

Excel Learning Manual: VLOOKUP, Data Validation, and IF Statements

1. VLOOKUP: Looking Up Data from a Table

What is VLOOKUP?

VLOOKUP (Vertical Lookup) is a function in Excel that searches for a value in the first column of a table and returns a value from the same row in another column. It's perfect for looking up data from a table where the data is sorted in columns.

The syntax of VLOOKUP:

`=VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])`

- `lookup_value`: The value you want to search for.
- `table_array`: The range of cells that contains the data.
- `col_index_num`: The column number (from the left) of the data you want to retrieve.
- `[range_lookup]`: Optional. TRUE for an approximate match, or FALSE for an exact match.

Example:

Let's say we have the following table of employee details, and we want to look up the salary of a specific employee.

Employee Name	Position	Salary
John Smith	Manager	£45,000
Jane Doe	Assistant	£25,000
Alice Johnson	Director	£55,000

To find Jane Doe's salary:

=VLOOKUP("Jane Doe", A2:C4, 3, FALSE)

This will return £25,000.

Exercises:

1. Lookup Employee Position: Given the table above, use VLOOKUP to find the position of "Alice Johnson".
2. Find Salary: Modify the above VLOOKUP formula to find the salary of "John Smith".

2. Data Validation: Creating a Dropdown List for Value Selection

What is Data Validation?

Data validation is a feature in Excel that helps ensure that users enter valid data into a cell. You can use it to create dropdown lists, which allows the user to select a value rather than typing it.

Example:

To create a dropdown list of positions in Excel:

1. Select the cell where you want the dropdown list (e.g., D2).
2. Go to the Data tab on the Ribbon.
3. Click Data Validation in the Data Tools group.
4. In the Settings tab, choose List under Allow.
5. In the Source box, type the positions separated by commas:
Manager, Assistant, Director.

Now, when you click on D2, you'll see a dropdown list with those three positions.

Exercises:

1. Create a Dropdown for Employee Name: Use the data validation tool to create a dropdown list for the employee names in Column A.

2. Create a Dropdown for Salary Ranges: Set up a dropdown list for salary ranges based on the data from the table. Include salary options such as £20,000 - £30,000, £30,000 - £40,000, and so on.

3. Using IF Statements: Handling Errors and Conditions

What is an IF Statement?

The IF function in Excel allows you to make logical comparisons. It checks if a condition is true or false and returns one value if true and another if false.

The syntax of IF:

`=IF(logical_test, value_if_true, value_if_false)`

- logical_test: The condition you want to check.
- value_if_true: The value to return if the condition is true.
- value_if_false: The value to return if the condition is false.

Example:

Suppose we want to check if an employee's salary is greater than £30,000 and return 'Above Threshold' or 'Below Threshold'. Here's the formula:

`=IF(C2>30000, "Above Threshold", "Below Threshold")`

This will return "Above Threshold" for salaries over £30,000, or "Below Threshold" for salaries under £30,000.

Using IF for Error Handling

Sometimes, formulas like VLOOKUP can return errors, especially if the lookup value is not found. We can use the IFERROR function to handle these errors and provide a more user-friendly response.

Syntax for IFERROR:

`=IFERROR(value, value_if_error)`

Example:

Let's improve the VLOOKUP example by handling potential errors:
=IFERROR(VLOOKUP("Tom", A2:C4, 3, FALSE), "Employee Not Found")
If 'Tom' is not found, the formula will return "Employee Not Found" instead of showing an error.

Exercises:

1. Check Salary Threshold: Use an IF statement to check if an employee's salary is above £40,000 or not. Return "High Salary" if true, and "Low Salary" if false.
2. Handle Lookup Error: Use the IFERROR function to handle a situation where the VLOOKUP formula fails (e.g., searching for an employee not in the list).