



UNIVERSITÀ
DEGLI STUDI
DI BERGAMO

Dipartimento
di Ingegneria Gestionale,
dell'Informazione e della Produzione

22059 – APPLIED TOPICS IN MANAGEMENT ENGINEERING

Excel, Access and Matlab

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AGENDA

Lecture III

- VLOOKUP
- PIVOT TABLES
- FURTHER MATERIAL



VLOOKUP (CERCA.VERT)



- VLOOKUP allows to lookup and retrieve data from a specific column within a table.
- This is only possible if the two tables have one column in common.

VLOOKUP (value, table, col_index, [range_lookup])

- Value: The value to look for in the first column of the table.
- Table: The table from which to retrieve the value.
- Col_index: The column in the table from which to retrieve the value.
- [range_lookup]:
 - TRUE: The function looks for an approximate match.
 - FALSE: The function looks for an exact match.

	A	B	C	D	E	F
1	NAME	SURNAME	CITY	REGION		
2	Elena	=CERCA.VERT(C2;Geography!\$A\$2:\$B\$5;2;FALSO)				
3	Luca	CERCA.VERT(valore; matrice_tabella; indice; [intervallo])				
4	Claudia	Oropallo	Salerno			
5	Marco	Parodi	Alassio			

	A	B
1	CITY	REGION
2	Dalmine	Lombardia
3	Salerno	Campania
4	Vercurago	Lombardia
5	Alassio	Liguria

1 2
Col_index

	A	B	C	D
1	NAME	SURNAME	CITY	REGION
2	Elena	Bonazzi	Dalmine	Lombardia
3	Luca	Colombo	Vercurago	Lombardia
4	Claudia	Oropallo	Salerno	Campania
5	Marco	Parodi	Alassio	Liguria

Fig.1: Example of VLOOKUP

VLOOKUP

WARNINGS

1. VLOOKUP retrieves the value in the left-most column of the table.
2. VLOOKUP always retrieves the first value that it finds in the left-most column. It means that, if there are two same values, the function returns the first one also if uncorrect.
3. The “V” in VLOOKUP stands for *vertical* (Data are arranged in columns).
4. If the data are organized horizontally, you must use HLOOKUP function.



PIVOT TABLES (PT)



- A pivot table allows you to create summary tables from very complex data sets.
- To insert a pivot table:
 1. Click on any cell in the spreadsheet.
 2. On the Insert Tab, in the Tables group, select Pivot Tables.
 3. The “Create Pivot Table” box will appear. You must select the data range. After, you can choose where to put the PT: in a new worksheet or in the existing one.

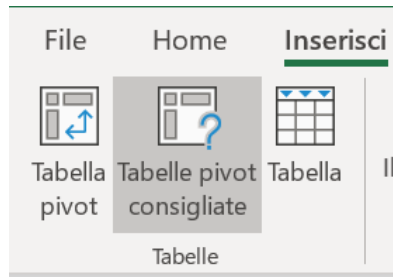


Fig.2: Step 2

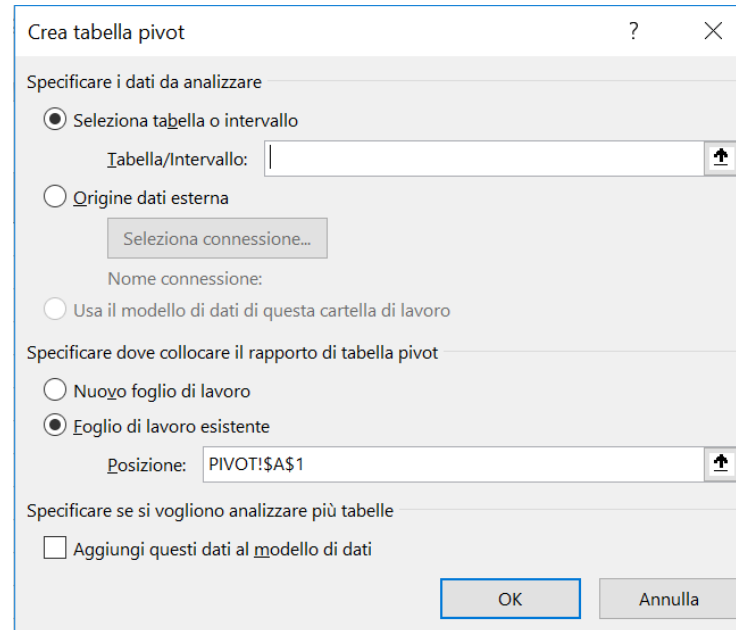


Fig.3: Step 3

PIVOT TABLES



	A	B	C	D
1	Product	Quantity	Supplier	Country
2	1	1200	Agatha	UK
3	2	672	Luke	USA
4	1	982	Agatha	UK
5	3	341	Logan	Germany
6	4	822	Mike	Russia
7	2	457	Luke	USA
8	1	1131	Ann	UK
9	2	123	Agatha	UK

Fig.4: Dataset

4. You can choose fields to add to report.

The image shows two screenshots of the 'Campi tabella pivot' (PivotTable Fields) task pane in Microsoft Excel. The left screenshot shows the default state where all fields (Product, Quantity, Supplier, Country) are unchecked. The right screenshot shows the fields checked, and the 'Country' field is added to the 'Colonne' (Columns) area. A blue circle highlights the 'Country' field in the Columns area and the 'Somma di Quantity' field in the Values area.

Fig.5: Pivot Tables Fields

PIVOT TABLES



- The pivot table is presented as follows:

Somma di Quantity		Etichette di colonna				
Etichette di riga	Germany	Russia	UK	USA	Totale complessivo	
1			3313		3313	
2			123	1129	1252	
3	341				341	
4		822			822	
Totale complessivo		341	822	3436	1129	5728

Fig.6: The Pivot Table

Analysing this table, we can easily understand that the most quantity of products comes from the UK and the lower from Germany!

PIVOT TABLES

- You can also add a *Filter*.

Campi tabella pivot

Selezionare i campi da aggiungere al rapporto:

Cerca

- Product
- Quantity
- Supplier
- Country

Altre tabelle:

Trascinare i campi nelle aree sottostanti:

Filtri: Supplier

Colonne: Country

Righe: Product

Valori: Somma di Quantity

Rinvia aggiornamento layout Aggiorna

Fig.7: The Pivot Table with filter on Supplier field



Supplier	(Tutto)					
Somma di Quantity		Etichette di colonna				
Etichette di riga		Germany	Russia	UK	USA	Totale complessivo
1			3313		3313	
2			123	1129	1252	
3		341			341	
4			822		822	
Totale complessivo		341	822	3436	1129	5728

Fig.8: The resulting Pivot Table

Supplier	Agatha		
Somma di Quantity		Etichette di colonna	
Etichette di riga		UK	Totale complessivo
1		2182	2182
Totale complessivo		2182	2182

Fig.9: The Pivot Table with «Agatha» filter on Product 1

Analysing this table, we can easily state that Supplier «Agatha» from UK sells 2182 units of Product 1.

PIVOT TABLES



- Moreover, you can change the type of calculation you want to use:
 - Select «Impostazione campo valori» («Value field settings»)

Impostazioni campo valore

Nome origine: Quantity

Nome personalizzato: Max di Quantity

Riepiloga valori per: Mostra valori come

Riepiloga campo valore per

Selezionare il tipo di calcolo da utilizzare per riepilogare i dati del campo selezionato

- Somma
- Conteggio
- Media
- Max**
- Min
- Prodotto

Formato numero

OK Annulla

	Max di Quantity	Etichette di colonna			
Etichette di riga	Germany	Russia	UK	USA	Totale complessivo
1			1200		1200
2			123	672	672
3	341				341
4		822			822
Totale complessivo	341	822	1200	672	1200

Fig.10: The Pivot Table with Maximum quantity per Country and Product

FURTHER MATERIAL

To review and deepen the topics of this lecture



1. <https://www.youtube.com/watch?v=8okA22yMwTs>
2. <https://www.youtube.com/watch?v=m0wl61ahfLc>
3. Alexander, M., Kusleika, R., & Walkenbach, J. (2018). Excel 2019 Bible. John Wiley & Sons