📘 Module 4: XLOOKUP – Only for Excel 2021 and Office 365

🔷 1. What is XLOOKUP?

✅ **XLOOKUP** is a powerful Excel function that replaces older lookup functions like **VLOOKUP**, **HLOOKUP**, and **LOOKUP**.

📌 Syntax:

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

📘 Key Arguments:

Parameter	Description
lookup_value	Value to search for
lookup_array	Where to look (column or row)
return_array	What to return (column or row parallel to lookup_array)
if_not_found	Optional – what to return if not found (e.g., "Not Found")
match_mode	Optional – 0=Exact (default), -1=Exact or next smaller, 1=Exact or next larger, 2=Wildcard match
search_mode	Optional – 1=First-to-last (default), -1=Last-to-first

🆚 How XLOOKUP is Better than VLOOKUP

Feature	VLOOKUP	XLOOKUP
🔄 Direction	Only left-to-right	Left, right, up, down
🔁 Column No.	Requires hardcoded column index	Uses direct range
❌ NA Handling	Needs IFERROR	Has built-in if_not_found
✅ Dynamic	Not dynamic if columns are changed	Fully dynamic
🔍 Approx Match	Limited, defaults to approx	Exact by default
🔁 Reverse Lookup	❌ Not possible	✅ Possible

🧪 Example:
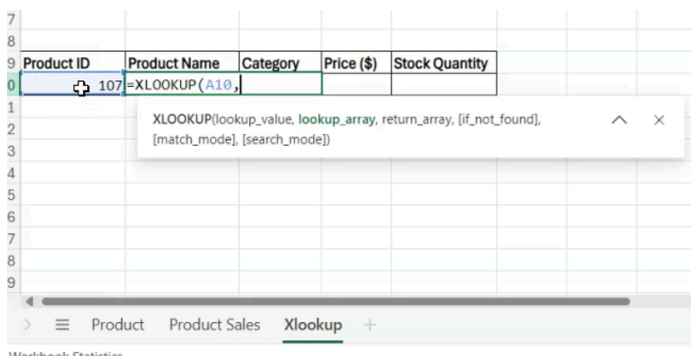
Formula bar: `=XLOOKUP(A10,Table1[Product ID],Table1[[Product Name]:[Stock Quantity]])`

Product ID	Product Name	Category	Price ($)	Stock Quantity
101	Widget A	Electronics	25	50
102	Widget B	Electronics	35	30
103	Gadget X	Home Goods	45	20
104	Gadget Y	Home Goods	55	15
105	Tool Z	Tools	20	40
106	Tool W	Tools	30	25
107	Appliance Q	Appliances	150	10
108	Appliance P	Appliances	200	5

Product   Product Sales   Xlookup

Product ID	Product Name	Category	Price ($)	Stock Quantity
107	Appliance Q	Appliances	150	10

Product   Product Sales   Xlookup

❗ 2. Handling #N/A and Approximate Matches in XLOOKUP

✅ Problem:

When lookup value is not found, `#N/A` is returned by default.

🙍‍♀️ Handling #N/A Using `if_not_found` Argument:

🪜 Steps:

=XLOOKUP("Neha", A2:A10, B2:B10, "Not Found")

If "Neha" is not found, it returns `"Not Found"` instead of `#N/A`.

✅ Approximate Match in XLOOKUP:

Use **match_mode**:

- `0` → Exact match (default)
- `1` → Exact match or next smaller item
- `1` → Exact match or next larger item

🙍‍♀️ Example:

	A	B	C	D	E	F
1	Product ID	Product Name	Category	Price ($)	Stock Quantity	
2	101	Widget A	Electronics	25	50	
3	102	Widget B	Electronics	35	30	
4	103	Gadget X	Home Goods	45	20	
5	104	Gadget Y	Home Goods	55	15	
6	105	Tool Z	Tools	20	40	
7	106	Tool W	Tools	30	25	
8	107	Appliance Q	Appliances	150	10	
9	108	Appliance P	Appliances	200	5	
10						
11						

B2   fx =XLOOKUP(A2,Table1[Product ID],Table1[Product Name],"Not Applicable")

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

	A	B
1	Product ID	Product Name
2	1021	=XLOOKUP(A2,Table1[Product ID],Table1[Product Name],"Not Applicable")
3		
4		

E8

	A	B	C
1	Product ID	Product Name	
2	1021	Not Applicable	
3			
4			
5			

🧩 3. Wildcard Matching in XLOOKUP

✅ **Match_mode** `2` **enables wildcard search using:**

- → any number of characters
- `?` → any single character

🪜 Steps to Use Wildcards:
=XLOOKUP("*an", A2:A10, B2:B10, "Not Found", 2)

> This will find any name ending with "an" (e.g., "Mohan", "Kiran").

✅ You must set `match_mode = 2` to activate wildcard logic.

🙍 Example:

	A	B	C	D	E	F	G
1	Product ID	Product Name	Category	Price ($)	Stock Quantity		
2	101	Toaster	Electronics	25	50		
3	102	Hair Dryer	Electronics	35	30		
4	103	Iron Table	Home Goods	45	20		
5	104	Wooden Basket	Home Goods	55	15		
6	105	Scraper	Tools	20	40		
7	106	Ladle	Tools	30	25		
8	107	Cooler	Appliances	150	10		
9	108	Induction	Appliances	200	5		
10							
11							
12							
13		Product Name	oden				
14		Category	=XLOOKUP(C13&"*",B2:B9,C2:C9,,2)				
15							

	A	B	C	D	E	F
1	Product ID	Product Name	Category	Price ($)	Stock Quantity	
2	101	Toaster	Electronics	25	50	
3	102	Hair Dryer	Electronics	35	30	
4	103	Iron Table	Home Goods	45	20	
5	104	Wooden Basket	Home Goods	55	15	
6	105	Scraper	Tools	20	40	
7	106	Ladle	Tools	30	25	
8	107	Cooler	Appliances	150	10	
9	108	Induction	Appliances	200	5	
0						
1						
2						
3		Product Name	Wooden			
4		Category	Home Goods			

🔁 4. Search Modes in XLOOKUP

✅ Search_mode defines the direction of the lookup:

Mode	Description
1	Search from top to bottom (default)
-1	Search from bottom to top (last match)
2	Binary search (sorted ascending)
-2	Binary search (sorted descending)

💁‍♀️ Example: Search from bottom (last match)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
6	Product ID	Product Name	Category	Price ($)	Stock Quantity											
7	106	Induction	Appliances	200	5											
8	107	Cooler	Appliances	150	10											
9	108	Wooden CHAIR	Home Goods	55	15											
10	109	Iron Table	Home Goods	30	20											
11	115	Iron Table	Home Goods	45	20											
12	111	Ladle	Tools	30	25											
13	112	Hair Dryer	Electronics	45	30											
14	114	Hair Dryer	Electronics	35	30											
15	114	Scraper	Tools	20	40			Product Name	Hair Dryer							
16	115	Toaster	Electronics	25	50			Price ($)	=XLOOKUP(I15,Table5[Product Name],Table5[Price ($)],,,-1)							
17																
18																
19																
20																

	A	B	C	D	E	F	G	H	I
6	Product ID	Product Name	Category	Price ($)	Stock Quantity				
7	106	Induction	Appliances	200	5				
8	107	Cooler	Appliances	150	10				
9	108	Wooden CHAIR	Home Goods	55	15				
10	109	Iron Table	Home Goods	30	20				
11	115	Iron Table	Home Goods	45	20				
12	111	Ladle	Tools	30	25				
13	112	Hair Dryer	Electronics	45	30				
14	114	Hair Dryer	Electronics	35	30				
15	114	Scraper	Tools	20	40			Product Name	Hair Dryer
16	115	Toaster	Electronics	25	50			Price ($)	35
17									
18									

💼 Best Practices

✅ Practice	📌 Reason
Use **Named Ranges**	To keep formula clean and avoid manual range update
Always set [if_not_found]	To avoid showing #N/A to users
Use **structured tables**	Works better with expanding datasets
Use match_mode = 2 only if wildcards are intended	Avoid unexpected matches
Keep **lookup and return arrays aligned**	Prevents formula errors and confusion

📌 Key Points / Important Notes

- ✅ **XLOOKUP** is more powerful and flexible than older lookup functions.
- 🔄 It can **search in any direction** – left, right, top, or bottom.
- 🚫 You don't need column numbers – it uses **ranges directly**.
- 🧠 You can handle errors, match modes, and search direction inside the same function.
- 💡 Available only in **Excel 2021 and Office 365**.