

VLOOKUP function: How to use it and specific examples

The Vlookup function is widely used in Excel. Below are detailed instructions on how to use the Vlookup function in Microsoft Excel.

The Vlookup function is widely used in Excel. Below are detailed instructions **on how to use the Vlookup function in Microsoft Excel** .

You want to check a specific value in an Excel spreadsheet and look up information about it. Running a VLOOKUP saves you considerable effort in this case. It's one of the best ways to perform a vertical query in Microsoft Excel. This article will explain the meaning, usage, and provide illustrative examples of the VLOOKUP function in Microsoft Excel.

What is the VLOOKUP function?

The VLOOKUP function is a data lookup function in Excel . Simply put, starting from a given data entry, the VLOOKUP function will search a list of related data in *a database* to find other data related to that entry. Database lists can be of many types, including tables about company personnel, product categories, customer lists, or anything else. Below is a list of products that company A is selling on the market:

	A	B	C	D
1	Item Code	Description	Price	In stock
2	W44832	Washing machine	\$ 450.00	3
3	D72329	Dishwasher	\$ 498.00	1
4	R99245	Refrigerator	\$ 677.00	8
5	P97347	Plasma TV 47inch	\$ 1,599.00	4
6	P97350	Plasma TV 50inch	\$ 1,899.00	10
7	L44242	LCD TV 42inch	\$ 1,399.00	3
8				
9				
10				

Database tables often have identifying markers for each product. In the table above, the special identifying marker is the "Item Code" column. **Note** : *To use the VLOOKUP function, the data table must have a column containing an identifying marker such as a code or ID, and it must be the first column as in the table above.*

The VLOOKUP function is perhaps the most famous function in Excel, but for both good and bad reasons. On the good side, VLOOKUP is very easy to use and does something very useful. Especially for new users, watching the VLOOKUP function scan a table, find a match, and return an accurate result is incredibly enjoyable. Mastering the VLOOKUP function is a necessary skill, from beginners to advanced Excel users.

Conversely, unlike INDEX and MATCH (or XLOOKUP), the VLOOKUP function requires a complete table with lookup values in the first column. This makes using the VLOOKUP function with multiple criteria difficult. Additionally, VLOOKUP's default matching behavior makes it easy to get inaccurate results. But don't worry! The key to successfully using the VLOOKUP function is mastering the basics.

VLOOKUP has 4 arguments : lookup_value, table_array, column_index_num and range_lookup. Where:

1. **lookup_value** is the value we are looking for
2. **table_array** This is the vertical data range to search within. The first column of **table_array** must contain the lookup values to be searched.
3. The argument **column_index_num** is the column number of the value to be retrieved, where the first column of **table_array** is column 1.
4. Finally, **range_lookup** control the behavior to find a matching value.
 1. If **range_lookup** the result is FALSE (or zero), the VLOOKUP function will perform an exact match.
 2. If **range_lookup** the answer is TRUE (or 1), the VLOOKUP function will perform an approximate match.
 3. *Importantly* , **range_lookup** this is optional and defaults to TRUE; however, for an accurate approximate search, the first column in the database table must be sorted alphabetically (A-Z).

The formula for the VLOOKUP function in Excel.

The VLOOKUP function in Excel has the following formula:

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

In there:

1. **VLOOKUP**: This is the function name.
2. **The parameters in bold** are required.
3. **lookup_value**: The value used for lookup
4. **table_array**: The table containing the values to be searched, in absolute form with a \$ sign in front, for example: \$A\$3:\$E\$40.
5. **col_index_num**: The column number containing the lookup value in **table_array**. For example, in table \$A\$3:\$E\$40, column B contains the lookup value, so **col_index_num** here will be 2; in table \$C\$3:\$F\$40, column E contains the lookup value, so **col_index_num** here will be 3.
6. **range_lookup**: This is the search range. TRUE is equivalent to 1 (relative lookup), FALSE is equivalent to 0 (absolute lookup). This parameter is not always required in the formula.

Relative lookups can only be applied when the values to be searched in the **table_array** are already sorted (ascending, descending, or alphabetically). For such tables, you can use relative lookups, similar to using an

infinite IF function . For values ??that cannot be sorted or have not yet been sorted, use absolute lookups to find the exact value.

Video tutorial on using the VLOOKUP function.

Examples illustrating the VLOOKUP function

Example 1: The VLOOKUP function to evaluate and rank students and employees.

Let's say you have a student report card like this:

No.	Full name	Average score	Ranking
1	Nguyen Hoang Anh	9.1	
2	Tran Van Anh	8.3	
3	Nguyen Quang Vinh	9.5	
4	Tran Hong Quang	8.6	
5	Do Thanh Hoa	5.0	
6	Le Hong Ngoc	4.5	
7	Doan Thanh Van	7.2	
8	Ngo Ngoc Bich	0.0	
9	Hoang Thu Thao	6.6	
10	Dinh Minh Duc	8.7	

And the ranking system is as follows:

Ranking regulations	
0	Weak
5.5	Medium
7	Rather
8.5	Good

Now we will use the VLOOKUP function to input the grades for the students. Notice that the grading table is sorted from lowest to highest (from weakest to best), so in this case we can use a relative lookup.

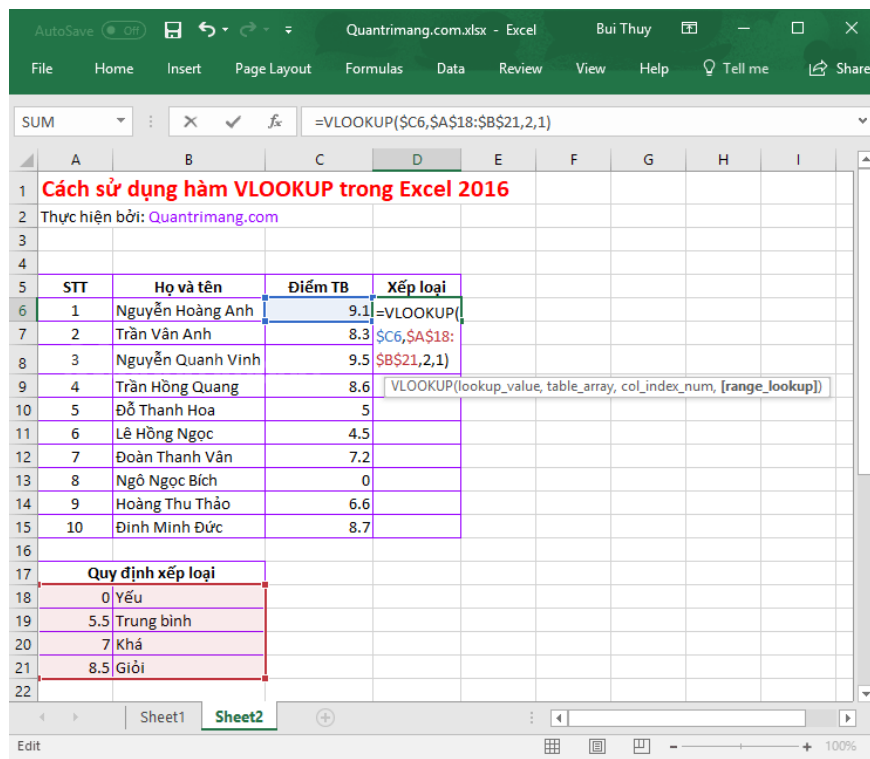
In Excel, these two tables are presented as follows:

STT	Họ và tên	Điểm TB	Xếp loại
1	Nguyễn Hoàng Anh	9.1	
2	Trần Văn Anh	8.3	
3	Nguyễn Quang Vinh	9.5	
4	Trần Hồng Quang	8.6	
5	Đỗ Thanh Hoa	5.0	
6	Lê Hồng Ngọc	5.6	
7	Đoàn Thanh Vân	7.2	
8	Ngô Ngọc Bích	5.2	
9	Hoàng Thu Thảo	6.6	
10	Đình Minh Đức	8.7	

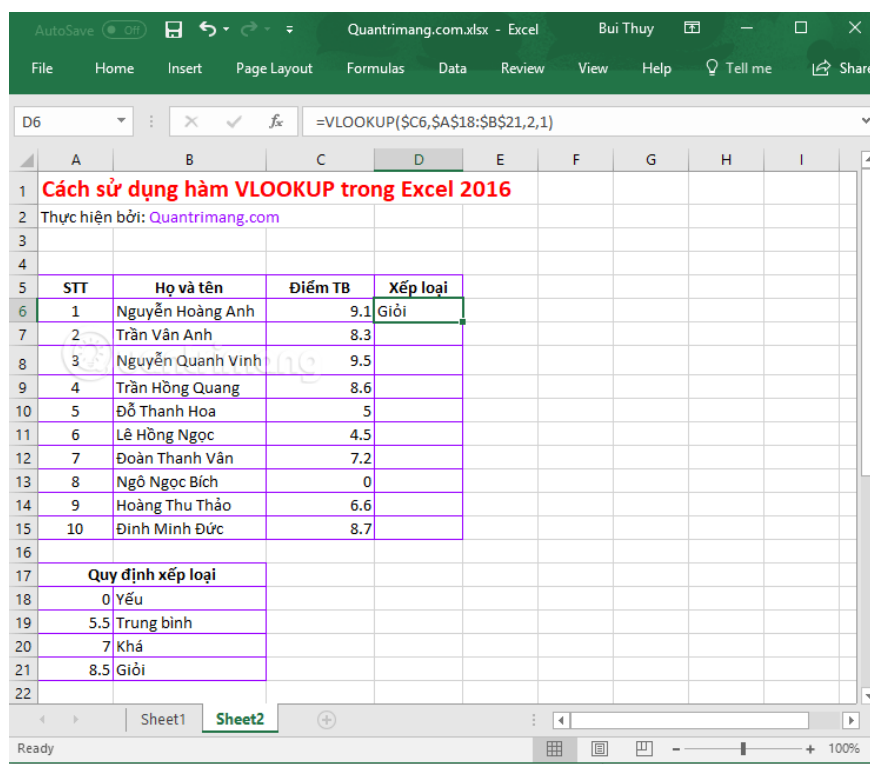
Quy định xếp loại	
0	Yếu
5.5	Trung bình
7	Khá
8.5	Giỏi

Here, the value to be searched is in column C, starting from row 6. The search range is \$A\$18:\$B\$21, and the column containing the search value is number 2.

In cell D6, enter the formula: `=VLOOKUP($C6,$A$18:$B$21,2,1)`. This is a relative lookup formula; you can perform an absolute lookup if you wish (or because the ranking table is not yet sorted) by adding 0 to the formula like this: `=VLOOKUP($C6,$A$18:$B$21,2,0)`. Press **Enter**.



Click on cell D6; a small square will appear in the bottom right corner. Click on it and drag it down the entire table to copy the ranking formula for the remaining students.



Then, using the VLOOKUP function, we get the following result to classify students' academic performance:

STT	Họ và tên	Điểm TB	Xếp loại
1	Nguyễn Hoàng Anh	9.1	Giỏi
2	Trần Văn Anh	8.3	Khá
3	Nguyễn Quanh Vinh	9.5	Giỏi
4	Trần Hồng Quang	8.6	Giỏi
5	Đỗ Thanh Hoa	5.0	Yếu
6	Lê Hồng Ngọc	5.6	Trung bình
7	Đoàn Thanh Vân	7.2	Khá
8	Ngô Ngọc Bích	5.2	Yếu
9	Hoàng Thu Thảo	6.6	Trung bình
10	Đình Minh Đức	8.7	Giỏi

Quy định xếp loại	
0	Yếu
5.5	Trung bình
7	Khá
8.5	Giỏi

Are you wondering why we use a \$ before C6? The \$ helps to fix column C, only changing the rows when you drag the formula down to the entire table. And \$A\$18:\$B\$21 helps to fix the ranking table, preventing it from changing when you drag the formula.

Example 2: The VLOOKUP function performs an absolute lookup to retrieve data.

Let's say you have a table of employees storing employee IDs, full names, and job titles. Another table stores employee IDs, hometowns, and educational qualifications. Now, if you want to fill in the hometown and educational qualifications for each employee, how would you do that?

Let's say you have a table of employees and their hometowns as follows:

AutoSave Off | Quantrimang.com.xlsx - Excel | Bui Thuy

File Home Insert Page Layout Formulas Data Review View Help Tell me

G20

	A	B	C	D	E	F	G	H
1	Cách sử dụng hàm VLOOKUP trong Excel 2016							
2	Thực hiện bởi: Quantrimang.com							
3	Mã NV	Họ và tên	Chức vụ	Quê quán	Trình độ			
4	QTM01	Nguyễn Hoàng Anh	Trưởng phòng					
5	QTM02	Trần Văn Anh	Nhân viên					
6	QTM03	Nguyễn Quang Vinh	Phó phòng					
7	QTM04	Trần Hồng Quang	Nhân viên					
8	QTM05	Đỗ Thanh Hoa	Nhân viên					
9	QTM06	Lê Hồng Ngọc	Nhân viên					
10	QTM07	Đoàn Thanh Vân	Kế toán					
11	QTM08	Ngô Ngọc Bích	Nhân viên					
12	QTM09	Hoàng Thu Thảo	Lễ tân					
13	QTM10	Đình Minh Đức	Kế toán					
14								
15	Mã NV	Quê quán	Trình độ			Họ tên	Quê quán	
16	QTM01	Hà Nội	Đại học			Nguyễn Hoàng Anh		
17	QTM03	Hà Nam	Cao đẳng			Trần Văn Anh		
18	QTM07	Hải Dương	Thạc sĩ			Nguyễn Quang Vinh		
19	QTM06	Bắc Ninh	Đại học					
20	QTM08	Hà Nội	Cao đẳng					
21	QTM10	Bắc Giang	Cao đẳng					
22	QTM04	Hải Phòng	Đại học					
23	QTM05	Hà Nam	Cao đẳng					
24	QTM09	Hải Dương	Cao đẳng					
25	QTM02	Bắc Ninh	Cao đẳng					
26								

Now you want to fill in the employee's hometown information. In cell D4, enter the following absolute lookup formula: =Vlookup(\$A4,\$A\$16:\$C\$25,2,0)

AutoSave Off | Quantrimang.com.xlsx - Excel | Bui Thuy

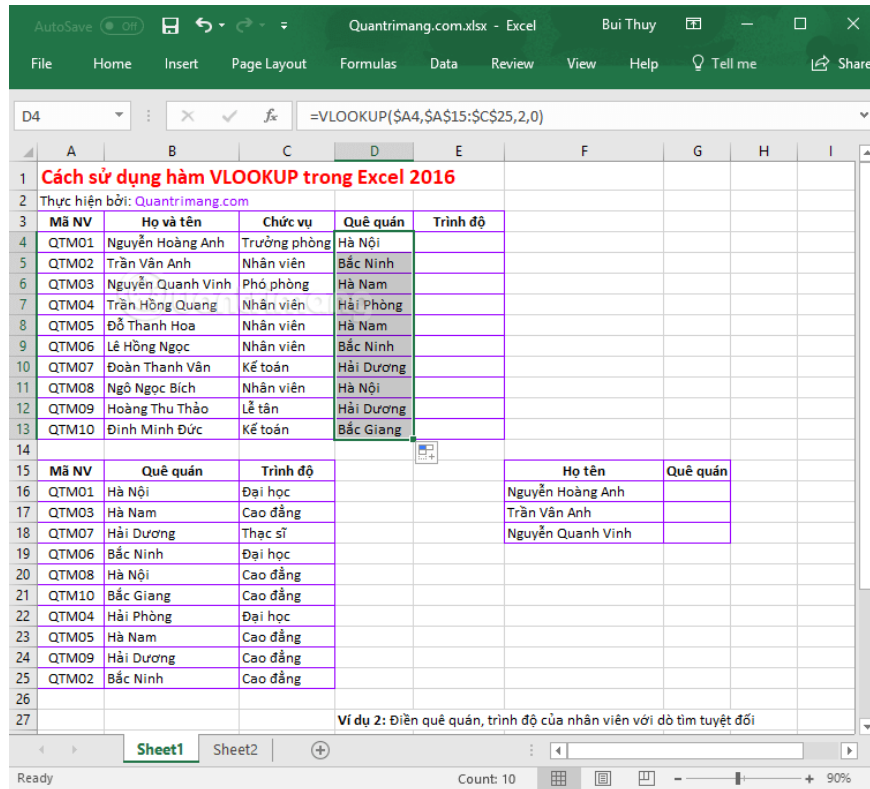
File Home Insert Page Layout Formulas Data Review View Help Tell me Share

SUM | =VLOOKUP(\$A4,\$A\$15:\$C\$25,2,0)

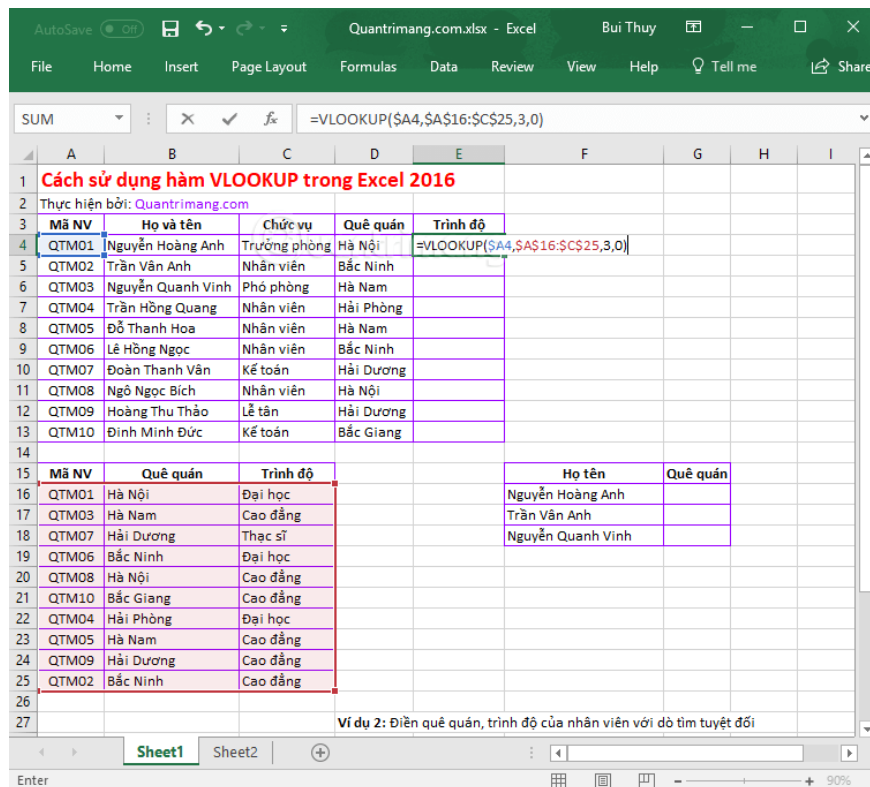
	A	B	C	D	E	F	G	H	I	
1	Cách sử dụng hàm VLOOKUP trong Excel 2016									
2	Thực hiện bởi: Quantrimang.com									
3	Mã NV	Họ và tên	Chức vụ	Quê quán	Trình độ					
4	QTM01	Nguyễn Hoàng Anh	Trưởng phòng	=VLOOKUP(\$A4,\$A\$15:\$C\$25,2,0)						
5	QTM02	Trần Văn Anh	Nhân viên							
6	QTM03	Nguyễn Quang Vinh	Phó phòng							
7	QTM04	Trần Hồng Quang	Nhân viên							
8	QTM05	Đỗ Thanh Hoa	Nhân viên							
9	QTM06	Lê Hồng Ngọc	Nhân viên							
10	QTM07	Đoàn Thanh Vân	Kế toán							
11	QTM08	Ngô Ngọc Bích	Nhân viên							
12	QTM09	Hoàng Thu Thảo	Lễ tân							
13	QTM10	Đình Minh Đức	Kế toán							
14										
15	Mã NV	Quê quán	Trình độ			Họ tên	Quê quán			
16	QTM01	Hà Nội	Đại học			Nguyễn Hoàng Anh				
17	QTM03	Hà Nam	Cao đẳng			Trần Văn Anh				
18	QTM07	Hải Dương	Thạc sĩ			Nguyễn Quang Vinh				
19	QTM06	Bắc Ninh	Đại học							
20	QTM08	Hà Nội	Cao đẳng							
21	QTM10	Bắc Giang	Cao đẳng							
22	QTM04	Hải Phòng	Đại học							
23	QTM05	Hà Nam	Cao đẳng							
24	QTM09	Hải Dương	Cao đẳng							
25	QTM02	Bắc Ninh	Cao đẳng							
26										
27										

Ví dụ 2: Điền quê quán, trình độ của nhân viên với dò tìm tuyệt đối

Then press Enter. Click on the small square that appears in the corner of cell D4 and drag it down across the entire table to copy the formula for other employees.



To fill in the qualification information for the employees, in cell E4 enter the following absolute lookup formula:
=VLOOKUP(\$A4,\$A\$16:\$C\$25,3,0)



Continue pressing Enter and scrolling down to copy the formula for the remaining employees, and you will get the following result:

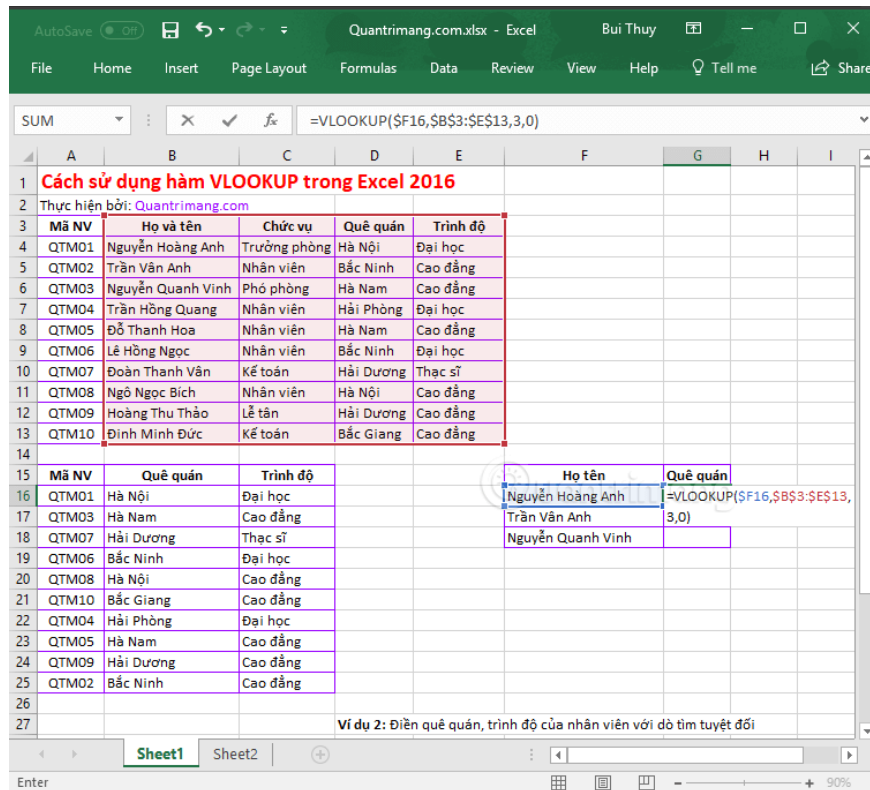
Mã NV	Họ và tên	Chức vụ	Quê quán	Trình độ
QTM01	Nguyễn Hoàng Anh	Trưởng phòng	Hà Nội	Đại học
QTM02	Trần Văn Anh	Nhân viên	Bắc Ninh	Cao đẳng
QTM03	Nguyễn Quang Vinh	Phó phòng	Hà Nam	Cao đẳng
QTM04	Trần Hồng Quang	Nhân viên	Hải Phòng	Đại học
QTM05	Đỗ Thành Hoa	Nhân viên	Hà Nam	Cao đẳng
QTM06	Lê Hồng Ngọc	Nhân viên	Bắc Ninh	Đại học
QTM07	Đoàn Thanh Vân	Kế toán	Hải Dương	Thạc sĩ
QTM08	Ngô Ngọc Bích	Nhân viên	Hà Nội	Cao đẳng
QTM09	Hoàng Thu Thảo	Lễ tân	Hải Dương	Cao đẳng
QTM10	Đình Minh Đức	Kế toán	Bắc Giang	Cao đẳng

Mã NV	Quê quán	Trình độ	Họ tên	Quê quán
QTM01	Hà Nội	Đại học	Nguyễn Hoàng Anh	
QTM03	Hà Nam	Cao đẳng	Trần Văn Anh	
QTM07	Hải Dương	Thạc sĩ	Nguyễn Quang Vinh	
QTM06	Bắc Ninh	Đại học		
QTM08	Hà Nội	Cao đẳng		
QTM10	Bắc Giang	Cao đẳng		
QTM04	Hải Phòng	Đại học		
QTM05	Hà Nam	Cao đẳng		
QTM09	Hải Dương	Cao đẳng		
QTM02	Bắc Ninh	Cao đẳng		

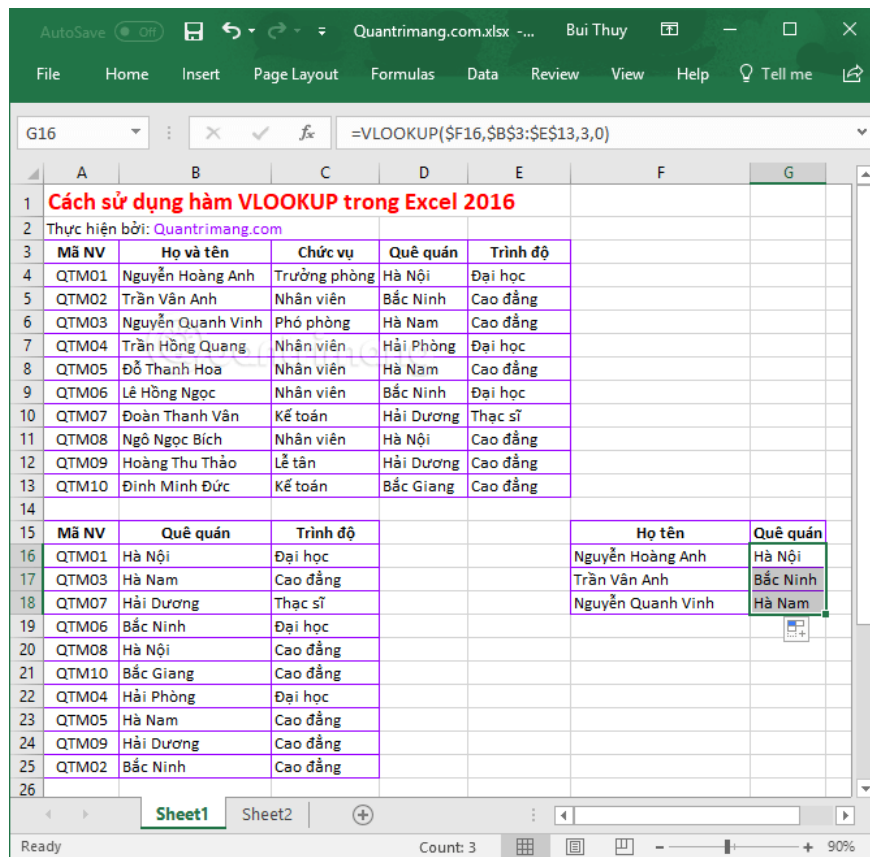
Example 3: Using VLOOKUP to extract data

Continuing with the dataset from example 2, we will now find the hometowns of three employees: Nguyen Hoang Anh, Tran Van Anh, and Nguyen Quang Vinh. I have extracted them into a new table F15:G18.

I will perform this lookup on table A3:E13, after filling in the place of origin and educational level. Then, enter the following absolute lookup formula into cell G16: =VLOOKUP(\$F16,\$B\$3:\$E\$13,3,0) > press Enter.



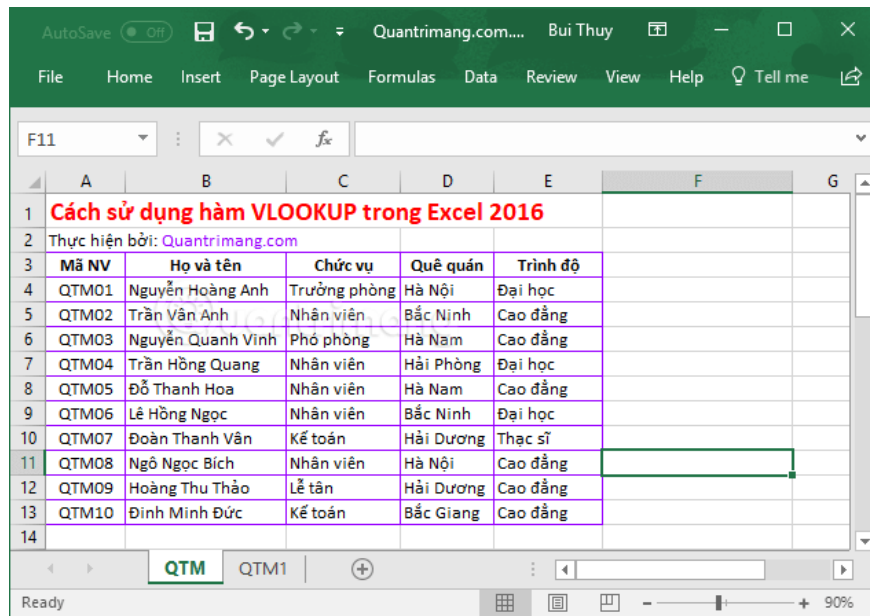
Copying the formula for the remaining two employees gives us the following result:



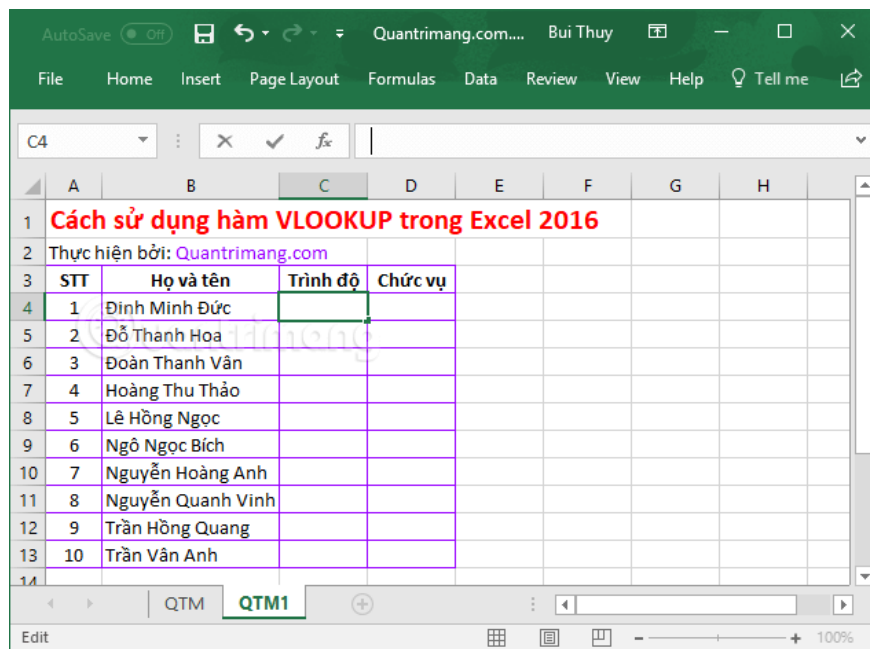
Note that in this example, the lookup value is in column B, so the lookup range starts from column B, not column A.

Example 4: Using the VLOOKUP function on two different Excel sheets.

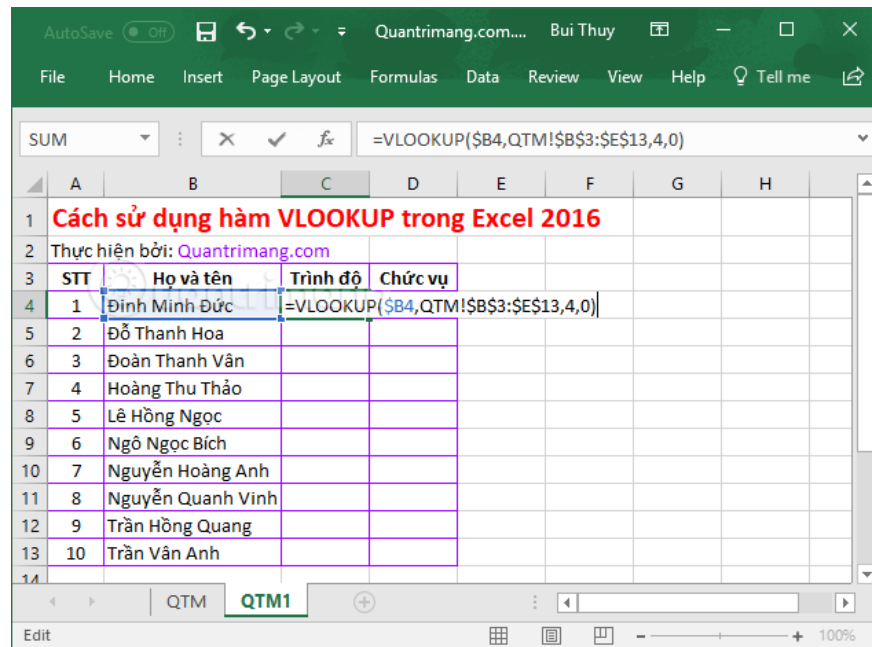
Returning to the dataset in example 2, after the employees have been filled in with their qualifications and hometown, we name the sheet QTM.



In another sheet of the spreadsheet, named QTM1, you need to retrieve information about the employee's qualifications and job title, with the order of employees changed. This is where you see the true power of the VLOOKUP function.



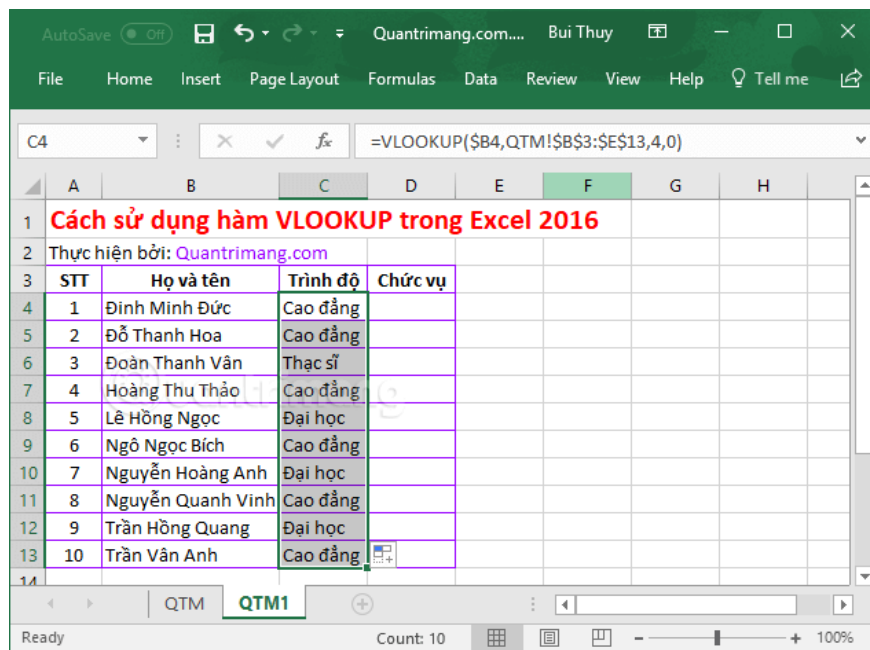
To look up the "Skill Level" data for an employee, enter the formula: =VLOOKUP(\$B4, QTM!\$B\$3:\$E\$13, 4, 0) into cell C4 of sheet QTM1.



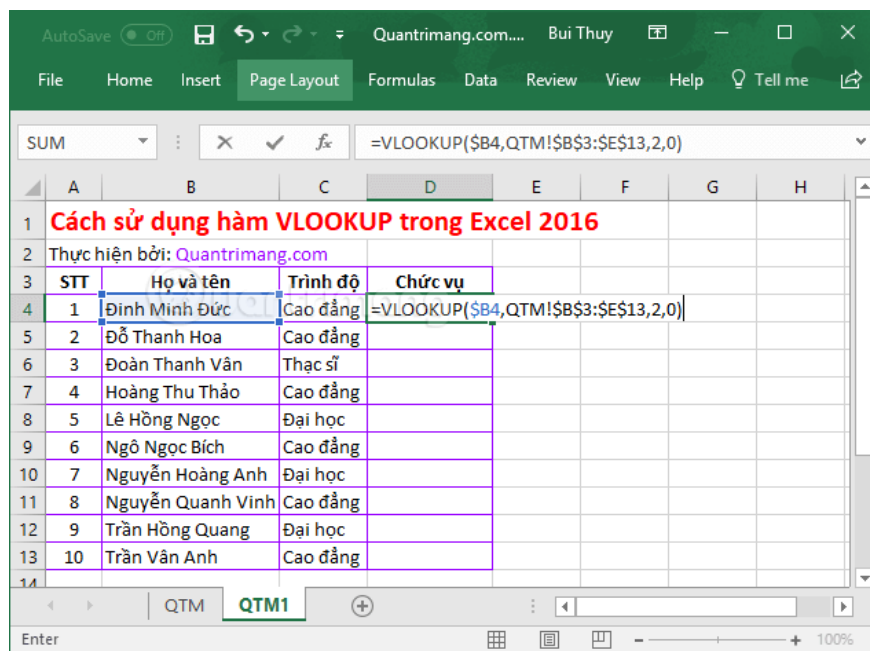
In there:

1. B4 is the column containing the values ??used for searching.
2. QTM! is the name of the sheet containing the table with the values ??to search for. Add an exclamation mark (!) after the sheet name.
3. \$B\$3:\$E\$13 is the table containing the lookup values ??and the sheet containing the table (QTM).
4. 4 is the column number for "Level," starting from the "Full Name" column on the QTM sheet.
5. 0 is an absolute lookup.

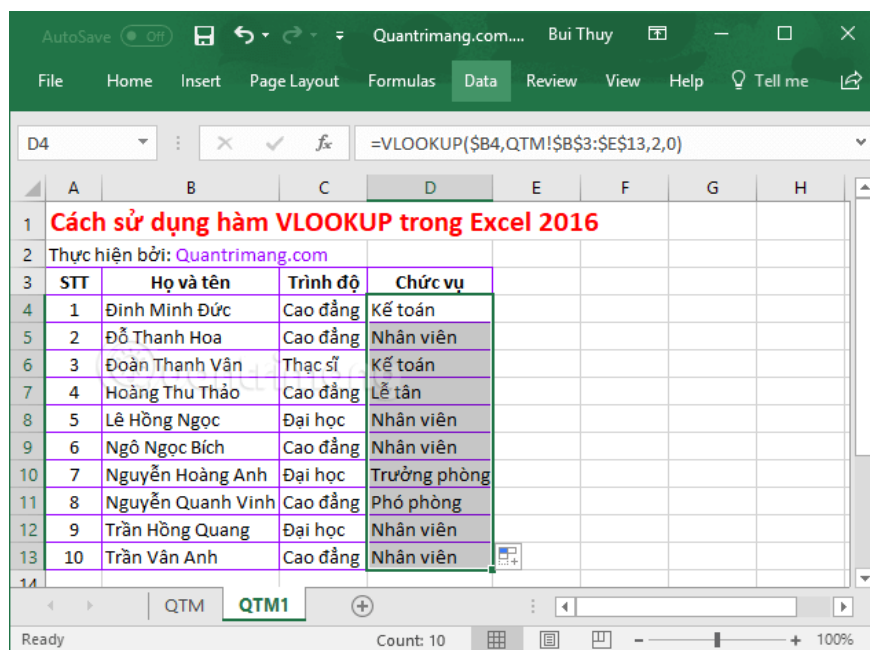
Press Enter, then copy the formula to all the remaining employees in the table to get the following result:



To look up the "Job Title" data of an employee, in cell D4 of sheet QTM1, enter the formula: `=VLOOKUP($B4,QTM!$B$3:$E$13,2,0)`, then press Enter.



Copying the formula for the remaining employees, we get the following:



How to use the VLOOKUP function in Excel with Copilot

You can use Copilot, Microsoft's built-in AI assistant, to build VLOOKUP formulas for you.

Before you get too excited, remember these things:

1. You can only use this feature if you have a Copilot Pro subscription or a Microsoft 365 Personal or Family subscription that includes Copilot.
2. Copilot only works with Excel files stored on OneDrive or SharePoint that have AutoSave enabled.
3. Make sure to format your data as a table (Copilot doesn't work with regular ranges).

Now, let's begin.

1. With the workbook open, click **Copilot** in the toolbar to open a new conversation. Or click any cell and select the **Copilot** icon that appears next to it.
2. Describe what you need in the message bar. For example: "Please write a VLOOKUP formula to retrieve email addresses from Table A to Table B." The more specific your request to the AI assistant, the better.
3. Copilot will generate a recipe, along with a preview of the result, and display it in the chat window.
4. Optionally, you can ask Copilot to adjust the formula until it's exactly what you need.
5. Hover over **Insert column** below the results preview to see the results directly in your spreadsheet. If it looks good, click **Insert column**. Or, you can copy and paste the formula.

It's easy!

What is the VLOOKUP function used for?

First, we need to find the correct answer to the question "what do we use the VLOOKUP function for?".

The VLOOKUP function is used to help retrieve information within a data field or list based on available identifiers.

For example, inserting a VLOOKUP function along with a product code into another spreadsheet will display the information of the product corresponding to that code. This information could include a description, price, or inventory quantity, depending on the formula you write.

The smaller the amount of information to be searched, the more difficult it becomes to write a VLOOKUP function. Typically, you would use this function in a reusable spreadsheet like this example. Each time you enter the appropriate product code, the system will retrieve all the necessary information about that product.

Things to remember about the VLOOKUP function

Here is a list of important things to remember about the VLOOKUP function in Excel:

1. When `range_lookup` omitted, the VLOOKUP function will allow an exact match, but will still use an exact match if one exists.
2. The biggest limitation of this function is that it always retrieves values from the right. The function will take data from the columns to the right of the first column in the table.
3. If the lookup column contains duplicate values, the VLOOKUP function will only match the first value.
4. The function is not case-sensitive.
5. Suppose there is an existing VLOOKUP formula in a spreadsheet. In that case, the formulas might break if you insert a column into the table, because the column index values are hardcoded and do not automatically change when columns are inserted or deleted.
6. VLOOKUP allows the use of wildcards, for example, asterisks (*) or question marks (?).
7. Suppose the table you're working with contains numbers entered as text. If you're only retrieving the numbers as text from one column in the table, that's fine. But if the first column of the table contains numbers entered as text, the **#N/A!** error will be displayed if the lookup value is also not text.
8. **The #N/A!** error occurs if the VLOOKUP function does not find a match for the provided `lookup_value`.
9. **The #REF!** error occurs if:
 1. The `col_index_num` argument is greater than the number of columns in the provided `table_array`.
 2. The formula attempted to reference cells that did not exist.
10. **The #VALUE!** error occurs if:
 1. The `col_index_num` argument is less than 1 or is not recognized as a numeric value.
 2. The `range_lookup` argument is not recognized as either a logical value of TRUE or FALSE.
11. How to use the IF function in Excel
12. How to use the AVERAGEIF function in Excel

Common mistakes when using the VLOOKUP function

After learning how to use Vlookup, you also need to know the common errors and how to handle them.

The lookup value is in the wrong column.

One of the most common errors you'll encounter when using VLOOKUP formulas is that the function returns only the **#N/A** value. This error occurs when it cannot find the lookup value you requested VLOOKUP to search for.

In some cases, you can use the XLOOKUP function instead of VLOOKUP; however, it's easier to fix this error with the VLOOKUP function.

Country	Number of Employees	City
United Kingdom	5400	Aberdeen
Peru	4400	Acari
United States	8000	Albuquerque
Panama	2300	Alcaldediaz
United States	4800	Alhambra
France	6100	Altkirch
France	5100	Angers
United States	6575	Arlington
Peru	3000	Arma
Canada	6300	Ashcroft
United Kingdom	5400	Ashley
Canada	9700	Assiniboia
United Kingdom	7400	Aston
United States	4200	Athens

City	Number of Employees
Athens	#N/A

How to fix the problem:

The reason VLOOKUP might not find the desired value could be that the value is not in the table. However, if it returns all #N/A values, and the lookup value is text, it's most likely because it's read-only.

When creating a table in Excel for VLOOKUP, make sure to place the lookup value to the left of the value you want to return. The easiest way to do this is to place it in the first column of the table.

City	Country	Number of Employees
Aberdeen	United Kingdom	5400
Acari	Peru	4400
Albuquerque	United States	8000
Alcaldediaz	Panama	2300
Alhambra	United States	4800
Altkirch	France	6100
Angers	France	5100
Arlington	United States	6575
Arma	Peru	3000
Ashcroft	Canada	6300
Ashley	United Kingdom	5400
Assiniboia	Canada	9700
Aston	United Kingdom	7400
Athens	United States	4200
Atlanta	United States	5740
Aubervilliers	France	1500
Aurora	United States	6100

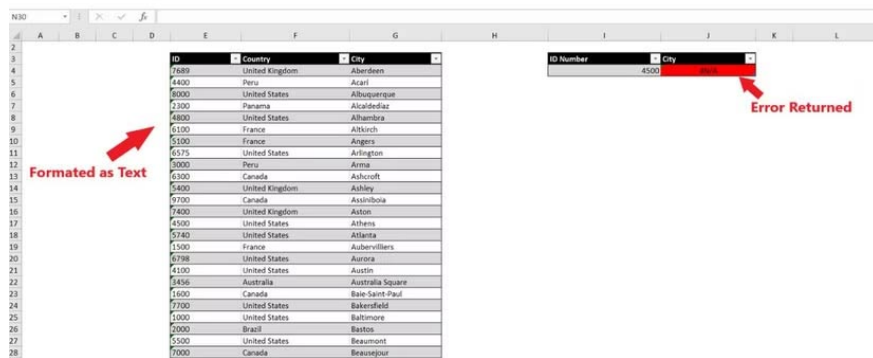
Now the formula will return a value:

City	Number of Employees
Athens	4200

Incorrect number format

When dealing with numbers as lookup values, it can be very frustrating trying to find errors. If you encounter an error, the first thing to check is the number format.

Formatting issues can occur when importing data from external databases or copying data from external sources. To determine if your data is readable as text, check for left-aligned characters or error symbols. When formatted correctly, numbers will display right-aligned.



The screenshot shows an Excel spreadsheet with two tables. The first table, located in columns E, F, and G, has headers 'ID', 'Country', and 'City'. It contains 28 rows of data. A red arrow points to the 'ID' column with the text 'Formatted as Text'. The second table, located in columns I, J, and K, has headers 'ID Number' and 'City'. It contains one row with the value '4500' in the 'ID Number' column. A red arrow points to the 'City' cell with the text 'Error Returned'.

ID	Country	City
7889	United Kingdom	Aberdeen
7400	Peru	Acarí
6500	United States	Albuquerque
7300	Panama	Alcañal
4800	United States	Alhambra
6100	France	Alkirech
6100	France	Algers
6575	United States	Arlington
6000	Peru	Arma
6300	Canada	Ashcroft
6400	United Kingdom	Ashby
6700	Canada	Assiniboia
7400	United Kingdom	Aston
6500	United States	Athens
6740	United States	Atlanta
1500	France	Aubervilliers
6798	United States	Aurora
6100	United States	Austin
6456	Australia	Australia Square
1600	Canada	Baie-Saint-Paul
7700	United States	Bakersfield
6200	United States	Baltimore
6000	Brazil	Bastos
6500	United States	Beaumont
7000	Canada	Beauséjour

How to fix the error:

If the numbers in the table are displayed as text, you will need to convert them to numbers. The most efficient way to do this is to use an Error Indicator.

1. Select the column containing the lookup value. A quick way to select all data is to click the first cell in the desired column. Next, while holding down the CTRL key, click the Down Arrow key.
2. After selecting all the data in the table column, click on Error Indicator and choose Convert to Number.

Overall, VLOOKUP is a great way to quickly retrieve data in spreadsheets. While VLOOKUP queries are vertical across columns and have some other limitations, Microsoft continuously updates Excel's lookup features to expand their applications. For example, HLOOKUP, XLOOKUP, etc., can help you look up data in various ways. QuanTriMang.com will continue to provide you with information on how to use this function in subsequent articles.

You finished reading the article "**VLOOKUP function: How to use it and specific examples**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.