Macro Programming

Vignesh V

Department of Computer Applications

vigneshv@pes.edu

Macro Programming

Lookup and Reference Functions

Vignesh V
Department of Computer Applications

Introduction

Lookup and Reference Functions

Excel's Lookup and Reference Functions are powerful tools designed to help users search for and retrieve data from large datasets efficiently.

It includes VLOOKUP, HLOOKUP, INDEX, MATCH, INDIRECT, and OFFSET. Each function has unique capabilities that can be leveraged to perform complex data retrieval tasks.

Lookup and Reference Functions Importance

- Streamlining Data Retrieval

- Enhancing Data Accuracy

- Improving Efficiency

- Facilitating Complex Analysis

- Supporting Decision-Making

VLOOKUP

VLOOKUP, or "Vertical Lookup," is one of Excel's most widely used functions.

This function is particularly useful when dealing with large datasets where you need to find and retrieve data quickly.

Aim of VLOOKUP

- Data Retrieval
- Database Management
- Automation

Syntax

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

VLOOKUP

Advantages of VLOOKUP

- Ease of Use: VLOOKUP is straightforward and easy to use, especially for beginners.
- Widespread Adoption: As one of the most commonly used functions in
- Excel, VLOOKUP is well-documented and widely supported, making it easy to find resources and support.
- Compatibility: VLOOKUP is compatible with older versions of Excel

VLOOKUP

Disadvantages of VLOOKUP

- Limited to Rightward Searches: VLOOKUP can only search for values to
  the right of the lookup column. It cannot retrieve data from columns to
  the left, which limits its flexibility.

- Static Column Reference: VLOOKUP requires a static column index
  number, which can lead to errors if columns are added or deleted from
  the data set.

- Approximate Match by Default: By default, VLOOKUP performs an
  approximate match, which can lead to incorrect results if not specified
  otherwise.

Disadvantages of VLOOKUP

- <u>Performance Issues:</u> VLOOKUP can be slower and more resource-intensive compared to alternatives like INDEX-MATCH, especially in large datasets.

- <u>First Match Only:</u> VLOOKUP only returns the first match it finds, which can be problematic if there are duplicate values in the lookup column

VLOOKUP

Where to Use VLOOKUP?

- Data Tables

- Different Worksheets

- Business Applications

VLOOKUP Practical Activity

VLOOKUP

Objective:

o   Use VLOOKUP to find the **price** of a product based on its **name**.

A	B
Product	Price
Pen	10
Pencil	5
Eraser	3
Scale	15
Sharpener	7

VLOOKUP Practical Activity

- In another cell (for example, **D1**), type:

- Pencil
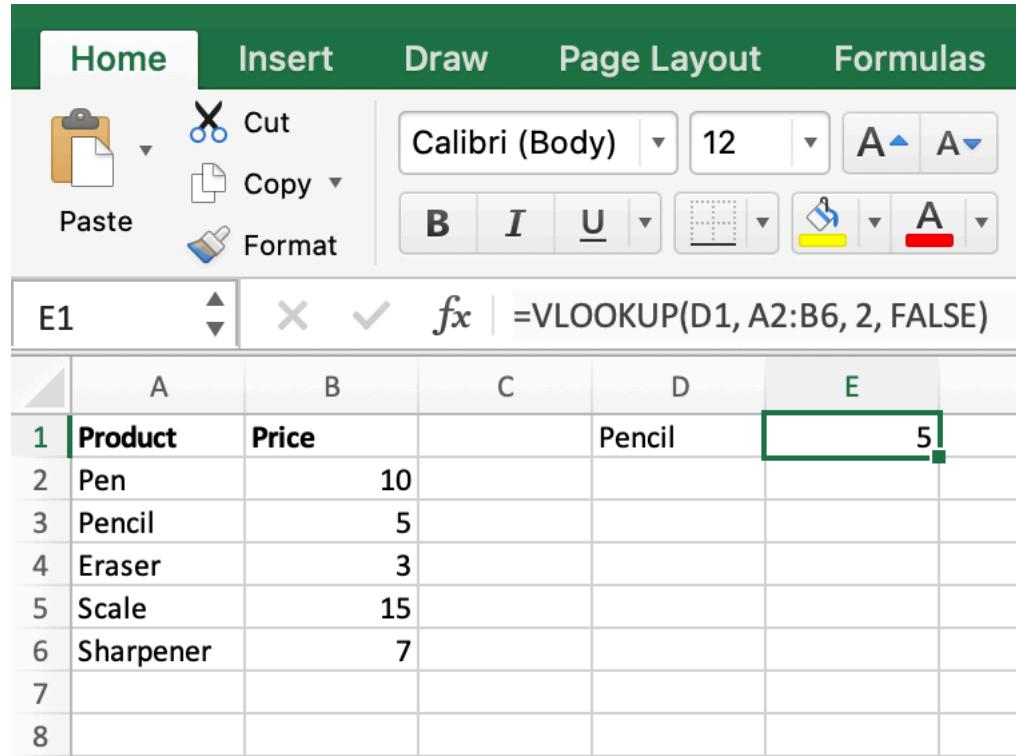
In cell **E1**, use the VLOOKUP formula to get the price of the product:

=VLOOKUP(D1, A2:B6, 2, FALSE)

Macro Programming

VLOOKUP Practical Activity

Home	Insert	Draw	Page Layout	Formulas

Paste | Cut | Copy | Format

Calibri (Body) | 12 | **B** *I* U

E1 | =VLOOKUP(D1, A2:B6, 2, FALSE)

	A	B	C	D	E
1	**Product**	**Price**		Pencil	5
2	Pen	10			
3	Pencil	5			
4	Eraser	3			
5	Scale	15			
6	Sharpener	7			
7					
8					

VLOOKUP Practical Activity

- Use VLOOKUP to fetch student marks from a data table based on their student ID.

- In **Sheet1**, enter the following table (Range: A2:C6):

Student ID	Name	Marks
S001	Ananya	89
S002	Bharat	76
S003	Charan	92
S004	Divya	68
S005	Eshwar	85

VLOOKUP Practical Activity

- In **Sheet2**, set up:

A	B
Student ID	S003
Name	
Marks	

VLOOKUP Practical Activity

Task:

In **Sheet2, Cell B2**, use VLOOKUP to fetch the **Name**:

=VLOOKUP(B1, Sheet1!A2:C6, 2, FALSE)

In **Cell B3**, fetch the **Marks**:
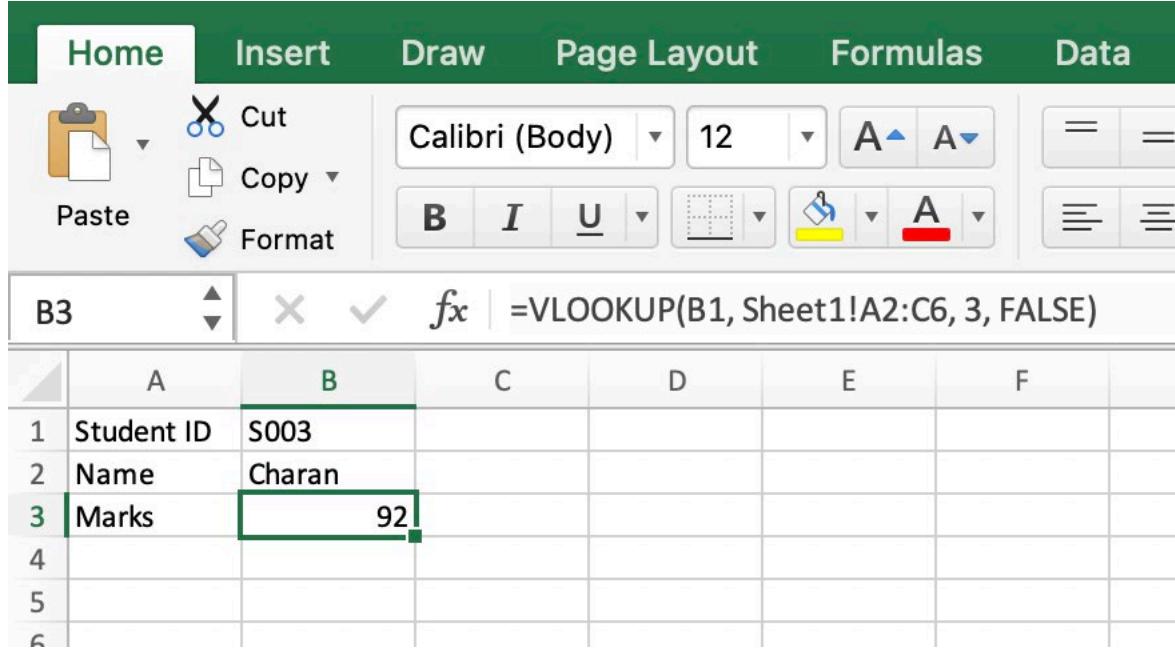
=VLOOKUP(B1, Sheet1!A2:C6, 3, FALSE)

VLOOKUP Practical Activity

Result:

HLOOKUP

- The HLOOKUP function in Excel stands for "Horizontal Lookup." It is a powerful tool used to search for a specific value in the first row of a table or range and then return a value from the same column in a specified row.

- Features of HLOOKUP:
  - Horizontal Search
  - Flexible Data Retrieval
  - Exact or Approximate Match

HLOOKUP

- HLOOKUP Syntax
    =HLOOKUP(lookup_value, table_array, row_index_num, [range_lookup])

Parameters:

- <u>lookup_value:</u> The value you want to search for in the first row of the table.

- <u>table_array:</u> The range of cells that contains the data.Excel will search horizontally across the first row of this range.

HLOOKUP

- row_index_num: The row number (within the table_array) from which to return the result.First row = 1, second row = 2, and so on.

- [range_lookup] *(Optional):* FALSE → Exact match. TRUE → Approximate match (used when values are sorted)

HLOOKUP

A	B	C
January	February	March
500	600	700
300	400	500

=HLOOKUP("February", A1:C3, 2, FALSE)

HLOOKUP

- Advantages of HLOOKUP
  - o Horizontal Data Handling
  - o Ease of Use
  - o Exact and Approximate Matches

Practical Activity: HLOOKUP

Find Monthly Sales Target

- **Objective:** Use HLOOKUP to retrieve the **monthly sales target** for a specific product.

	Jan	Feb	Mar
Product A	1000	1200	1500
Product B	900	1100	1300

- In **cell F1**, type:

    Feb

Practical Activity: HLOOKUP
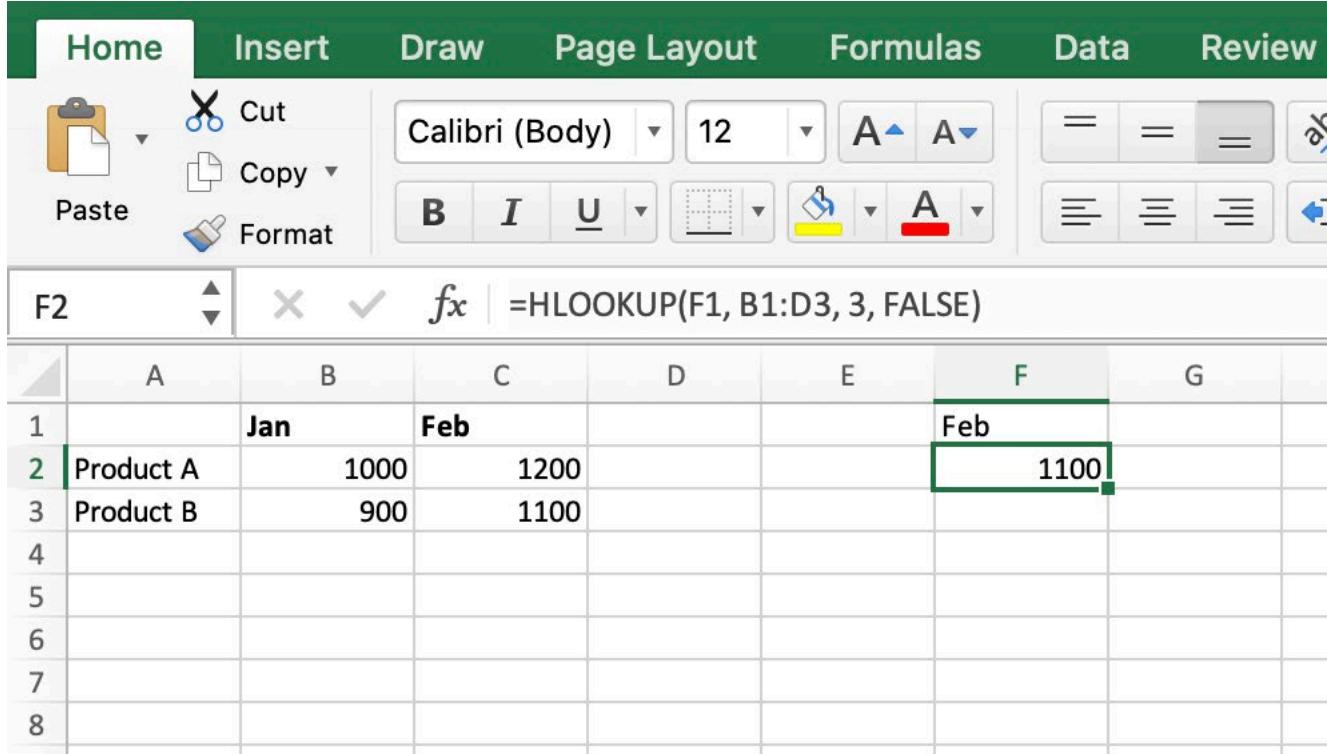
- In **cell F2**,

    write a formula to get the **sales target for Product B in February**:

    =HLOOKUP(F1, B1:D3, 3, FALSE)

Practical Activity: HLOOKUP

THANK YOU

Vignesh V
Department of Computer Applications
vigneshv@pes.edu