

Count	Employee ID	Name	Age	Department	SSN
1	123	Alice	25	HR	A123
2	201	Bob	30	IT	B456
3	888	Carol	27	Finance	C789
4	358	David	35	Marketing	D012
5	965	Eve	29	Sales	E345

**VLOOKUP** It searches for a value in the first column of a range and returns a value in the same row from a specified column.

**ISSUE:** Can only search for values in the first column

**VLOOKUP(lookup\_value, table\_array, col\_index\_num, match\_type)**

lookup\_value The value to search for in the first column

table\_array The range of cells containing the data

col\_index\_num The column number in the range from which to retrieve the value

match\_type Optional. TRUE for approximate match (default) or FALSE for exact match

Output: The value from the specified column in the same row as the lookup\_value

**MATCH** Searches for a specified value in a column and returns the relative position of that value within the column

**MATCH(lookup\_value, lookup\_array, match\_type)**

lookup\_value The value to search for

lookup\_array The column containing the data

match\_type Optional. 0 for an exact match, 1 for less than, -1 for greater than.

Output: The position of the value in the column

**INDEX** Returns the value of a cell in a given range using row and column (I call it the battleship function because you give it coordinates, it returns value)

**INDEX(table\_array, row\_num, column\_num)**

table\_array The range of cells containing the data

row\_num The row number in the array

column\_num The column number in the array

Output: The value of a specified cell

**Example**  
Find the Department for Employee ID 888

<b>VLOOKUP</b>	VLOOKUP(888; B2:E6; 4; FALSE)	Finance
<b>INDEX</b>	INDEX(B2:E6; 3; 4)	Finance
<b>MATCH</b>	MATCH(888; B2:B6; 0)	3
<b>INDEX AND MATCH</b>	INDEX(B2:E6; MATCH(888; B2:B6; 0); 4)	Finance
<b>XLOOKUP</b>	XLOOKUP(888; B2:B6; E2:E6)	Finance

**VLOOKUP(lookup\_value, table\_array, col\_index\_num, match\_type)**  
**INDEX(table\_array, row\_num, column\_num)**  
**MATCH(lookup\_value, lookup\_array, match\_type)**

You can combine INDEX and MATCH to get a more versatile VLOOKUP

**Step 1.** Use MATCH to find the row number of the lookup value

**Step 2.** Use INDEX to retrieve the value from a specified column based on the row number from MATCH

**INDEX(table\_array, MATCH(lookup\_value, lookup\_array, 0), column\_num)**

table\_array The range of cells containing the data

lookup\_value The value to search for

lookup\_array The range of cells

match\_type 0 for exact match

column\_num The column number in the array

row\_num We use lookup\_value, lookup\_array, match\_type in the MATCH function to get the row\_num that the INDEX table needs

Output: The same as a VLOOKUP but with the advantage that you can specify which column contains the lookup value through the lookup\_array in the MATCH function.