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Use of LOOKUP and MATCH Function in MS Excel

Microsoft Excel

Module 34 - Use of LOOKUP and MATCH Function in MS Excel

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Lookup Function

The LOOKUP Function is categorized under Excel Lookup and Reference functions. The function performs a rough match lookup either in a one-row or one-column range and returns the corresponding value from another one-row or one-column range.

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While doing financial analysis, if we wish to compare two rows or columns, we can use the LOOKUP function. It is designed to handle the simplest cases of vertical and horizontal lookup.

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The more advanced versions of the LOOKUP function are HLOOKUP and VLOOKUP.

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Formula (Vector)

There are two forms of Lookup: Vector and Array.

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The vector form of the LOOKUP function will search one row or one column of data for a specified value and then get the data from the same position in another row or column.

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The formula for the function is as follows:

=LOOKUP(lookup_value, lookup_vector, [result_vector])

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It uses the following arguments:

1. **Lookup_value (required function)** - This is the value that we will be searching. It can be a logical value of TRUE or FALSE, reference to a cell, number, or text.
2. **Lookup_vector (required function)** - This is the one-dimensional data that we wish to search. Remember, we need to sort it in ascending order.
3. **Result_vector** - An optional one-dimensional list of data from which we want to return a value. If supplied, the [result_vector] must be the same length as the lookup_vector. If the [result_vector] is omitted, the result is returned from the lookup_vector.

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Formula (Array) LOOKUP Function

= LOOKUP(lookup_value, array)

The arguments are as follows:

1. **Lookup_value (required argument)** - This is a value that we are searching for.
2. **Array (required argument)** - A range of cells that contains text, numbers, or logical values that we want to compare with the lookup_value.

How to use the LOOKUP Function?

As a worksheet function, the LOOKUP Function can be entered as part of a formula in a cell of a worksheet. To understand the uses of this function, let us consider a few examples:

Vertical Lookup formula - search in one-column range

Let's say, you have a list of sellers in column D (D2:D5) and the products they sold in column E (E2:E5). You are creating a dashboard where your users will enter the seller's name in B2 and you need a formula that would pull a corresponding product in B3. The task can be easily accomplished with this formula:

=LOOKUP(B2,D2:D5,E2:E5)

= LOOKUP(B2,D2:D5,E2:E5)					
	A	B	C	D	E
1		Result		Seller	Product
2	Seller	Sally		Adam	Bananas
3	Product	Oranges		Robert	Apricots
4				Sally	Oranges
5				Tom	Apples

To better understand the arguments,

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`=LOOKUP(B2,D2:D5,E2:E5)`

	A	B	C	D	E
1		Result		Seller	Product
2	Seller	Sally		Adam	Bananas
3	Product	Oranges		Robert	Apricots
4				Sally	Oranges
5				Tom	Apples

Horizontal Lookup formula - search in one-row range

If your source data has a horizontal layout, i.e. the entries reside in rows rather than columns, then supply a one-row range in the lookup_value and result_vector arguments, like this:

`=LOOKUP(B2,E1:H1,E2:H2)`

`=LOOKUP(B2, E1:H1, E2:H2)`

	A	B	C	D	E	F	G	H
1		Result		Seller	Adam	Robert	Sally	Tom
2	Seller	Sally		Product	Apricots	Oranges	Apples	Bananas
3	Product	Apples						

Match Function

The Excel MATCH function searches for a specified value within a range of cells and returns the relative position of that item. It's a fundamental tool for lookups, especially when combined with INDEX for more dynamic searches. The function requires three arguments: the lookup value, the range to search (lookup array), and the match type.

Syntax:

`MATCH(lookup_value, lookup_array, [match_type])`

- **lookup_value:** The value you want to find.
- **lookup_array:** The range of cells to search within.
- **match_type:** Specifies how the function should match the value (optional, defaults to 1).

`=MATCH(E1, A2:A8,0)`

	A	B	C	D	E
1	Student name	Score		Name	Laura
2	Rachael	287		Position	5
3	Christian	280			
4	Brian	274			
5	Neal	240			
6	Laura	237			
7	Melissa	210			
8	Peter	126			

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match_type Options:

- **1 or omitted (default):** Finds the largest value less than or equal to the lookup value (lookup array must be sorted in ascending order).
- **0:** Finds the first exact match (if not found, returns #N/A).
- **-1:** Finds the smallest value greater than or equal to the lookup value (lookup array must be sorted in descending order).

A
S

Name	Age	Gender	City	Salary	Department
Aisha	25	Female	Mumbai	\$50,000	Sales
Rahul	30	Male	Delhi	\$60,000	Marketing
Emily	28	Female	New York	\$55,000	HR
Fatima	32	Female	Dubai	\$70,000	IT
Jacob	35	Male	Chicago	\$75,000	Operations
Priya	26	Female	Chennai	\$48,000	Sales
Sarah	29	Female	Los Angeles	\$6,800	IT
Ahmed	31	Male	Cairo	\$58,000	HR
Maya	27	Female	Hyderabad	\$52,000	IT

Task

- Find the position of Emily Salary.
- Find the position of Priya Gender.

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Assignment

Student ID	Name	Subject	Marks	Grade
1001	Aarav	Math	85	A
1002	Priya	English	78	B
1003	Vikram	Science	92	A
1004	Diya	History	88	A
1005	Arjun	Math	76	B
1006	Ananya	English	90	A
1007	Rohit	Science	69	C
1008	Neha	History	82	B
1009	Isha	Math	91	A
1010	Sidharth	English	80	B

Tasks:

1. Use the LOOKUP function to find the marks of the student with Student ID 1006 (Ananya).
2. Use the LOOKUP function to find the Grade of the student with Student ID 1005 (Arjun).

