to text, using the ß (baht) currency format
CHAR function	Returns the character specified by the code number
CLEAN function	Removes all nonprintable characters from text
CODE function	Returns a numeric code for the first character in a text string
CONCAT function 2016	Combines the text from multiple ranges and/or strings, but it doesn't provide the delimiter or IgnoreEmpty arguments.
CONCATENATE function	Joins several text items into one text item
DBCS function 2013	Changes half-width (single-byte) English letters or katakana within a character string to full-width (double-byte) characters
DOLLAR function	Converts a number to text, using the $ (dollar) currency format
EXACT function	Checks to see if two text values are identical
FIND, FINDB functions	Finds one text value within another (case-sensitive)
FIXED function	Formats a number as text with a fixed number of decimals
LEFT, LEFTB functions	Returns the leftmost characters from a text value
LEN, LENB functions	Returns the number of characters in a text string
LOWER function	Converts text to lowercase
MID, MIDB functions	Returns a specific number of characters from a text string starting at the position you specify
NUMBERVALUE function 2013	Converts text to number in a locale-independent manner
PHONETIC function	Extracts the phonetic (furigana) characters from a text string
PROPER function	Capitalizes the first letter in each word of a text value
REPLACE, REPLACEB functions	Replaces characters within text
REPT function	Repeats text a given number of times
RIGHT, RIGHTB functions	Returns the rightmost characters from a text value
SEARCH, SEARCHB	Finds one text value within another (not case-sensitive)

functions	
SUBSTITUTE function	Substitutes new text for old text in a text string
T function	Converts its arguments to text
TEXT function	Formats a number and converts it to text
TEXTJOIN function 2016	Combines the text from multiple ranges and/or strings, and includes a delimiter you specify between each text value that will be combined. If the delimiter is an empty text string, this function will effectively concatenate the ranges.
TRIM function	Removes spaces from text
UNICHAR function 2013	Returns the Unicode character that is references by the given numeric value
UNICODE function 2013	Returns the number (code point) that corresponds to the first character of the text
UPPER function	Converts text to uppercase
VALUE function	Converts a text argument to a number

From <https://support.microsoft.com/en-us/office/text-functions-reference-cccd86ad-547d-4ea9-a065-7bb697c2a56e>

5. Mathematical Functions

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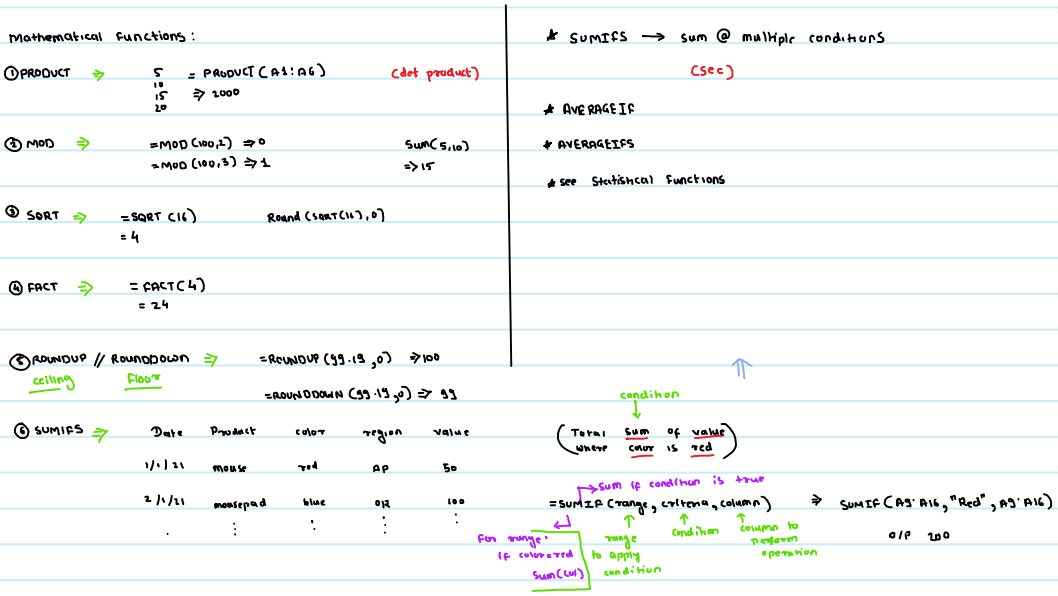

6. Lookup

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Lookup Functions :

HLOOKUP and VLOOKUP

↑ Horizontal ↑ Vertical

MATCH() and INDEX()

VLookup

Number	Description	Type	Price in INR
1	Apple	Mobile	90000
2	Motorola	Mobile	14000
3	One Plus	Mobile	35000
4	Asus	Mobile	35000
5	Razer	Mobile	90000
6	Microsoft	Laptop	95000
7	Apple	Laptop	125000
8	LG	Mobile	15000
9	Kodak	Camera	60000
10	Canon	Camera	70000

↑ VLOOKUP

Number	1	2	3	4	5	6	
Description	Apple	Motorola	One Plus	Asus	Razer	Microsoft	Appl
Type	Mobile	Mobile	Mobile	Mobile	Mobile	Laptop	Lapt
Price	90000	14000	35000	35000	90000	95000	12

↑ HLOOKUP

VLOOKUP

Razer =VLOOKUP(lookup_value, table_array, col_index, Range_lookup)

↓ Razer ↓ entire table ↓ 3 ↓ 0

Horizontal →

↓ Vertical

Razer 90000

Micst 35000

Kodak 60000

* MATCH

Name	value
Apple	10
Bat	20
cat	30

MATCH (element to match, lookup table)

MATCH("apple", A1:A3)

o/p 1

* INDEX =INDEX(col, index)

=INDEX(A1:A3, 2)

o/p BAT

7. Logical and Error Functions

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Logical Functions

IF function:

=IF (L3> 80, "Above 80", "below 80")

condition >=80 : Above 80

61-80 : 61-80

41-60 : 41-60

<=4 : Below 40

=IF(L37=80, "ABOVE 80", IF(L3>=61, "61-80", IF(L3>41, "41-60", "under 40")))

OR:

A	B	o/p
T	T	T
T	F	T
F	T	T
F	F	T

=ORCTRUE, TRUE)

o/p TRUE

ERROR Functions:

=10/0

⇒ Div error

=10/D2 ← D2 is empty

⇒ —

8. Statistical Functions

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Statistical functions:

1. count()
2. counta()
3. countblank()
4. countifs()

9. Images in Excel

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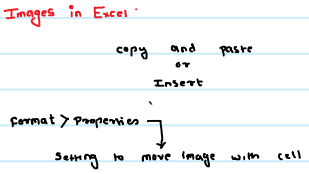

10. Excel Formatting

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custom formatting :

① thousand separator → Format cells → number

11. Custom Formatting

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Format cell > Custom Formatting > #.###

converting 2, 3, 4 into 0002, 0003 using custom formatting.

Number	0	0.0	#.0	0.00	#.00	#.000
0.5	1	0.5	.5	0.50	.50	.500
5	5	5.0	5.0	5.00	5.00	5.000
5.5	6	5.5	5.5	5.50	5.50	5.500
5.55	6	5.6	5.6	5.55	5.55	5.550
6	6	6.0	6.0	6.00	6.00	6.000

12. Conditional Formatting

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conditional Formatting :

Task bar > conditional Formatting

↓

- Highlight cell Rules
  Top/Bottom Rules
  Data Bars
- color Scales
- Icon Sets

13. Charts in Excel

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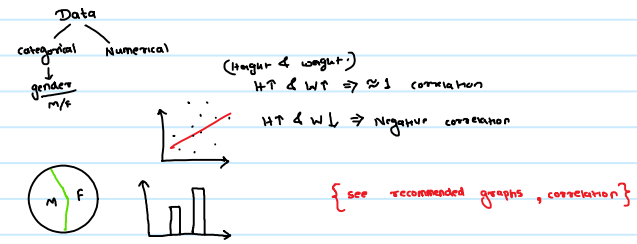
Charts in Excel



(Height & weight)

HT & WT ⇒ ≈ 1 correlation

HT & WL ⇒ Negative correlation

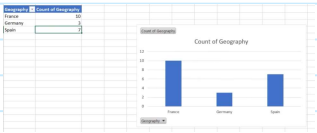
{see recommended graphs, correlation}

(SQL)

(groupby operation) → select geography, count (*)

from tablename

group by geography



14. Data Analysis Using Excel

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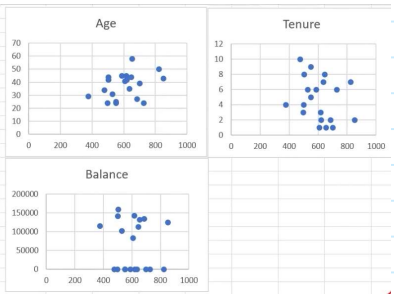
Data analysis using Excel:

CreditScore	Age	Tenure	Balance	EstimatedSalary
619	42	2	0	101348.88
608	41	1	83807.86	112542.58
502	42	8	159660.8	113931.57
699	39	1	0	93826.63
850	43	2	125510.82	79084.1
645	44	8	113755.78	149756.71
822	50	7	0	10062.8
376	29	4	115046.74	119346.88
501	44	4	142051.07	74940.5
684	27	2	134603.88	71725.73
528	31	6	102016.72	80181.12
497	24	3	0	76390.01
476	34	10	0	26260.98
549	25	5	0	190857.79
635	35	7	0	65951.65
616	45	3	143129.41	64327.26
653	58	1	132602.88	5097.67
549	24	9	0	14406.41
587	45	6	0	158684.81
726	24	6	0	54724.03



correlation : =CORREL(A:A,B:B)

↑ correlation between (CreditScore and age:)

o/p 0.35 ← Positive correlation

=CORREL(C:C,D:D)

(File > option > addins > Analysis toolpak)

(Taskbar > Data analysis)

(See all data analysis tools)

15. Pivot Tables

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16. Dashboarding in Excel

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17. Others

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18. What-if Tools

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Extra / Resources

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Our 10 most popular functions https://support.microsoft.com/en-us/office/Formulas-and-functions-294d9486-b332-48ed-b489-abe7d0f9eda9#ID0EAABAAA=Functions

Here are the 10 functions that people read about most.

Function	Description
SUM function	Use this function to add the values in cells.
IF function	Use this function to return one value if a condition is true and another value if it's false. Here's a video about using the IF function.
LOOKUP function	Use this function when you need to look in a single row or column and find a value from the same position in a second row or column.
VLOOKUP function	Use this function when you need to find things in a table or a range by row. For example, look up an employee's last name by her employee number, or find her phone number by looking up her last name (just like a telephone book). Check out this video about using VLOOKUP.
MATCH function	Use this function to search for an item in a range of cells, and then return the relative position of that item in the range. For example, if the range A1:A3 contains the values 5, 7, and 38, then the formula =MATCH(7,A1:A3,0) returns the number 2, because 7 is the second item in the range.
CHOOSE function	Use this function to select one of up to 254 values based on the index number. For example, if value1 through value7 are the days of the week, CHOOSE returns one of the days when a number between 1 and 7 is used as index_num.
DATE function	Use this function to return the sequential serial number that represents a particular date. This function is most useful in situations where the year, month, and day are supplied by formulas or cell references. For example, you might have a worksheet that contains dates in a format that Excel does not recognize, such as YYYYMMDD. Use the DATEDIF function to calculate the number of days, months, or years between two dates.
DAYS function	Use this function to return the number of days between two dates.
FIND, FINDB functions	FIND and FINDB locate one text string within a second text string. They return the number of the starting position of the first text string from the first character of the second text string.
INDEX function	Use this function to return a value or the reference to a value from within a table or range.

Compatibility functions

In Excel 2010 or later, these functions were replaced with new functions that provide improved accuracy and have names that better reflect their usage. You can still use them for compatibility with earlier versions of Excel, but if backward compatibility isn't required, you should start using the new functions instead. For more information about the new functions, see Statistical functions (reference) and Math and trigonometry functions (reference) .

If you're using Excel 2007, you'll find these functions in the Statistical or Math & Trig categories on the Formulas tab.

Function	Description
BETADIST function	Returns the beta cumulative distribution function
BETAINV function	Returns the inverse of the cumulative distribution function for a specified beta distribution
BINOMDIST function	Returns the individual term binomial distribution probability
CHIDIST function	Returns the one-tailed probability of the chi-squared distribution
CHIINV function	Returns the inverse of the one-tailed probability of the chi-squared distribution
CHITEST function	Returns the test for independence
CONCATENATE function	Joins two or more text strings into one string
CONFIDENCE function	Returns the confidence interval for a population mean
COVAR function	Returns covariance, the average of the products of paired deviations
CRITBINOM function	Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value
EXPONDIST function	Returns the exponential distribution
FDIST function	Returns the F probability distribution
FINV function	Returns the inverse of the F probability distribution
FLOOR function	Rounds a number down, toward zero
FORECAST function	Calculates, or predicts, a future value by using existing values.
FTEST function	Returns the result of an F-test
GAMMADIST function	Returns the gamma distribution
GAMMAINV function	Returns the inverse of the gamma cumulative distribution
HYPGEOMDIST function	Returns the hypergeometric distribution
LOGINV function	Returns the inverse of the lognormal cumulative distribution function
LOGNORMDIST function	Returns the cumulative lognormal distribution
MODE function	Returns the most common value in a data set
NEGBINOMDIST function	Returns the negative binomial distribution
NORMDIST function	Returns the normal cumulative distribution
NORMINV function	Returns the inverse of the normal cumulative distribution
NORMSDIST function	Returns the standard normal cumulative distribution
NORMSINV function	Returns the inverse of the standard normal cumulative distribution
PERCENTILE function	Returns the k-th percentile of values in a range
PERCENTRANK function	Returns the percentage rank of a value in a data set
POISSON function	Returns the Poisson distribution
QUARTILE function	Returns the quartile of a data set
RANK function	Returns the rank of a number in a list of numbers
STDEV function	Estimates standard deviation based on a sample
STDEVP function	Calculates standard deviation based on the entire population
TDIST function	Returns the Student's t-distribution
TINV function	Returns the inverse of the Student's t-distribution
TTEST function	Returns the probability associated with a Student's t-test
VAR function	Estimates variance based on a sample
VARP function	Calculates variance based on the entire population
WEIBULL function	Returns the Weibull distribution
ZTEST function	Returns the one-tailed probability-value of a z-test

Cube functions

Function	Description
CUBEKPIMEMBER function	Returns a key performance indicator (KPI) property and displays the KPI name in the cell. A KPI is a quantifiable measurement, such as monthly gross profit or quarterly employee turnover, that is used to monitor an organization's performance.
CUBEMEMBER function	Returns a member or tuple from the cube. Use to validate that the member or tuple exists in the cube.
CUBEMEMBERPROPERTY function	Returns the value of a member property from the cube. Use to validate that a member name exists within the cube and to return the specified property for this member.
CUBERANKEDMEMBER function	Returns the nth, or ranked, member in a set. Use to return one or more elements in a set, such as the top sales performer or the top 10 students.
CUBESET function	Defines a calculated set of members or tuples by sending a set expression to the cube on the server, which creates the set, and then returns that set to Microsoft Office Excel.
CUBESETCOUNT function	Returns the number of items in a set.

CUBEVALUE function	Returns an aggregated value from the cube.

Database functions

Function	Description
DAVERAGE function	Returns the average of selected database entries
DCOUNT function	Counts the cells that contain numbers in a database
DCOUNTA function	Counts nonblank cells in a database
DGET function	Extracts from a database a single record that matches the specified criteria
DMAX function	Returns the maximum value from selected database entries
DMIN function	Returns the minimum value from selected database entries
DPRODUCT function	Multiplies the values in a particular field of records that match the criteria in a database
DSTDEV function	Estimates the standard deviation based on a sample of selected database entries
DSTDEVP function	Calculates the standard deviation based on the entire population of selected database entries
DSUM function	Adds the numbers in the field column of records in the database that match the criteria
DVAR function	Estimates variance based on a sample from selected database entries
DVARP function	Calculates variance based on the entire population of selected database entries

Date and time functions

Function	Description
DATE function	Returns the serial number of a particular date
DATEDIF function	Calculates the number of days, months, or years between two dates. This function is useful in formulas where you need to calculate an age.
DATEVALUE function	Converts a date in the form of text to a serial number
DAY function	Converts a serial number to a day of the month
DAYS function	Returns the number of days between two dates
DAYS360 function	Calculates the number of days between two dates based on a 360-day year
EDATE function	Returns the serial number of the date that is the indicated number of months before or after the start date
EOMONTH function	Returns the serial number of the last day of the month before or after a specified number of months
HOUR function	Converts a serial number to an hour
ISOWEEKNUM function	Returns the number of the ISO week number of the year for a given date
MINUTE function	Converts a serial number to a minute
MONTH function	Converts a serial number to a month
NETWORKDAYS function	Returns the number of whole workdays between two dates
NETWORKDAYS.INTL function	Returns the number of whole workdays between two dates using parameters to indicate which and how many days are weekend days
NOW function	Returns the serial number of the current date and time
SECOND function	Converts a serial number to a second
TIME function	Returns the serial number of a particular time
TIMEVALUE function	Converts a time in the form of text to a serial number
TODAY function	Returns the serial number of today's date
WEEKDAY function	Converts a serial number to a day of the week
WEEKNUM function	Converts a serial number to a number representing where the week falls numerically with a year
WORKDAY function	Returns the serial number of the date before or after a specified number of workdays
WORKDAY.INTL function	Returns the serial number of the date before or after a specified number of workdays using parameters to indicate which and how many days are weekend days
YEAR function	Converts a serial number to a year
YEARFRAC function	Returns the year fraction representing the number of whole days between start_date and end_date

Engineering functions

Function	Description
BESSELI function	Returns the modified Bessel function In(x)
BESSELJ function	Returns the Bessel function Jn(x)
BESSELK function	Returns the modified Bessel function Kn(x)
BESSELY function	Returns the Bessel function Yn(x)
BIN2DEC function	Converts a binary number to decimal
BIN2HEX function	Converts a binary number to hexadecimal
BIN2OCT function	Converts a binary number to octal
BITAND function	Returns a 'Bitwise And' of two numbers
BITLSHIFT function	Returns a value number shifted left by shift_amount bits
BITOR function	Returns a bitwise OR of 2 numbers
BITRSHIFT function	Returns a value number shifted right by shift_amount bits
BITXOR function	Returns a bitwise 'Exclusive Or' of two numbers
COMPLEX function	Converts real and imaginary coefficients into a complex number
CONVERT function	Converts a number from one measurement system to another
DEC2BIN function	Converts a decimal number to binary
DEC2HEX function	Converts a decimal number to hexadecimal
DEC2OCT function	Converts a decimal number to octal
DELTA function	Tests whether two values are equal
ERF function	Returns the error function
ERF.PRECISE function	Returns the error function
ERFC function	Returns the complementary error function
ERFC.PRECISE function	Returns the complementary ERF function integrated between x and infinity
GESTEP function	Tests whether a number is greater than a threshold value
HEX2BIN function	Converts a hexadecimal number to binary
HEX2DEC function	Converts a hexadecimal number to decimal
HEX2OCT function	Converts a hexadecimal number to octal

IMABS function	Returns the absolute value (modulus) of a complex number
IMAGINARY function	Returns the imaginary coefficient of a complex number
IMARGUMENT function	Returns the argument theta, an angle expressed in radians
IMCONJUGATE function	Returns the complex conjugate of a complex number
IMCOS function	Returns the cosine of a complex number
IMCOSH function	Returns the hyperbolic cosine of a complex number
IMCOT function	Returns the cotangent of a complex number
IMCSC function	Returns the cosecant of a complex number
IMCSCH function	Returns the hyperbolic cosecant of a complex number
IMDIV function	Returns the quotient of two complex numbers
IMEXP function	Returns the exponential of a complex number
IMLN function	Returns the natural logarithm of a complex number
IMLOG10 function	Returns the base-10 logarithm of a complex number
IMLOG2 function	Returns the base-2 logarithm of a complex number
IMPOWER function	Returns a complex number raised to an integer power
IMPRODUCT function	Returns the product of from 2 to 255 complex numbers
IMREAL function	Returns the real coefficient of a complex number
IMSEC function	Returns the secant of a complex number
IMSECH function	Returns the hyperbolic secant of a complex number
IMSIN function	Returns the sine of a complex number
IMSINH function	Returns the hyperbolic sine of a complex number
IMSQRT function	Returns the square root of a complex number
IMSUB function	Returns the difference between two complex numbers
IMSUM function	Returns the sum of complex numbers
IMTAN function	Returns the tangent of a complex number
OCT2BIN function	Converts an octal number to binary
OCT2DEC function	Converts an octal number to decimal
OCT2HEX function	Converts an octal number to hexadecimal

Financial functions

Function	Description
ACCRINT function	Returns the accrued interest for a security that pays periodic interest
ACCRINTM function	Returns the accrued interest for a security that pays interest at maturity
AMORDEGRC function	Returns the depreciation for each accounting period by using a depreciation coefficient
AMORLINC function	Returns the depreciation for each accounting period
COUPDAYBS function	Returns the number of days from the beginning of the coupon period to the settlement date
COUPDAYS function	Returns the number of days in the coupon period that contains the settlement date
COUPDAYSNC function	Returns the number of days from the settlement date to the next coupon date
COUPNCD function	Returns the next coupon date after the settlement date
COUPNUM function	Returns the number of coupons payable between the settlement date and maturity date
COUPPCD function	Returns the previous coupon date before the settlement date
CUMIPMT function	Returns the cumulative interest paid between two periods
CUMPRINC function	Returns the cumulative principal paid on a loan between two periods
DB function	Returns the depreciation of an asset for a specified period by using the fixed-declining balance method
DDB function	Returns the depreciation of an asset for a specified period by using the double-declining balance method or some other method that you specify
DISC function	Returns the discount rate for a security
DOLLARDE function	Converts a dollar price, expressed as a fraction, into a dollar price, expressed as a decimal number
DOLLARFR function	Converts a dollar price, expressed as a decimal number, into a dollar price, expressed as a fraction
DURATION function	Returns the annual duration of a security with periodic interest payments
EFFECT function	Returns the effective annual interest rate
FV function	Returns the future value of an investment
FVSCHEDULE function	Returns the future value of an initial principal after applying a series of compound interest rates
INTRATE function	Returns the interest rate for a fully invested security
IPMT function	Returns the interest payment for an investment for a given period
IRR function	Returns the internal rate of return for a series of cash flows
ISPMT function	Calculates the interest paid during a specific period of an investment
MDURATION function	Returns the Macauley modified duration for a security with an assumed par value of $100
MIRR function	Returns the internal rate of return where positive and negative cash flows are financed at different rates
NOMINAL function	Returns the annual nominal interest rate
NPER function	Returns the number of periods for an investment
NPV function	Returns the net present value of an investment based on a series of periodic cash flows and a discount rate
ODDFPRICE function	Returns the price per $100 face value of a security with an odd first period
ODDFYIELD function	Returns the yield of a security with an odd first period
ODDLPRICE function	Returns the price per $100 face value of a security with an odd last period
ODDLYIELD function	Returns the yield of a security with an odd last period
PDURATION function	Returns the number of periods required by an investment to reach a specified value
PMT function	Returns the periodic payment for an annuity
PPMT function	Returns the payment on the principal for an investment for a given period
PRICE function	Returns the price per $100 face value of a security that pays periodic interest
PRICEDISC function	Returns the price per $100 face value of a discounted security
PRICEMAT function	Returns the price per $100 face value of a security that pays interest at maturity
PV function	Returns the present value of an investment
RATE function	Returns the interest rate per period of an annuity
RECEIVED function	Returns the amount received at maturity for a fully invested security
RRI function	Returns an equivalent interest rate for the growth of an investment

SLN function	Returns the straight-line depreciation of an asset for one period
SYD function	Returns the sum-of-years' digits depreciation of an asset for a specified period
TBILLEQ function	Returns the bond-equivalent yield for a Treasury bill
TBILLPRICE function	Returns the price per $100 face value for a Treasury bill
TBILLYIELD function	Returns the yield for a Treasury bill
VDB function	Returns the depreciation of an asset for a specified or partial period by using a declining balance method
XIRR function	Returns the internal rate of return for a schedule of cash flows that is not necessarily periodic
XNPV function	Returns the net present value for a schedule of cash flows that is not necessarily periodic
YIELD function	Returns the yield on a security that pays periodic interest
YIELDDISC function	Returns the annual yield for a discounted security; for example, a Treasury bill
YIELDMAT function	Returns the annual yield of a security that pays interest at maturity

Information functions

Function	Description
CELL function	Returns information about the formatting, location, or contents of a cell
ERROR.TYPE function	Returns a number corresponding to an error type
INFO function	Returns information about the current operating environment Note: This function is not available in Excel for the web.
ISBLANK function	Returns TRUE if the value is blank
ISERR function	Returns TRUE if the value is any error value except #N/A
ISERROR function	Returns TRUE if the value is any error value
ISEVEN function	Returns TRUE if the number is even
ISFORMULA function	Returns TRUE if there is a reference to a cell that contains a formula
ISLOGICAL function	Returns TRUE if the value is a logical value
ISNA function	Returns TRUE if the value is the #N/A error value
ISNONTEXT function	Returns TRUE if the value is not text
ISNUMBER function	Returns TRUE if the value is a number
ISODD function	Returns TRUE if the number is odd
ISREF function	Returns TRUE if the value is a reference
ISTEXT function	Returns TRUE if the value is text
N function	Returns a value converted to a number
NA function	Returns the error value #N/A
SHEET function	Returns the sheet number of the referenced sheet
SHEETS function	Returns the number of sheets in a reference
TYPE function	Returns a number indicating the data type of a value

Logical functions

Function	Description
AND function	Returns TRUE if all of its arguments are TRUE
FALSE function	Returns the logical value FALSE
IF function	Specifies a logical test to perform
IFERROR function	Returns a value you specify if a formula evaluates to an error; otherwise, returns the result of the formula
IFNA function	Returns the value you specify if the expression resolves to #N/A, otherwise returns the result of the expression
IFS function	Checks whether one or more conditions are met and returns a value that corresponds to the first TRUE condition.
NOT function	Reverses the logic of its argument
OR function	Returns TRUE if any argument is TRUE
SWITCH function	Evaluates an expression against a list of values and returns the result corresponding to the first matching value. If there is no match, an optional default value may be returned.
TRUE function	Returns the logical value TRUE
XOR function	Returns a logical exclusive OR of all arguments

Lookup and reference functions

Function	Description
ADDRESS function	Returns a reference as text to a single cell in a worksheet
AREAS function	Returns the number of areas in a reference
CHOOSE function	Chooses a value from a list of values
COLUMN function	Returns the column number of a reference
COLUMNS function	Returns the number of columns in a reference
FILTER function	Filters a range of data based on criteria you define
FORMULATEXT function	Returns the formula at the given reference as text
GETPIVOTDATA function	Returns data stored in a PivotTable report
HLOOKUP function	Looks in the top row of an array and returns the value of the indicated cell
HYPERLINK function	Creates a shortcut or jump that opens a document stored on a network server, an intranet, or the Internet
INDEX function	Uses an index to choose a value from a reference or array
INDIRECT function	Returns a reference indicated by a text value
LOOKUP function	Looks up values in a vector or array
MATCH function	Looks up values in a reference or array
OFFSET function	Returns a reference offset from a given reference
ROW function	Returns the row number of a reference
ROWS function	Returns the number of rows in a reference
RTD function	Retrieves real-time data from a program that supports COM automation
SORT function	Sorts the contents of a range or array

SORTBY function	Sorts the contents of a range or array based on the values in a corresponding range or array
TRANSPOSE function	Returns the transpose of an array
UNIQUE function	Returns a list of unique values in a list or range
VLOOKUP function	Looks in the first column of an array and moves across the row to return the value of a cell
XLOOKUP function	Searches a range or an array, and returns an item corresponding to the first match it finds. If a match doesn't exist, then XLOOKUP can return the closest (approximate) match.
XMATCH function	Returns the relative position of an item in an array or range of cells.

Math and trigonometry functions

Function	Description
ABS function	Returns the absolute value of a number
ACOS function	Returns the arccosine of a number
ACOSH function	Returns the inverse hyperbolic cosine of a number
ACOT function	Returns the arccotangent of a number
ACOTH function	Returns the hyperbolic arccotangent of a number
AGGREGATE function	Returns an aggregate in a list or database
ARABIC function	Converts a Roman number to Arabic, as a number
ASIN function	Returns the arcsine of a number
ASINH function	Returns the inverse hyperbolic sine of a number
ATAN function	Returns the arctangent of a number
ATAN2 function	Returns the arctangent from x- and y-coordinates
ATANH function	Returns the inverse hyperbolic tangent of a number
BASE function	Converts a number into a text representation with the given radix (base)
CEILING function	Rounds a number to the nearest integer or to the nearest multiple of significance
CEILING.MATH function	Rounds a number up, to the nearest integer or to the nearest multiple of significance
CEILING.PRECISE function	Rounds a number the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded up.
COMBIN function	Returns the number of combinations for a given number of objects
COMBINA function	Returns the number of combinations with repetitions for a given number of items
COS function	Returns the cosine of a number
COSH function	Returns the hyperbolic cosine of a number
COT function	Returns the cotangent of an angle
COTH function	Returns the hyperbolic cotangent of a number
CSC function	Returns the cosecant of an angle
CSCH function	Returns the hyperbolic cosecant of an angle
DECIMAL function	Converts a text representation of a number in a given base into a decimal number
DEGREES function	Converts radians to degrees
EVEN function	Rounds a number up to the nearest even integer
EXP function	Returns e raised to the power of a given number
FACT function	Returns the factorial of a number
FACTDOUBLE function	Returns the double factorial of a number
FLOOR function	Rounds a number down, toward zero
FLOOR.MATH function	Rounds a number down, to the nearest integer or to the nearest multiple of significance
FLOOR.PRECISE function	Rounds a number down to the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded down.
GCD function	Returns the greatest common divisor
INT function	Rounds a number down to the nearest integer
ISO.CEILING function	Returns a number that is rounded up to the nearest integer or to the nearest multiple of significance
LCM function	Returns the least common multiple
LET function	Assigns names to calculation results to allow storing intermediate calculations, values, or defining names inside a formula
LN function	Returns the natural logarithm of a number
LOG function	Returns the logarithm of a number to a specified base
LOG10 function	Returns the base-10 logarithm of a number
MDETERM function	Returns the matrix determinant of an array
MINVERSE function	Returns the matrix inverse of an array
MMULT function	Returns the matrix product of two arrays
MOD function	Returns the remainder from division
MROUND function	Returns a number rounded to the desired multiple
MULTINOMIAL function	Returns the multinomial of a set of numbers
MUNIT function	Returns the unit matrix or the specified dimension
ODD function	Rounds a number up to the nearest odd integer
PI function	Returns the value of pi
POWER function	Returns the result of a number raised to a power
PRODUCT function	Multiplies its arguments
QUOTIENT	Returns the integer portion of a division

function	
RADIANS function	Converts degrees to radians
RAND function	Returns a random number between 0 and 1
RANDARRAY function	Returns an array of random numbers between 0 and 1. However, you can specify the number of rows and columns to fill, minimum and maximum values, and whether to return whole numbers or decimal values.
RANDBETWEEN function	Returns a random number between the numbers you specify
ROMAN function	Converts an Arabic numeral to Roman, as text
ROUND function	Rounds a number to a specified number of digits
ROUNDDOWN function	Rounds a number down, toward zero
ROUNDUP function	Rounds a number up, away from zero
SEC function	Returns the secant of an angle
SECH function	Returns the hyperbolic secant of an angle
SERIESSUM function	Returns the sum of a power series based on the formula
SEQUENCE function	Generates a list of sequential numbers in an array, such as 1, 2, 3, 4
SIGN function	Returns the sign of a number
SIN function	Returns the sine of the given angle
SINH function	Returns the hyperbolic sine of a number
SQRT function	Returns a positive square root
SQRTPI function	Returns the square root of (number * pi)
SUBTOTAL function	Returns a subtotal in a list or database
SUM function	Adds its arguments
SUMIF function	Adds the cells specified by a given criteria
SUMIFS function	Adds the cells in a range that meet multiple criteria
SUMPRODUCT function	Returns the sum of the products of corresponding array components
SUMSQ function	Returns the sum of the squares of the arguments
SUMX2MY2 function	Returns the sum of the difference of squares of corresponding values in two arrays
SUMX2PY2 function	Returns the sum of the sum of squares of corresponding values in two arrays
SUMXMY2 function	Returns the sum of squares of differences of corresponding values in two arrays
TAN function	Returns the tangent of a number
TANH function	Returns the hyperbolic tangent of a number
TRUNC function	Truncates a number to an integer

Statistical functions

Function	Description
AVEDEV function	Returns the average of the absolute deviations of data points from their mean
AVERAGE function	Returns the average of its arguments
AVERAGEA function	Returns the average of its arguments, including numbers, text, and logical values
AVERAGEIF function	Returns the average (arithmetic mean) of all the cells in a range that meet a given criteria
AVERAGEIFS function	Returns the average (arithmetic mean) of all cells that meet multiple criteria
BETA.DIST function	Returns the beta cumulative distribution function
BETA.INV function	Returns the inverse of the cumulative distribution function for a specified beta distribution
BINOM.DIST function	Returns the individual term binomial distribution probability
BINOM.DIST.RANGE function	Returns the probability of a trial result using a binomial distribution
BINOM.INV function	Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value
CHISQ.DIST function	Returns the cumulative beta probability density function
CHISQ.DIST.RT function	Returns the one-tailed probability of the chi-squared distribution
CHISQ.INV function	Returns the cumulative beta probability density function
CHISQ.INV.RT function	Returns the inverse of the one-tailed probability of the chi-squared distribution
CHISQ.TEST function	Returns the test for independence
CONFIDENCE.NORM function	Returns the confidence interval for a population mean
CONFIDENCE.T function	Returns the confidence interval for a population mean, using a Student's t distribution
CORREL function	Returns the correlation coefficient between two data sets
COUNT function	Counts how many numbers are in the list of arguments
COUNTA function	Counts how many values are in the list of arguments
COUNTBLANK function	Counts the number of blank cells within a range
COUNTIF function	Counts the number of cells within a range that meet the given criteria
COUNTIFS function	Counts the number of cells within a range that meet multiple criteria
COVARIANCE.P function	Returns covariance, the average of the products of paired deviations

COVARIANCE.S function	Returns the sample covariance, the average of the products deviations for each data point pair in two data sets
DEVSQ function	Returns the sum of squares of deviations
EXPON.DIST function	Returns the exponential distribution
F.DIST function	Returns the F probability distribution
F.DIST.RT function	Returns the F probability distribution
F.INV function	Returns the inverse of the F probability distribution
F.INV.RT function	Returns the inverse of the F probability distribution
F.TEST function	Returns the result of an F-test
FISHER function	Returns the Fisher transformation
FISHERINV function	Returns the inverse of the Fisher transformation
FORECAST function	Returns a value along a linear trend Note: In Excel 2016, this function is replaced with FORECAST.LINEAR as part of the new Forecasting functions, but it's still available for compatibility with earlier versions.
FORECAST.ETS function	Returns a future value based on existing (historical) values by using the AAA version of the Exponential Smoothing (ETS) algorithm
FORECAST.ETS.CONFINT function	Returns a confidence interval for the forecast value at the specified target date
FORECAST.ETS.SEASONALITY function	Returns the length of the repetitive pattern Excel detects for the specified time series
FORECAST.ETS.STAT function	Returns a statistical value as a result of time series forecasting
FORECAST.LINEAR function	Returns a future value based on existing values
FREQUENCY function	Returns a frequency distribution as a vertical array
GAMMA function	Returns the Gamma function value
GAMMA.DIST function	Returns the gamma distribution
GAMMA.INV function	Returns the inverse of the gamma cumulative distribution
GAMMALN function	Returns the natural logarithm of the gamma function, Γ(x)
GAMMALN.PRECISE function	Returns the natural logarithm of the gamma function, Γ(x)
GAUSS function	Returns 0.5 less than the standard normal cumulative distribution
GEOMEAN function	Returns the geometric mean
GROWTH function	Returns values along an exponential trend
HARMEAN function	Returns the harmonic mean
HYPGEOM.DIST function	Returns the hypergeometric distribution
INTERCEPT function	Returns the intercept of the linear regression line
KURT function	Returns the kurtosis of a data set
LARGE function	Returns the k-th largest value in a data set
LINEST function	Returns the parameters of a linear trend
LOGEST function	Returns the parameters of an exponential trend
LOGNORM.DIST function	Returns the cumulative lognormal distribution
LOGNORM.INV function	Returns the inverse of the lognormal cumulative distribution
MAX function	Returns the maximum value in a list of arguments
MAXA function	Returns the maximum value in a list of arguments, including numbers, text, and logical values
MAXIFS function	Returns the maximum value among cells specified by a given set of conditions or criteria
MEDIAN function	Returns the median of the given numbers
MIN function	Returns the minimum value in a list of arguments
MINA function	Returns the smallest value in a list of arguments, including numbers, text, and logical values
MINIFS function	Returns the minimum value among cells specified by a given set of conditions or criteria.
MODE.MULT function	Returns a vertical array of the most frequently occurring, or repetitive values in an array or range of data
MODE.SNGL function	Returns the most common value in a data set
NEGBINOM.DIST function	Returns the negative binomial distribution
NORM.DIST function	Returns the normal cumulative distribution
NORM.INV function	Returns the inverse of the normal cumulative distribution
NORM.S.DIST function	Returns the standard normal cumulative distribution
NORM.S.INV function	Returns the inverse of the standard normal cumulative distribution

PEARSON function	Returns the Pearson product moment correlation coefficient
PERCENTILE.EXC function	Returns the k-th percentile of values in a range, where k is in the range 0..1, exclusive
PERCENTILE.INC function	Returns the k-th percentile of values in a range
PERCENTRANK.EXC function	Returns the rank of a value in a data set as a percentage (0..1, exclusive) of the data set
PERCENTRANK.INC function	Returns the percentage rank of a value in a data set
PERMUT function	Returns the number of permutations for a given number of objects
PERMUTATIONA function	Returns the number of permutations for a given number of objects (with repetitions) that can be selected from the total objects
PHI function	Returns the value of the density function for a standard normal distribution
POISSON.DIST function	Returns the Poisson distribution
PROB function	Returns the probability that values in a range are between two limits
QUARTILE.EXC function	Returns the quartile of the data set, based on percentile values from 0..1, exclusive
QUARTILE.INC function	Returns the quartile of a data set
RANK.AVG function	Returns the rank of a number in a list of numbers
RANK.EQ function	Returns the rank of a number in a list of numbers
RSQ function	Returns the square of the Pearson product moment correlation coefficient
SKEW function	Returns the skewness of a distribution
SKEW.P function	Returns the skewness of a distribution based on a population: a characterization of the degree of asymmetry of a distribution around its mean
SLOPE function	Returns the slope of the linear regression line
SMALL function	Returns the k-th smallest value in a data set
STANDARDIZE function	Returns a normalized value
STDEV.P function	Calculates standard deviation based on the entire population
STDEV.S function	Estimates standard deviation based on a sample
STDEVA function	Estimates standard deviation based on a sample, including numbers, text, and logical values
STDEVPA function	Calculates standard deviation based on the entire population, including numbers, text, and logical values
STEYX function	Returns the standard error of the predicted y-value for each x in the regression
T.DIST function	Returns the Percentage Points (probability) for the Student t-distribution
T.DIST.2T function	Returns the Percentage Points (probability) for the Student t-distribution
T.DIST.RT function	Returns the Student's t-distribution
T.INV function	Returns the t-value of the Student's t-distribution as a function of the probability and the degrees of freedom
T.INV.2T function	Returns the inverse of the Student's t-distribution
T.TEST function	Returns the probability associated with a Student's t-test
TREND function	Returns values along a linear trend
TRIMMEAN function	Returns the mean of the interior of a data set
VAR.P function	Calculates variance based on the entire population
VAR.S function	Estimates variance based on a sample
VARA function	Estimates variance based on a sample, including numbers, text, and logical values
VARPA function	Calculates variance based on the entire population, including numbers, text, and logical values
WEIBULL.DIST function	Returns the Weibull distribution
Z.TEST function	Returns the one-tailed probability-value of a z-test

Text functions

Function	Description
ASC function	Changes full-width (double-byte) English letters or katakana within a character string to half-width (single-byte) characters
ARRAYTOTEXT function	Returns an array of text values from any specified range
BAHTTEXT function	Converts a number to text, using the ß (baht) currency format
CHAR function	Returns the character specified by the code number
CLEAN function	Removes all nonprintable characters from text
CODE function	Returns a numeric code for the first character in a text string
CONCAT function	Combines the text from multiple ranges and/or strings, but it doesn't provide the delimiter or IgnoreEmpty arguments.
CONCATENATE function	Joins several text items into one text item
DBCS function	Changes half-width (single-byte) English letters or katakana within a character string to full-width (double-byte) characters
DOLLAR function	Converts a number to text, using the $ (dollar) currency format
EXACT function	Checks to see if two text values are identical
FIND, FINDB functions	Finds one text value within another (case-sensitive)
FIXED function	Formats a number as text with a fixed number of decimals
LEFT, LEFTB functions	Returns the leftmost characters from a text value

LEN, LENB functions	Returns the number of characters in a text string
LOWER function	Converts text to lowercase
MID, MIDB functions	Returns a specific number of characters from a text string starting at the position you specify
NUMBERVALUE function	Converts text to number in a locale-independent manner
PHONETIC function	Extracts the phonetic (furigana) characters from a text string
PROPER function	Capitalizes the first letter in each word of a text value
REPLACE, REPLACEB functions	Replaces characters within text
REPT function	Repeats text a given number of times
RIGHT, RIGHTB functions	Returns the rightmost characters from a text value
SEARCH, SEARCHB functions	Finds one text value within another (not case-sensitive)
SUBSTITUTE function	Substitutes new text for old text in a text string
T function	Converts its arguments to text
TEXT function	Formats a number and converts it to text
TEXTJOIN function	Combines the text from multiple ranges and/or strings, and includes a delimiter you specify between each text value that will be combined. If the delimiter is an empty text string, this function will effectively concatenate the ranges.
TRIM function	Removes spaces from text
UNICHAR function	Returns the Unicode character that is references by the given numeric value
UNICODE function	Returns the number (code point) that corresponds to the first character of the text
UPPER function	Converts text to uppercase
VALUE function	Converts a text argument to a number
VALUETOTEXT function	Returns text from any specified value

User defined functions that are installed with add-ins

If add-ins that you install contain functions, these add-in or automation functions will be available in the User Defined category in the Insert Function dialog box.

User-defined functions (UDFs) are not available in Excel for the web.

Function	Description
CALL function	Calls a procedure in a dynamic link library or code resource
EUROCONVERT function	Converts a number to euros, converts a number from euros to a euro member currency, or converts a number from one euro member currency to another by using the euro as an intermediary (triangulation)
REGISTER.ID function	Returns the register ID of the specified dynamic link library (DLL) or code resource that has been previously registered

Web functions

Web functions are not available in Excel for the web.

Function	Description
ENCODEURL function	Returns a URL-encoded string
FILTERXML function	Returns specific data from the XML content by using the specified XPath
WEBSERVICE function	Returns data from a web service

From <https://support.microsoft.com/en-us/office/excel-functions-by-category-5f91f4e9-7b42-46d2-9bd1-63f26a86c0eb>

Reference Sheet

15 April 2022 12:13 AM

1. SUM()

=SUM(number1,number2)

=SUM(A1:A23)

The SUM function adds values. You can add individual values, cell references or ranges or a mix of all three.

For example:

=SUM(A2:A10)	Adds the values in cells A2:10.
=SUM(A2:A10, C2:C10)	Adds the values in cells A2:10, as well as cells C2:C10.

2. Advance Excel

13 April 2022 04:53 PM

3. Excel Job Preparation

13 April 2022 04:53 PM

4. Tableau

11 April 2022 06:12 PM

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1. What is Data Visualization

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2. BI Process

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3. Tableau and it's Architecture

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4. Tableau Desktop

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5. Relationships , Joins and Unions

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6. Sets in Tableau

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7. Groups in Tableau

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8. Hierarchies in Tableau

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9. Filters in Tableau

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10. Highlighting

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11. Device Designer

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12. Parameters

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13. Data Blending

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14. Transparency in Tableau

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15. Data Aggregation

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16. Generated Fields

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17. Discrete vs Continuous

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18. Charts in Tableau

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19. Pivot Tables in Tableau

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20. LOD Expression

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21. Calculated Fields

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22. Formatting

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23. Analytics in Tableau

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24. Forecasting in Tableau

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5. Tableau Projects

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6. Tableau Job Prepration

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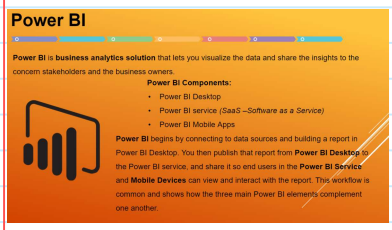
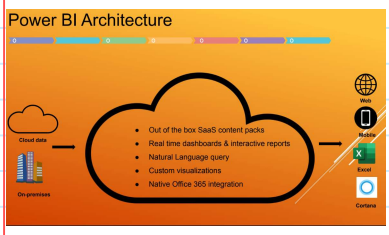
7. PowerBI

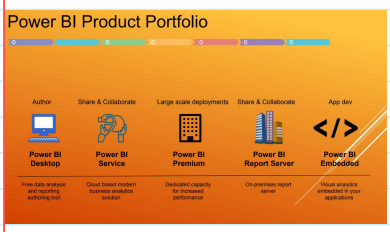
11 April 2022 06:12 PM

1. Introduction to Power BI

13 April 2022 12:09 PM







Power BI is like Excel, but with more features.

2. How to have Power BI Pro License

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3. Power BI Desktop

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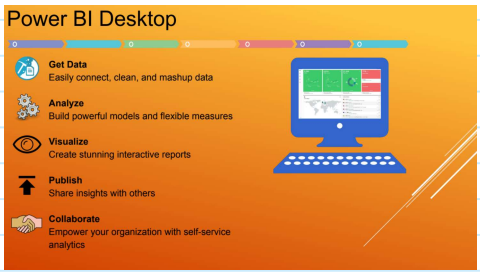

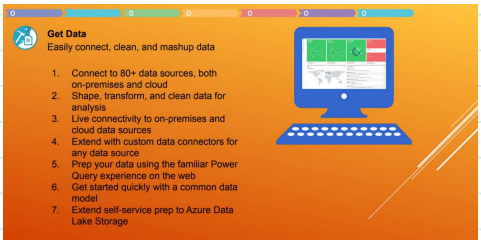

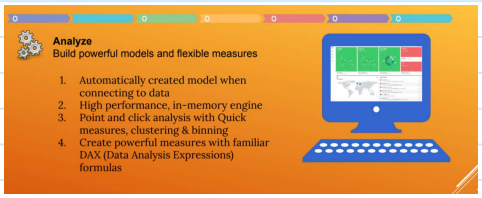

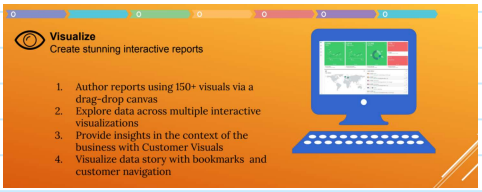

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8. Power BI Projects

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9. SQL

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10. SQL Projects

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11. SQL Job Prepration

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12. Amazon Lex

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13. Rasa NLU

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14. Google DialogFlow

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15. LUIS

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16. DSAR

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17. Flask

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18. Database

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