

## Guide Reference Guide: Pivot Tables

A pivot table summarises the data of a larger table. This summary may include sums, averages, or other statistics, which the pivot table can group together in a meaningful way.

---

### When should we use a Pivot Table?

Pivot Tables are useful If you have large tables of values, and you need to get a meaningful summary of the data. As a loose example, think of a pivot table as a detective's assistant looking for clues in a crime scene.



As a detective, you **only want to pick out what stands out** from the crime scene that could get you a step closer to finding the criminal. You could either do this manually, or your assistant could help you find what stands out before you arrive – letting you focus on solving the case based on the information found.

Likewise, Pivot Tables allow you to quickly and easily organise data in a meaningful manner, allowing you to focus on analyzing the data.

## Creating a Pivot Table

For this handout, we will try to find out the **quantity of products sold at each branch of a supermarket**.

Order ID	Product	Amount paid	Quantity	Date of purchase	Time of purchase	Customer name	Branch
10001	Beer	20.88	7	5/5/2020	1:30:55 PM	Ben	Bukit Batok
10002	Apple	5.00	3	7/5/2020	2:10:00 PM	Sally	Hougang
10003	Cucumber	1.30	1	12/5/2020	1:55:10 PM	Hellen	Chua Chu Kang
10004	Cheese	3.00	3	6/5/2020	4:30:55 PM	Mary	Yishun
10005	Milk	3.00	1	5/5/2020	5:20:40 PM	Tom	Bukit Batok
10006	Banana	5.00	2	12/5/2020	8:50:45 PM	John	Chua Chu Kang
10007	Orange	6.90	6	4/5/2020	2:30:25 PM	Ellie	Toa Payoh
10008	Apple	8.00	10	6/5/2020	7:59:55 PM	Mary	Yishun
10009	Broccoli	4.50	1	9/5/2020	9:10:25 PM	Thomas	Jurong West
10010	Wine	50.00	1	10/5/2020	12:30:55 AM	Sandra	Bukit Gombak
10011	Beef	12.10	2	7/5/2020	8:50:45 PM	John	Chua Chu Kang
10012	Chicken	7.00	1	8/5/2020	10:20:00 PM	Magdeline	Clementi
10013	Lemon juice	3.00	1	9/5/2020	1:30:55 PM	Ben	Bukit Batok
10014	Apple	4.50	2	10/5/2020	1:55:10 PM	Hellen	Chua Chu Kang
10015	Cucumber	1.50	1	11/5/2020	3:30:55 PM	Kiki	Woodlands
10016	Lemon juice	3.00	1	12/5/2020	5:20:40 PM	Tom	Orchard
10017	Banana	3.30	1	7/5/2020	4:30:55 PM	Mary	Yishun
10018	Vanilla extract	6.30	3	5/5/2020	6:30:55 PM	August	Lim Chu Kang
10019	Ham	5.60	1	4/5/2020	8:50:45 PM	John	Hougang
10020	Cheese	2.30	1	6/5/2020	8:30:55 PM	Paul	Yishun
10021	Chocolate	4.00	1	7/5/2020	9:10:25 PM	Kenny	Clementi

- In this large table, there's a lot of unnecessary information (Customer name, Amount Paid, etc.). We can filter these out using a pivot table.
- With a pivot table, we can also get the quantity of the products sold for each branch easily without using formulas or manual tabulation.

## A Step-By-Step Guide

Step 1. Select the range of cells you want to include in your pivot table. In this case, it's Columns A – H.

Step 2. Under the “Insert” tab, select “Pivot Table”.

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'Tables' group in the ribbon contains the 'PivotTable' icon, which is highlighted by a red box and a red arrow labeled '2'. Another red box and arrow labeled '1' points to the 'PivotTable' icon in the 'Tables' group. Below the ribbon, the data table from the previous section is visible, spanning columns A to H and rows 1 to 22.

Step 3. In the dialog box that appears, click OK. A Pivot Table will be created in a new worksheet.

Choose the data that you want to analyze

☒ Select a table or range

Table/Range:

☐ Use an external data source

Choose Connection...

Connection name:

☐ Use this workbook's Data Model

Choose where you want the PivotTable report to be placed

☒ New Worksheet

☐ Existing Worksheet

Location:

Choose whether you want to analyze multiple tables

☐ Add this data to the Data Model

**3** OK Cancel

Step 4. An empty Pivot Table should appear on a new worksheet.

On the right, a Pivot Table Fields bar should also be present. Here, you can drag fields to the 4 different area boxes to create your Pivot Table.

PivotTable Fields

Choose fields to add to report:

Search

☐ Amount paid

☐ Quantity

☐ Date of purchase

☐ Time of purchase

☐ Customer name

☒ Branch

☐ Minutes

☐ Hours

Drag fields between areas below:

Filters

Columns

Rows

Values

**4**

Your Pivot Table has been created! Here we can easily see the quantity of each product sold at each branch, alongside other useful information such as the total sales per product.

Sum of Quantity	Column Labels																
Row Labels	Apple	Banana	Beef	Beer	Broccoli	Cheese	Chicken	Chocolate	Cucumber	Ham	Lemon juice	Milk	Orange	Vanilla extract	Wine	Grand Total	
Bukit Batok																	9
Bukit Gombak																	7
Chua Chu Kang			2	2						1							4
Clementi							1		1								2
Hougang			3								1						4
Jurong West					1												1
Lim Chu Kang																	3
Orchard																	1
Toa Payoh											1			6			6
Woodlands										1							1
Yishun		10	1			4											15
Grand Total		15	3	2	7	1	4	1	1	2	1	2	1	6	3	1	50

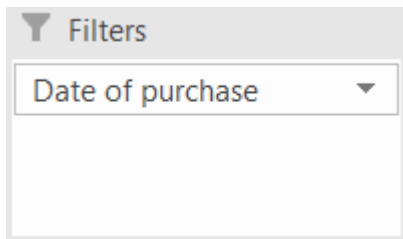
## The 4 Areas of a Pivot Table

The elements of a Pivot Table can be modified by placing different data fields into the 4 areas of the pivot table. Refer to this to get an idea of which data fields should be placed in the different areas.

Date of purchase	(All)																		
Sum of Quantity	Column Labels																		
Row Labels	Apple	Banana	Beef	Beer	Broccoli	Cheese	Chicken	Chocolate	Cucumber	Ham	Lemon juice	Milk	Orange	Vanilla extract	Wine	Grand Total			
Bukit Batok				7								1	1			9			
Bukit Gombak															1	1			
Chua Chu Kang	2		2	2						1						7			
Clementi							1		1							2			
Hougang	3									1						4			
Jurong West					1											1			
Lim Chu Kang															3	3			
Orchard												1				1			
Toa Payoh														6		6			
Woodlands										1						1			
Yishun	10		1			4										15			
Grand Total	15	3	2	7	1	4	1	1	2	1	2	1	6		3	50			

### *Filters (Optional)*

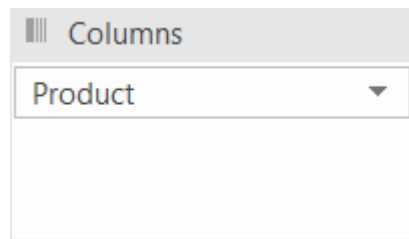
This area allows you to **filter** the pivot table according to the data fields placed here.



For instance, if you want to see the sales of a particular date, you can place the “Date of purchase” field here and click on the arrow beside (All) at the top left of the pivot table to filter according to dates (see above)

## Columns

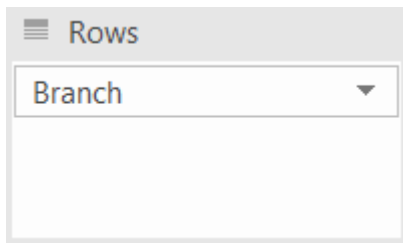
Placing a data field here displays the **unique values** from that field as **column headers** at the **top** of the pivot table.



Normally, if there are 2 data fields to be compared, the smaller field is placed here to prevent the Pivot Table from being too long horizontally. The other is placed in the Rows area.

### Rows

Placing a data field here displays the **unique values** from that field down the **rows** of the **left side** of the pivot table.

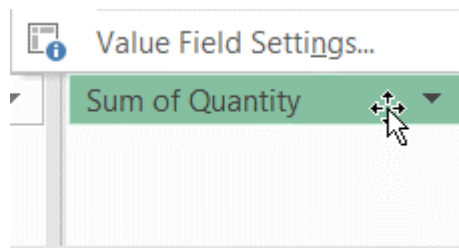


Data fields dropped here are those you normally want to group and categorise, such as Products, Names, and Locations.

Normally, the larger data field to be compared is placed here rather than in the Columns area.

## Values

Data fields placed here are **calculated and counted**.



Data fields dropped here are those you want to measure – fields such as Sum of Revenue, Unit Count, or Average Price.

By default, the data will be Summed. You can change this by clicking on the item → Value Field Settings, then changing the calculation type to something else such as Average.

## Important Tips

**Pro Tip 1:** As far as possible, put only one field in the row and column areas of the pivot table. Avoid pivot tables with many fields because that defeats its purpose of simplifying & summarising data for analysis.

**Pro Tip 2:** Insert slicers to help you filter important data easily. They work like filters but can sometimes be simpler to control. Shift-click to select multiple items to filter at once.

The screenshot shows the Excel interface with the 'Wedding List.xlsx' file open. The 'PivotTable Tools' ribbon is active, showing the 'Analyze' and 'Design' tabs. The 'Filter' group contains the 'Insert Slicer' button. The 'Data' group contains 'Refresh', 'Change Data Source', and 'Filter'. The 'Actions' group contains 'Clear', 'Select', and 'Move'. The 'Insert Slicer' dialog box is open, showing a list of fields: Order ID, Product, Amount paid, Quantity, Date of purchase, Time of purchase, Customer name, Branch, Minutes, and Hours. The 'Product' field is selected. The PivotTable is displayed with 'Date of purchase' as the filter and 'Product' as the column label. The PivotTable data is as follows:

Sum of Quantity	Column Labels				
Row Labels	Apple	Banana	Beef	Grand Total	
Chua Chu Kang	2	2	2	6	
Hougang	3			3	
Yishun	10	1		11	
Grand Total	15	3	2	20	

**Pro Tip 3:** If you return to your sheet and the PivotTable Fields bar is gone, click on the Pivot Table, click on “Analyze” in the top bar, then click on “Field List” on the top right.

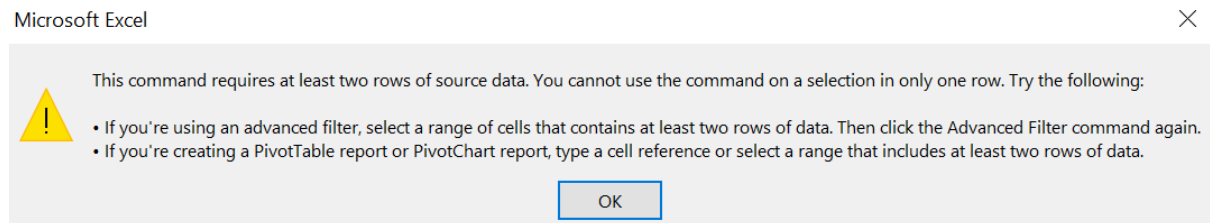
The screenshot shows the 'Analyze' tab of the 'PivotTable Tools' ribbon. The 'Field List' button is circled in red. The ribbon also shows the 'Design' tab, 'Search' bar, 'Share' button, and various groups like 'Actions', 'Calculations', 'Tools', and 'Show'.

**Pro Tip 4:** Pivot Table does not automatically update its information when you make changes to your spreadsheet. If you modified your spreadsheet, you don't need to create a new Pivot Table. Instead, simply go to “Pivot Table Analyze” in the top bar, and click “Refresh” to update the Pivot Table.

The screenshot shows the 'Pivot Table Analyze' tab of the 'PivotTable Tools' ribbon. The 'Refresh' button is circled in red. The ribbon also shows the 'Home' tab, 'Insert', 'Draw', 'Page Layout', 'Formulas', 'Data', 'Review', 'View', 'Developer', 'Acrobat', and various groups like 'Pivot Table Name', 'Active Field', 'Expand Field', 'Collapse Field', 'Group Selection', 'Insert Slicer', 'Insert Timeline', 'Filter Connections', and 'Change Data Source'.

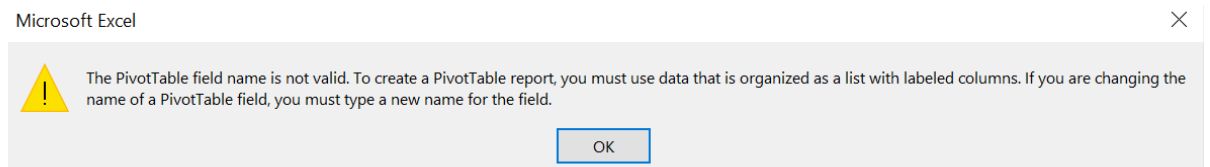
## Common Mistakes

**Common mistake 1:** This command requires at least two rows of source data.



**Solution:** This is likely due to empty columns. Make sure you have selected the entire table you want to use the Pivot Table for before creating it.

**Common mistake 2:** The PivotTable field name is not valid.



**Solution:** Check for missing headers. All rows must have headers!

---

*Handout created and designed by Audrina Tan & Tan Yi Jia*