All the good stuff about XLOOKUP.

Excel 103a

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Agenda

- XLOOKUP vs. VLOOKUP
- Syntax
- Scenario 1
- Scenario 2
- Live Demo

XLOOKUP vs. VLOOKUP

XLOOKUP

- **Search direction:**
  - Both vertical or horizontal
  - Can search bottom up
  - Can return values from any column (even to the left)
- No need for column index number, directly specify return array
- **Default:** Exact match
- **Missing values:** Can specify custom message
- Generally faster in large datasets
- Compatible with dynamic arrays, safer when columns change

VLOOKUP

- **Search direction:**
  - Only vertical
  - Cannot search bottom up
  - Only to the right of the lookup column
- Must specify column number
- **Default:** Approximate match
- **Missing values:** #N/A
- Slower in complex spreadsheets
- Not compatible with dynamic arrays

Limitations of XLOOKUP

- **Available in modern Excel versions and Google Sheets (added Aug ‘22)**
  - Excel 365, Excel 2019 and newer, Excel web version, Google Sheets
  - Not available in Excel 2016 or earlier
  - Sheets using `XLOOKUP` will break in older versions
- **Returns first or last match, not all matches**
  - `XLOOKUP` can return the first or last match (via `[search_mode]`), but not multiple results
  - Workaround: use `FILTER()`
- **One-to-one lookups only**
  - Can’t return multiple columns or fields at once unless you:
    - Select your range for (`return_array`)
    - And your formula is placed in a spill-enabled cell
- **Not case sensitive**
  - `XLOOKUP` doesn’t distinguish between “Bob” and “BOB”
  - Workaround: use `INDEX(MATCH(...EXACT()))`
- **Does not work with merged cells**

Syntax

```
=XLOOKUP(lookup_value, lookup_array, return_array,
    [if_not_found], [match_mode], [search_mode])
```

Scenario 1

You are given this table. You want to find out which department Charlie works in.

Employee ID	Name	Department
E001	Alice	Marketing
E002	Bob	Finance
E003	Charlie	HR
E004	Bob	IT
E005	Ethan	Operations

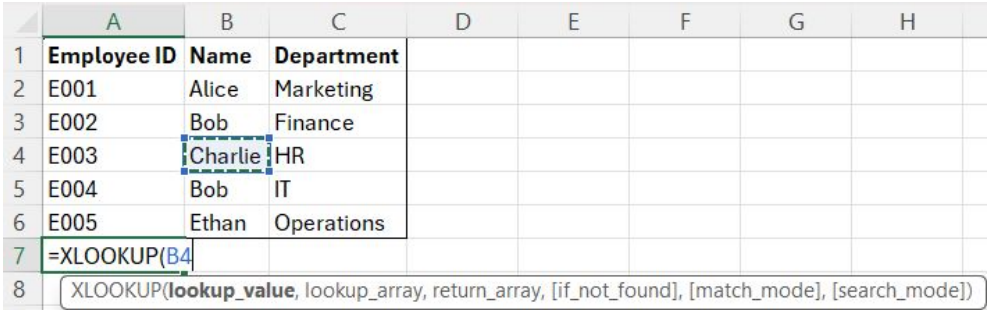
Step 1: the value you're searching for

=XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

This is what you want to **look up**.

You can also use a **cell reference** like A1 if the name is typed in a separate cell.

Our formula so far:
=XLOOKUP(B4



Task: You want to find out which department Charlie works in.

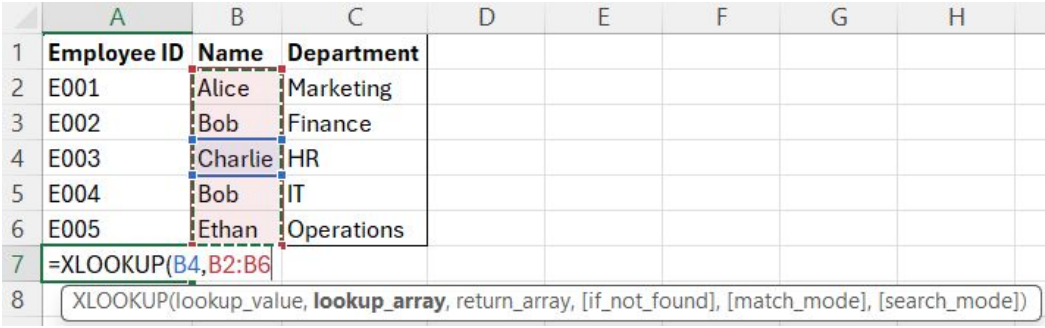
Step 2: where to look for the value

=XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

This is the range of cells that contains the values you're searching through.

It must be **a single column or row**.

Our formula so far:
=XLOOKUP(B4, B2:B6



Task: You want to find out which department Charlie works in.

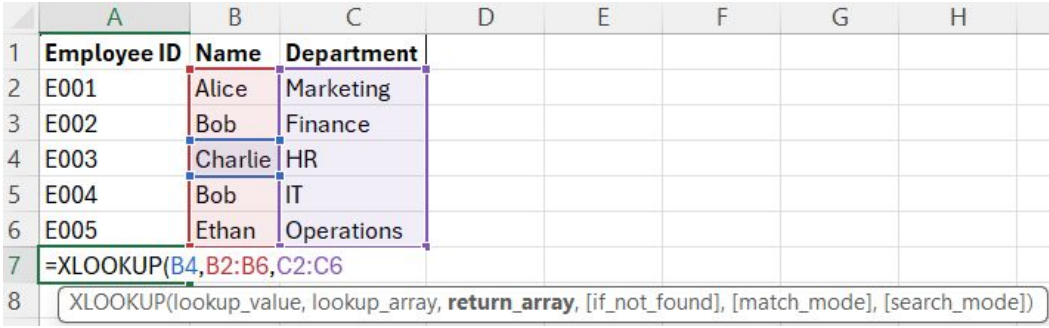
Step 3: the range to return the result from

=XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

Think of it as the answer column or row, or the actual value you want from the lookup.

The return array must be the **same size and shape** as the **lookup array**.

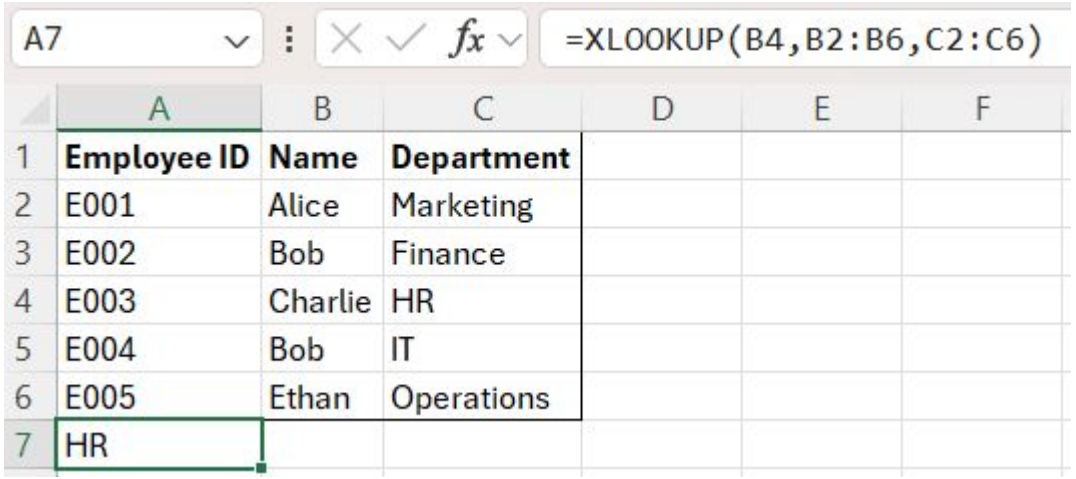
Our formula so far:
=XLOOKUP(B4, B2:B6, C2:C6



Task: You want to find out which department Charlie works in.

These steps combined should result in this:

=XLOOKUP(B4, B2:B6, C2:C6)



	A	B	C	D	E	F
1	**Employee ID**	**Name**	**Department**			
2	E001	Alice	Marketing			
3	E002	Bob	Finance			
4	E003	Charlie	HR			
5	E004	Bob	IT			
6	E005	Ethan	Operations			
7	HR					

Task: You want to find out which department Charlie works in... **Charlie works in HR.**

But we left out the other arguments. Why?

They are optional!

When a function has optional arguments (shown in brackets like **[argument]**), you **don't have to include them** in the formula. If you leave them out, Excel **automatically** uses a **built-in default value** for that argument.

So what does this mean?

If you skip an optional argument:

- The function still works.
- Excel fills in that argument with a **default setting** behind the scenes.

Scenario 2

Find the most recent department for an employee named Bob. If the name isn't found, show a custom message like "Employee not found." *Assume Alice is the earliest employee and Ethan is the latest employee.*

Employee ID	Name	Department
E001	Alice	Marketing
E002	Bob	Finance
E003	Charlie	HR
E004	Bob	IT
E005	Ethan	Operations

Step 4: optional message if there's no match

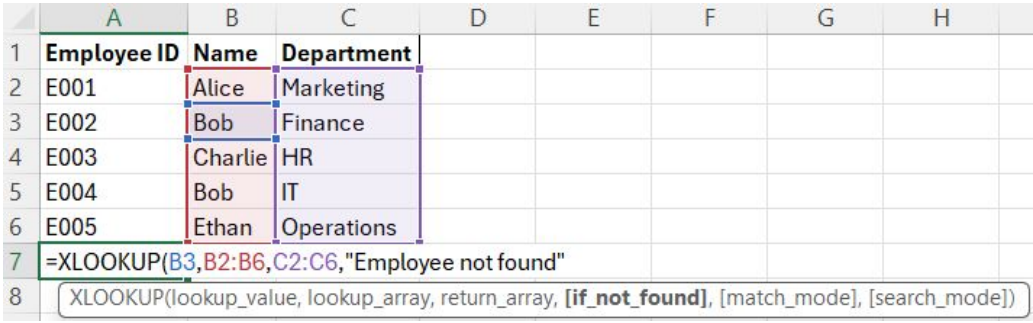
=XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

If your lookup value (the value you're searching for) isn't in the list, it will show this message instead of an error.

Optional, but very helpful!

Otherwise, the default value is **""** and if your lookup value isn't in the list, it will show **#N/A**.

Our formula so far:
=XLOOKUP(B3, B2:B6, C2:C6, "Employee not found"



Task: Find the most recent department for an employee named Bob. If the name isn't found, show a custom message like "Employee not found."

Step 5: optional match type

=XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

0 → exact match (default)

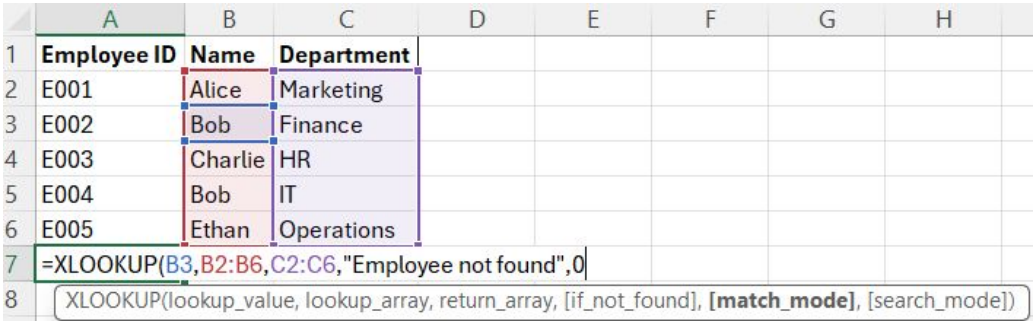
-1 → exact match or next smaller value

1 → exact match or next larger value

2 → wildcard match (like partial text search)

You can skip this is most cases unless you're doing numeric or wildcard lookups.

Our formula so far:
=XLOOKUP(B3, B2:B6, C2:C6, "Employee not found", 0



Task: Find the most recent department for an employee named Bob. If the name isn't found, show a custom message like "Employee not found."

Step 6: optional search direction

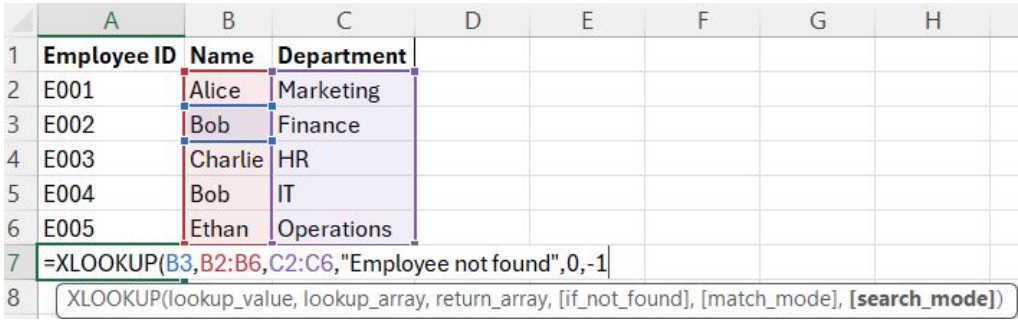
=XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

1 → search from first to last (default)

-1 → search from last to first

You'll mostly use this only if you want the last match instead of the first

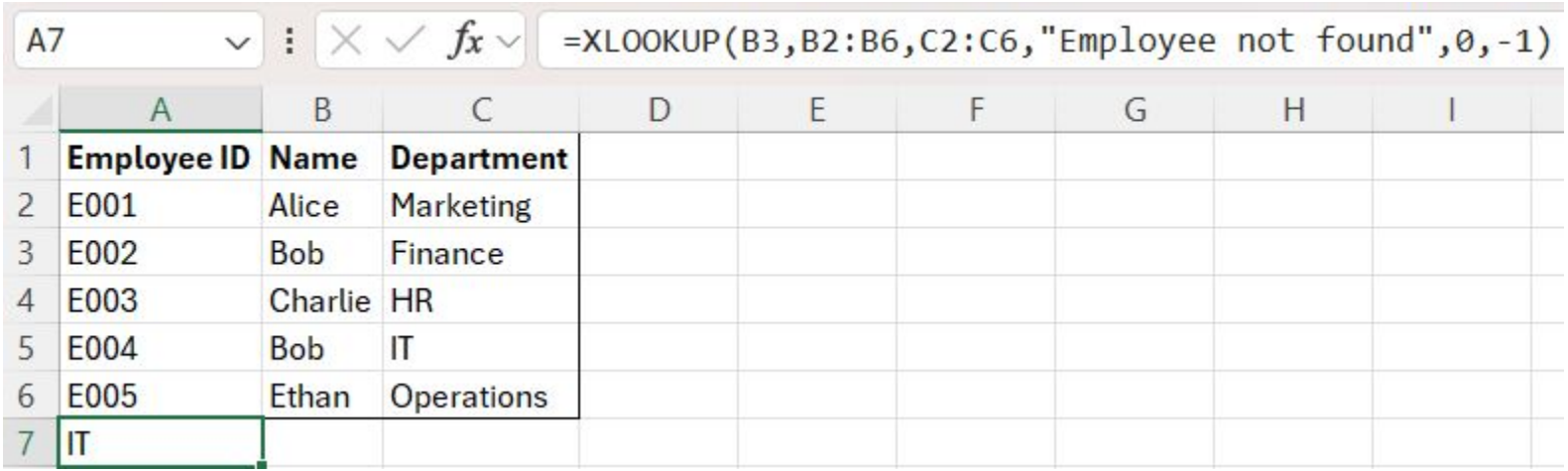
Our formula so far:
=XLOOKUP(B3, B2:B6, C2:C6, "Employee not found", 0, -1



Task: Find the most recent department for an employee named Bob. If the name isn't found, show a custom message like "Employee not found."

These steps combined should result in this:

```
=XLOOKUP(B3, B2:B6, C2:C6, ”Employee not found”, 0, -1)
```



	A	B	C	D	E	F	G	H	I
1	**Employee ID**	**Name**	**Department**						
2	E001	Alice	Marketing						
3	E002	Bob	Finance						
4	E003	Charlie	HR						
5	E004	Bob	IT						
6	E005	Ethan	Operations						
7	IT								

Task: Find the most recent department for an employee named Bob. If the name isn’t found, show a custom message like “Employee not found.”... **The most recent department Bob works in is IT.**

Demonstration using Excel 103 workbook.

Live Demo Time!

Aaand that's XLOOKUP!