Logical Functions & Lookup

1) Write a formula to check if the marks in cell are greater than or equal to 40. If yes, return , otherwise . B2 "Pass" "Fail

→

Objective:

To check whether the marks in cell B2 are greater than or equal to 40.
If yes, return "Pass", otherwise return "Fail".

Formula:

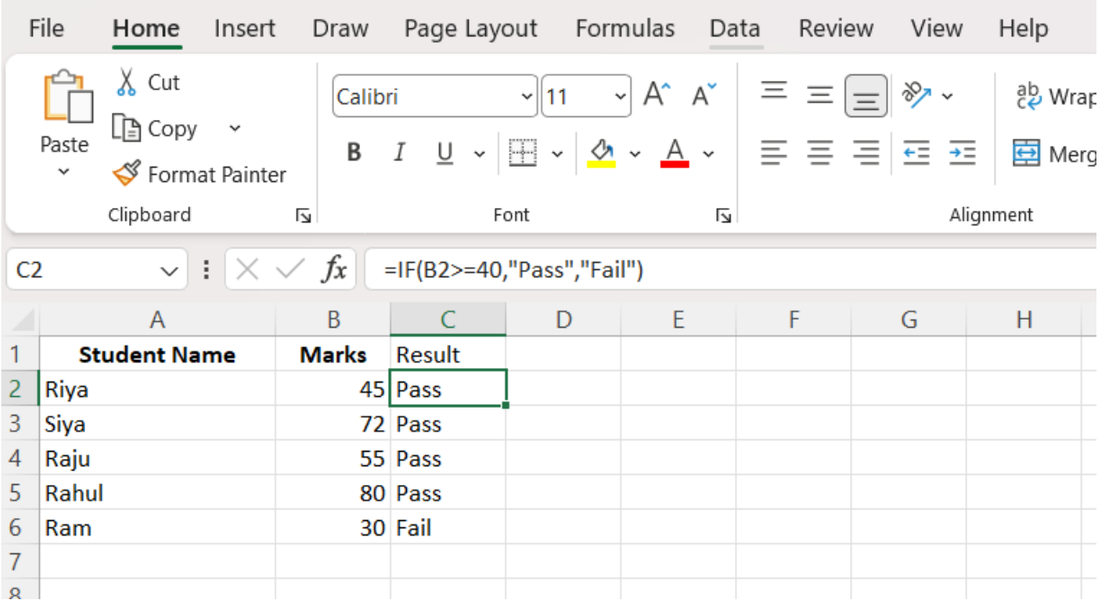
=IF(B2>=40,"Pass","Fail")

Explanation:

- B2>=40 → Checks whether the marks are 40 or above.
- "Pass" → Returned if the condition is TRUE.
- "Fail" → Returned if the condition is FALSE.

Application:

1. Insert a new column named Result.
2. Enter the formula in the first row.
3. Press Enter and drag the formula down to apply it to all records.



2) A company gives a bonus if sales are above 40,000 and attendance is greater than or equal to 90%. Write a formula to calculate whether the employee will get a bonus or not .

→ **Objective:** To determine whether an employee is eligible for a bonus.
Conditions:

- Sales > 40,000
- Attendance ≥ 90%

Formula:

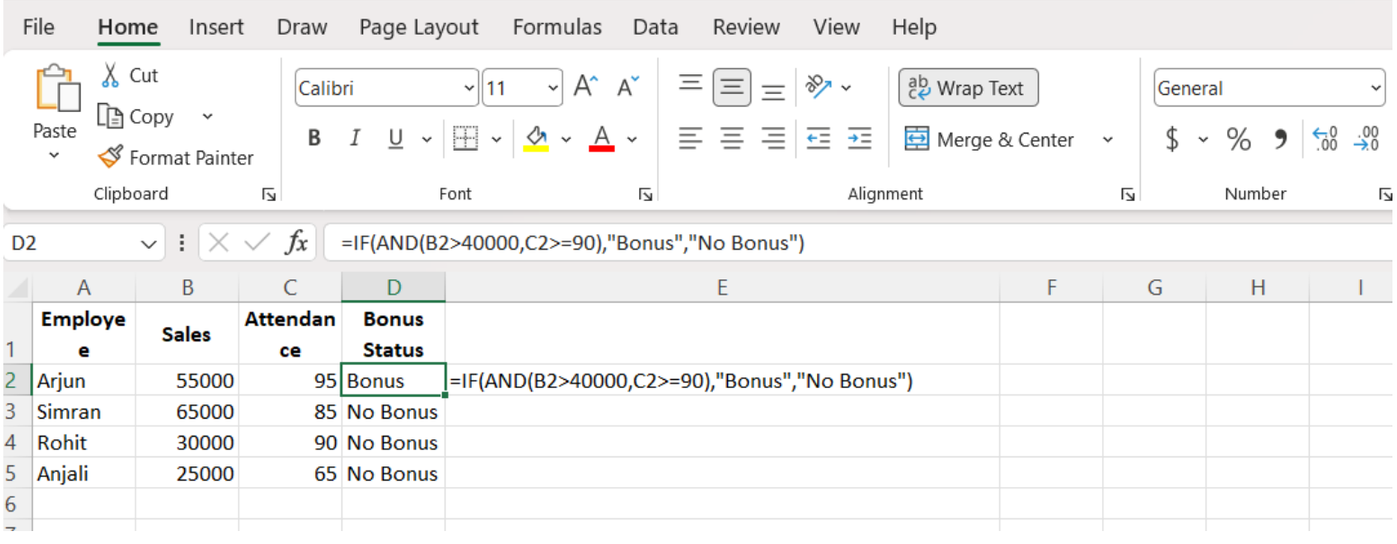
=IF(AND(B2>40000,C2>=90),"Bonus","No Bonus")

Explanation:

- B2>40000 → Checks if sales exceed 40,000.
- C2>=90 → Checks if attendance is at least 90%.
- AND() → Ensures both conditions are TRUE.
- "Bonus" → Returned if eligible.
- "No Bonus" → Returned otherwise.

Application:

Create a new column **Bonus Status**, apply the formula, and drag down.



3) Write a nested IF formula: If marks in are ≥ 90 → , ≥ 75 → , ≥ 50 → , otherwise . B2 "A" "B" "C" "Fail".

→

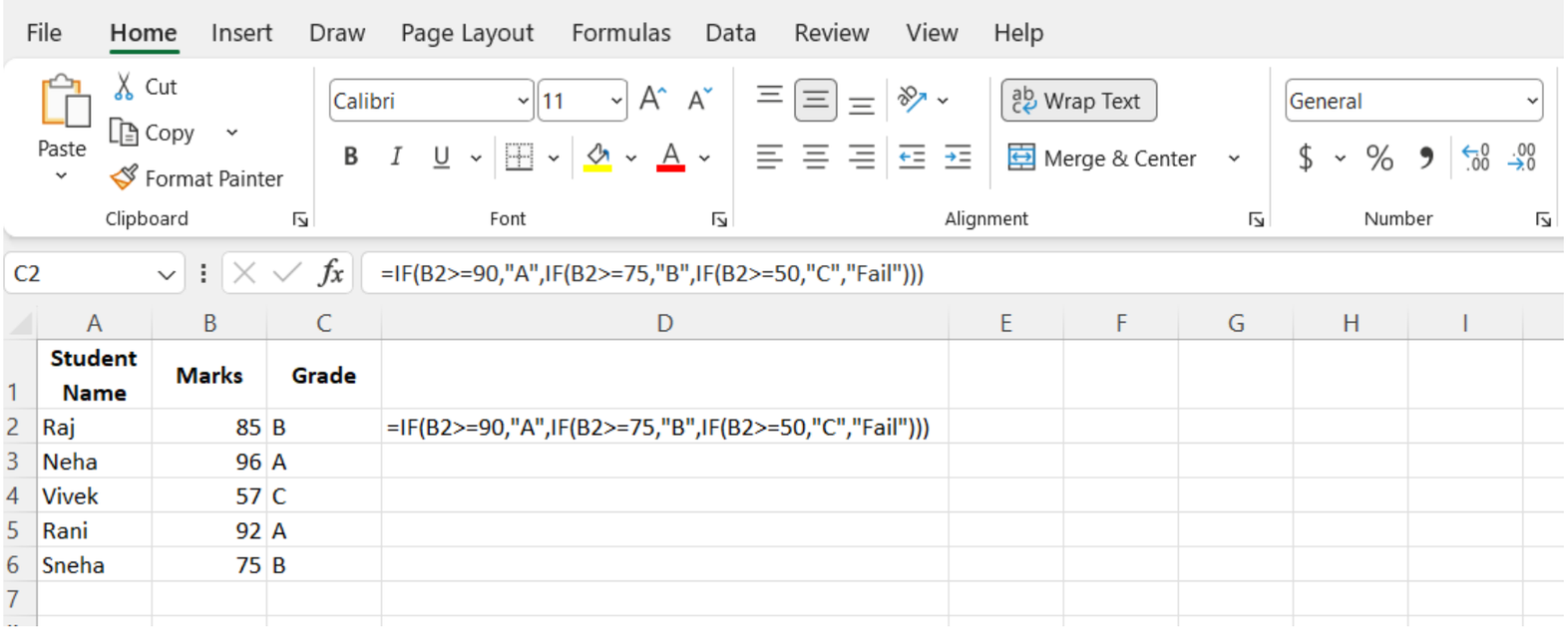
📌 Formula: =IF(B2>=90,"A",IF(B2>=75,"B",IF(B2>=50,"C","Fail"))) (Assume Marks are in B2)

📖 Explanation:

1. Excel first checks if B2 ≥ 90 → returns "A"
2. If not, it checks if B2 ≥ 75 → returns "B"
3. If not, it checks if B2 ≥ 50 → returns "C"
4. If none of the conditions are true → returns "Fail"

📌 **How to Apply:**

1. Add a new column named **Grade**.
2. Enter the formula in the first row.
3. Press **Enter**.
4. Drag down to apply to all students.



	A	B	C	D
1	Student Name	Marks	Grade	
2	Raj	85	B	=IF(B2>=90,"A",IF(B2>=75,"B",IF(B2>=50,"C","Fail")))
3	Neha	96	A	
4	Vivek	57	C	
5	Rani	92	A	
6	Sneha	75	B	
7				

4) Find the Department of Employee ID = E103. Also explain which LOOKUP function is used and why?

→

Objective:

To retrieve the Department for Employee ID **E103**.

Using VLOOKUP:

=VLOOKUP("E103",A2:C5,3,FALSE)

Explanation:

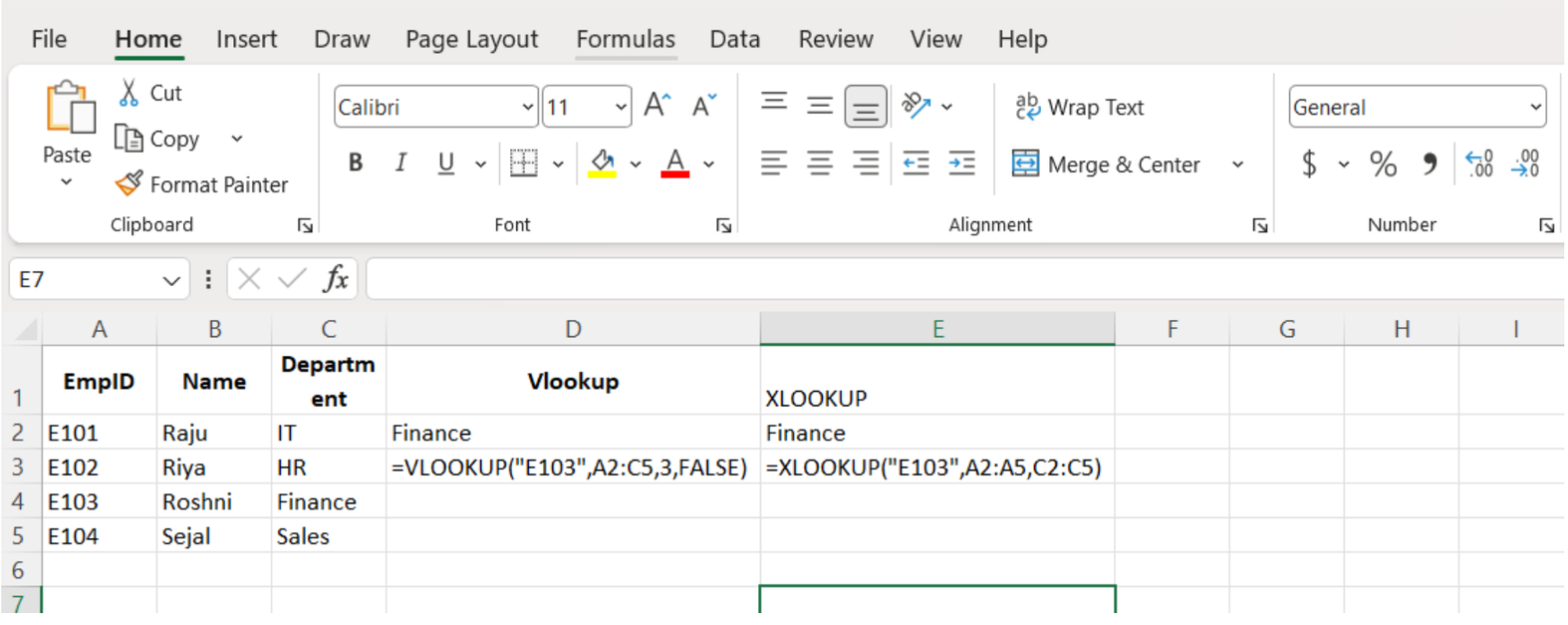
- "E103" → Lookup value
- A2:C5 → Table range
- 3 → Department column index
- FALSE → Exact match

Using XLOOKUP (Modern Method):

=XLOOKUP("E103",A2:A5,C2:C5)

Why XLOOKUP is Preferred:

- No need for column number
- Works left or right
- More flexible and reliable



	A	B	C	D	E
1	EmpID	Name	Department	Vlookup	XLOOKUP
2	E101	Raju	IT	Finance	Finance
3	E102	Riya	HR	=VLOOKUP("E103",A2:C5,3,FALSE)	=XLOOKUP("E103",A2:A5,C2:C5)
4	E103	Roshni	Finance		
5	E104	Sejal	Sales		
6					
7					

5) If a salesperson achieves sales of ₹45,000, use the VLOOKUP function to determine the commission rate applicable.

→

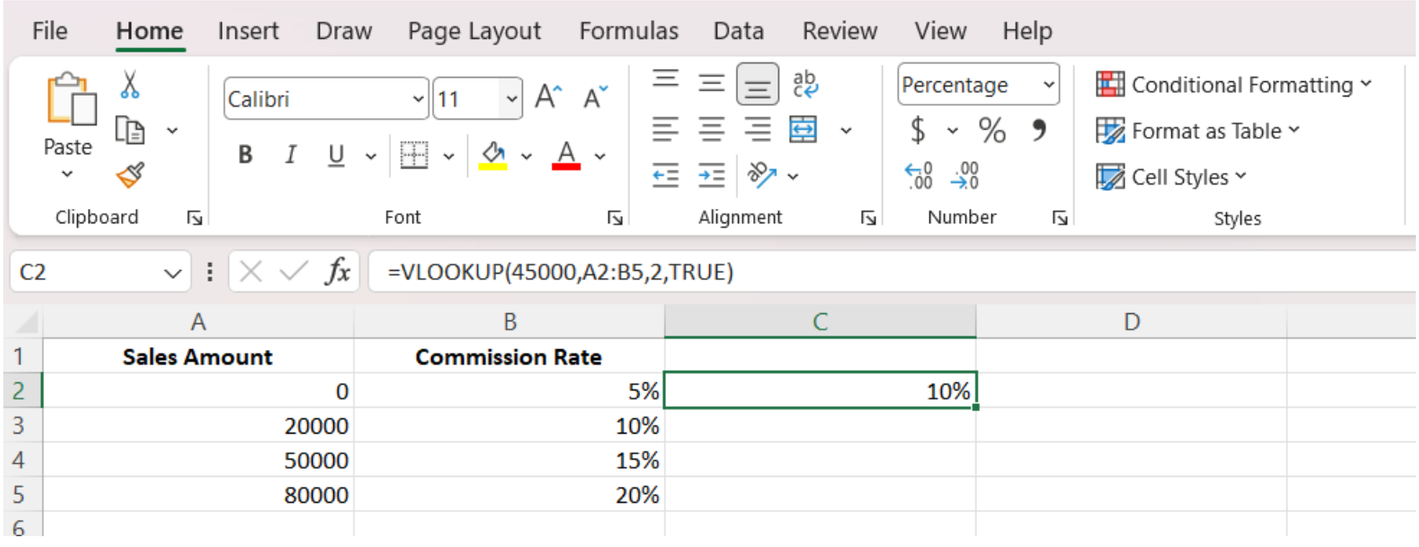
Fourmula: =VLOOKUP(45000,A2:B5,2,TRUE)

📖 **Explanation:**

- 45000 → Sales amount
- A2:B5 → Commission table
- 2 → Commission rate column
- TRUE → Approximate match

✅ Result:

- ₹45,000 falls between **20,000 and 50,000**
- So commission rate = **10%**



6) Write an IF function to check whether an employee has Exceeded their allowed leave balance.

- If Leaves Taken > Allowed Leaves, display "Exceeded".
- Otherwise, display "OK".

→

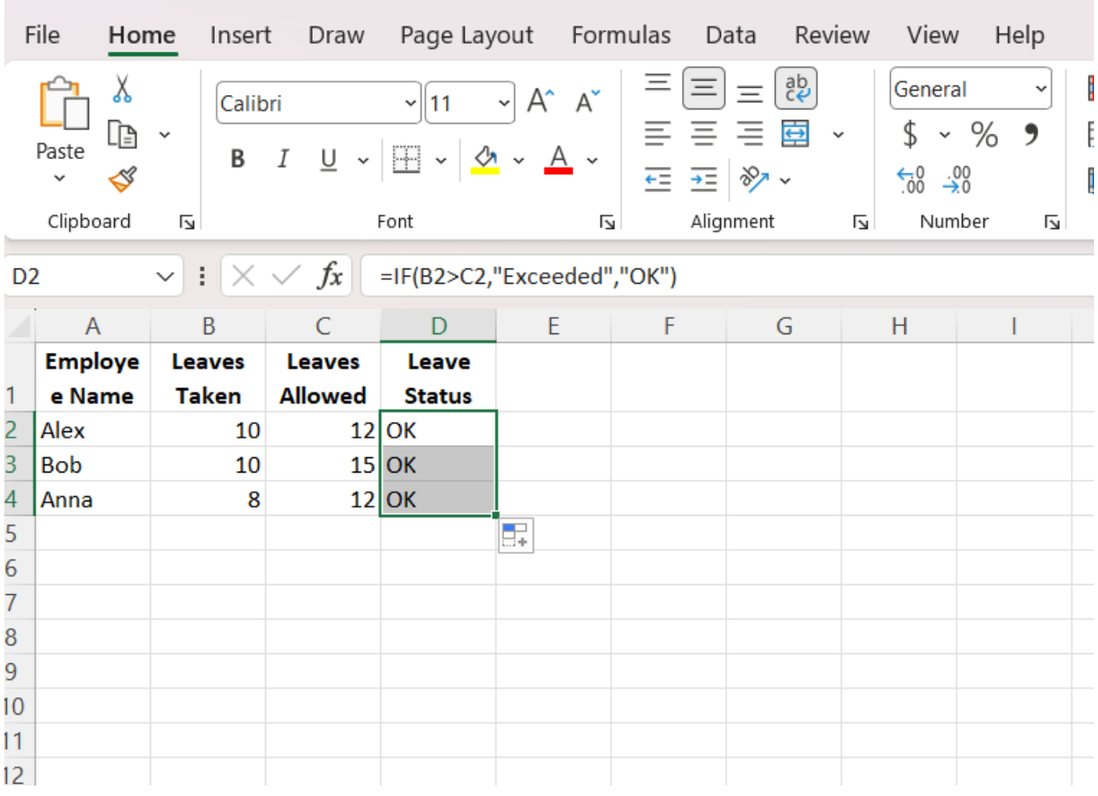
Formula :- =IF(B2>C2,"Exceeded","OK")

📖 Explanation:

- B2>C2 → Checks if taken leaves are more than allowed leaves
- "Exceeded" → If condition is TRUE
- "OK" → If condition is FALSE

✅ Apply the Formula:

1. Insert a new column named **Leave Status**.
2. Enter the formula in the first row.
3. Press **Enter**.
4. Drag down to apply to all employees.



7) Find the salary of EmpID = E105 using INDEX-MATCH Function.

→

Formula:- =INDEX(B2:B5, MATCH("E105", A2:A5, 0))

📖 **Explanation:**

🔹 **MATCH("E105", A2:A5, 0)**

- Searches for **E105** in EmpID column
- 0 means exact match
- Returns the row position

🔹 **INDEX(B2:B5, row_number)**

- Returns the salary from the Salary column based on row position

8) Use the XLOOKUP function to find the Department of the employee with Emp ID = E303.

→

🔹 **Step 1:**

Click on the cell where you want the result (for example, **D2**).

🔹 **Step 2:**

Type the XLOOKUP formula:

=XLOOKUP("E303", A2:A5, B2:B5)

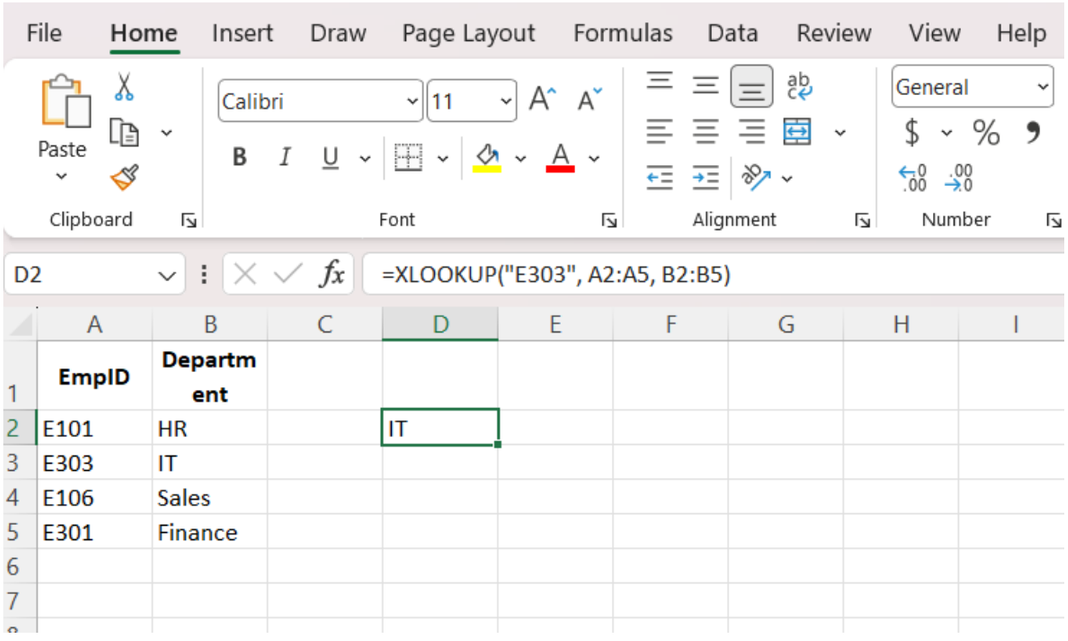
✅ **How the Formula Works**

🔎 **Breakdown:**

- "E303" → Lookup value (Employee ID we are searching for)
- A2:A5 → Lookup array (EmpID column)
- B2:B5 → Return array (Department column)

Excel:

1. Searches for **E303** in column A
2. Finds it in the second row
3. Returns the corresponding value from column B
4. Result = **IT**


File
Home
Insert
Draw
Page Layout
Formulas
Data
Review
View
Help
Paste
Clipboard
Calibri
11
Font
Alignment
General
Number
D2
=XLOOKUP("E303", A2:A5, B2:B5)
EmpID
Department
E101
HR
IT
E303
IT
E106
Sales
E301
Finance