# VLookup

The **VLOOKUP** function in Excel is a powerful tool used to **search for a specific value in the first column of a table array** and **return a corresponding value from a specified column** in the same row.

The 'V' in VLOOKUP stands for **Vertical**, as it looks up the value vertically down the first column of the range.

**VLOOKUP Syntax**

The VLOOKUP function has the following syntax:

=VLOOKUP(lookup\_value,table\_array,col\_index\_num,[range\_lookup])

**1. lookup\_value (Required)**

* The value you want to search for in the first column of the table. This can be a value, a cell reference, or a text string.

**2. table\_array (Required)**

* The range of cells that contains the data.
* **Important:** The lookup\_value must be in the **first column** of the table\_array.

**3. col\_index\_num (Required)**

* The column number in the table\_array from which to return the result.
* The first column in the array is 1, the second is 2, and so on.

**4. [range\_lookup] (Optional)**

* A logical value that specifies whether you want VLOOKUP to find an **exact match** or an **approximate match**.
  + **FALSE (or 0):** This is typically used and specifies you want an **exact match**. If no exact match is found, it returns #N/A.
  + **TRUE (or 1):** Specifies an **approximate match**. The first column of the table\_array *must* be sorted in ascending order when using TRUE. If no exact match is found, it returns the next largest value that is less than the lookup\_value.

**Example**

Imagine you have a table of **Employee IDs** and their **Department**:

| Employee ID | Name | Department |
| --- | --- | --- |
| 101 | Alice | Sales |
| 102 | Bob | Marketing |
| 103 | Charlie | IT |

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If you want to find the **Department** for Employee ID **102**, the VLOOKUP formula would be:

=VLOOKUP(102,A2:C4,3,FALSE)

* **lookup\_value**: 102 (The Employee ID you're looking for).
* **table\_array**: A2:C4 (The entire data table).
* **col\_index\_num**: 3 (The Department is in the 3rd column of the table).
* **range\_lookup**: FALSE (You want an exact match for the Employee ID).

**Result:** **Marketing**

understanding vlookup in excel

The **VLOOKUP** function in Excel is used to **search for a specific value in the first column of a range (or table)** and **return a corresponding value** from a specified column in the same row.

The 'V' in VLOOKUP stands for **Vertical**, as it searches down the first column vertically.

**VLOOKUP Syntax and Arguments**

The VLOOKUP function follows this structure:

=VLOOKUP(lookup\_value,table\_array,col\_index\_num,[range\_lookup])

| Argument | Description | Required? |
| --- | --- | --- |
| **lookup\_value** | The value you want to find. This must be in the first column of the table\_array. | Yes |
| **table\_array** | The range of cells containing your data. This is where VLOOKUP will search. | Yes |
| **col\_index\_num** | The column number within the table\_array that contains the result you want to retrieve. The first column is 1. | Yes |
| **[range\_lookup]** | A logical value (TRUE or FALSE) to specify the type of match. | No (Optional) |

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| range\_lookup Value | Result Type | Condition for table\_array |
| --- | --- | --- |
| **FALSE (or 0)** | **Exact Match** (Recommended) | No sorting required. Returns #N/A if the value isn't found. |
| **TRUE (or 1)** | **Approximate Match** | The first column **must** be sorted in ascending order. |

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**How VLOOKUP Works (Step-by-Step)**

1. **Find the lookup\_value:** VLOOKUP starts in the **first column** of the table\_array and searches vertically down until it finds the lookup\_value (or the closest match, if TRUE is used).
2. **Move to the Result Column:** Once the value is found, VLOOKUP moves horizontally across that same row to the column number specified by col\_index\_num.
3. **Return the Value:** VLOOKUP returns the value found in that cell.

**Practical Example**

| Employee ID (Col 1) | Name (Col 2) | Department (Col 3) |
| --- | --- | --- |
| 101 | Sarah | Sales |
| 102 | Alex | IT |
| 103 | David | Marketing |

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**Goal:** Find the **Department** for Employee ID **102**.

**Formula:** Assuming the table is in range **A2:C4**, the formula would be:

=VLOOKUP(102,A2:C4,3,FALSE)

| Argument | Value | Explanation |
| --- | --- | --- |
| lookup\_value | **102** | The ID we are searching for. |
| table\_array | **A2:C4** | The entire table range. |
| col\_index\\_num | **3** | The Department column is the 3rd column in the range. |
| range\\_lookup | **FALSE** | We require an exact match for the Employee ID. |

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# HLookup

The **HLOOKUP** function in Excel is used to **search for a specific value in the first row of a range (or table)** and **return a corresponding value** from a specified row in the same column.

The 'H' in HLOOKUP stands for **Horizontal**, as it searches across the first row horizontally.

**HLOOKUP Syntax and Arguments**

The HLOOKUP function follows this structure:

=HLOOKUP(lookup\_value,table\_array,row\_index\_num,[range\_lookup])

| Argument | Description | Required? |
| --- | --- | --- |
| **lookup\_value** | The value you want to find. This must be in the **first row** of the table\_array. | Yes |
| **table\_array** | The range of cells containing your data. This is where HLOOKUP will search. | Yes |
| **row\_index\_num** | The row number within the table\_array that contains the result you want to retrieve. The first row is 1. | Yes |
| **[range\_lookup]** | A logical value (TRUE or FALSE) to specify the type of match. | No (Optional) |

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| range\_lookup Value | Result Type | Condition for table\_array |
| --- | --- | --- |
| **FALSE (or 0)** | **Exact Match** (Recommended) | No sorting required. Returns #N/A if the value isn't found. |
| **TRUE (or 1)** | **Approximate Match** | The first row **must** be sorted in ascending order. |

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**How HLOOKUP Works (Step-by-Step)**

1. **Find the lookup\_value:** HLOOKUP starts in the **first row** of the table\_array and searches horizontally across until it finds the lookup\_value (or the closest match, if TRUE is used).
2. **Move to the Result Row:** Once the value is found, HLOOKUP moves vertically down that same column to the row number specified by row\_index\_num.
3. **Return the Value:** HLOOKUP returns the value found in that cell.

**Practical Example**

|  | **A (Col 1)** | **B (Col 2)** | **C (Col 3)** | **D (Col 4)** |
| --- | --- | --- | --- | --- |
| **1 (Row 1)** | Employee ID | 101 | 102 | 103 |
| **2 (Row 2)** | Name | Sarah | Alex | David |
| **3 (Row 3)** | Department | Sales | IT | Marketing |

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**Goal:** Find the **Name** for Employee ID **102**.

**Formula:** Assuming the table is in range **A1:D3**, the formula would be:

=HLOOKUP(102,A1:D3,2,FALSE)

| Argument | Value | Explanation |
| --- | --- | --- |
| lookup\_value | **102** | The ID we are searching for, which is in the first row. |
| table\_array | **A1:D3** | The entire table range. |
| row\_index\\_num | **2** | The Name row is the 2nd row in the range. |
| range\\_lookup | **FALSE** | We require an exact match for the Employee ID. |

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