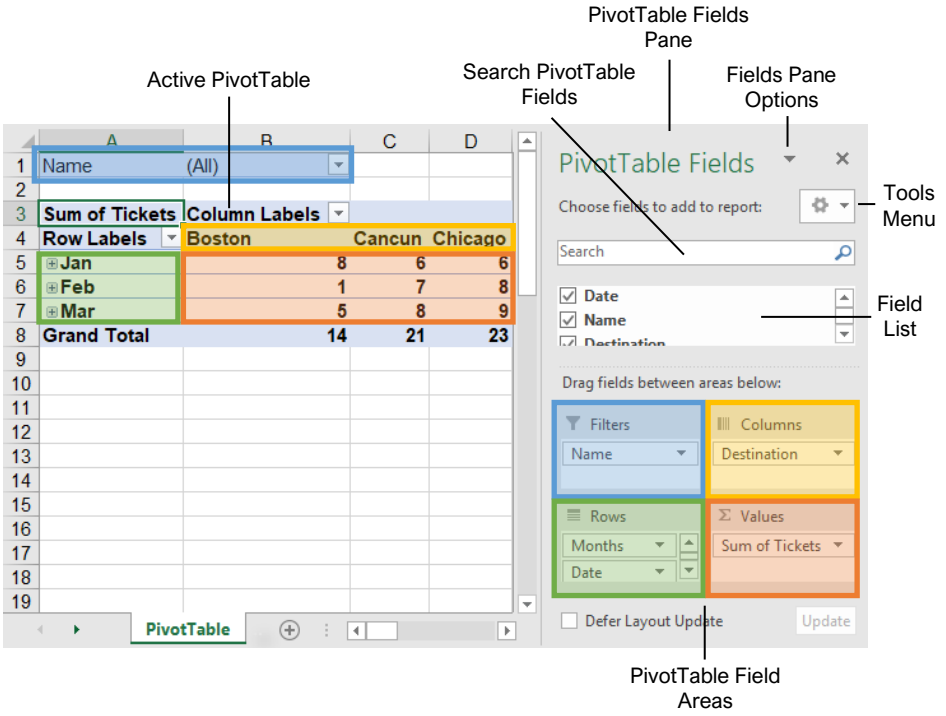
Microsoft®

Excel 2021 Advanced

Quick Reference Guide

PivotTable Elements



	A	B	C	D
1	Name	(All)		
2				
3	Sum of Tickets	Column Labels		
4	Row Labels	Boston	Cancun	Chicago
5	Jan	8	6	6
6	Feb	1	7	8
7	Mar	5	8	9
8	Grand Total	14	21	23

PivotTables

Create a PivotTable: Select the data range to be used by the PivotTable. Click the **Insert** tab on the ribbon and click the **PivotTable** button in the Tables group. Verify the range and then click **OK**.

Add Multiple PivotTable Fields: Click a field in the field list and drag it to one of the four PivotTable areas that contains one or more fields.

Filter PivotTables: Click and drag a field from the field list into the Filters area. Click the field's list arrow above the PivotTable and select the value(s) you want to filter.

Group PivotTable Values: Select a cell in the PivotTable that contains a value you want to group by. Click the **Analyze** tab on the ribbon and click the **Group Field** button. Specify how the PivotTable should be grouped and then click **OK**.

Refresh a PivotTable: With the PivotTable selected, click the **Analyze** tab on the ribbon. Click the **Refresh** button in the Data group.

Format a PivotTable: With the PivotTable selected, click the **Design** tab. Then, select the desired formatting options from the PivotTable Options group and the PivotTable Styles group.

PivotCharts

Create a PivotChart: Click any cell in a PivotTable and click the **Analyze** tab on the ribbon. Click the **PivotChart** button in the Tools group. Select a PivotChart type and click **OK**.

Modify PivotChart Data: Drag fields into and out of the field areas in the task pane.

Refresh a PivotChart: With the PivotChart selected, click the **Analyze** tab on the ribbon. Click the **Refresh** button in the Data group.

Modify PivotChart Elements: With the PivotChart selected, click the **Design** tab on the ribbon. Click the **Add Chart Element** button in the Chart Elements group and select the item(s) you want to add to the chart.

Apply a PivotChart Style: Select the PivotChart and click the **Design** tab on the ribbon. Select a style from the gallery in the Chart Styles group.

Update Chart Type: With the PivotChart selected, click the **Design** tab on the ribbon. Click the **Change Chart Type** button in the Type group. Select a new chart type and click **OK**.

Enable PivotChart Drill Down: Click the **Analyze** tab. Click the **Field Buttons** list arrow in the Show/Hide group and select **Show Expand/Collapse Entire Field Buttons**.

PivotTable Layout

PivotTable Fields Pane

The PivotTable Fields pane controls how data is represented in the PivotTable. Click anywhere in the PivotTable to activate the pane. It includes a Search field, a scrolling list of fields (these are the column headings in the data range used to create the PivotTable), and four areas in which fields are placed. These four areas include:

Filters: If a field is placed in the Filters area, a menu appears above the PivotTable. Each unique value from the field is an item in the menu, which can be used to filter PivotTable data.

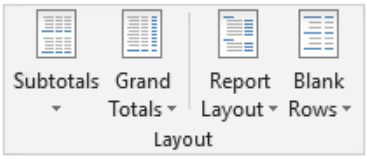
Column Labels: The unique values for the fields placed in the Columns area appear as column headings along the top of the PivotTable.

Row Labels: The unique values for the fields placed in the Rows area appear as row headings along the left side of the PivotTable.

Values: The values are the "meat" of the PivotTable, or the actual data that's calculated for the fields placed in the rows and/or columns area. Values are most often numeric calculations.

Not all PivotTables will have a field in each area, and sometimes there will be multiple fields in a single area.

The Layout Group



Subtotals: Show or hide subtotals and specify their location in the PivotTable.

Grand Totals: Add or remove grand total rows for columns and/or rows.

Report Layout: Adjust the report layout to show in compact, outline, or tabular form.

Blank Rows: Emphasize groups of data by manually adding blank rows between grouped items.

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Macros

Enable the Developer Tab: Click the **File** tab and select **Options**. Select **Customize Ribbon** at the left. Check the **Developer** check box and click **OK**.

Record a Macro: Click the **Developer** tab on the ribbon and click the **Record Macro** button. Type a name and description then specify where to save it. Click **OK**. Complete the steps to be recorded. Click the **Stop Recording** button on the Developer tab.

Run a Macro: Click the **Developer** tab on the ribbon and click the **Macros** button. Select the macro and click **Run**.

Edit a Macro: Click the **Developer** tab on the ribbon and click the **Macros** button. Select a macro and click the **Edit** button. Make the necessary changes to the Visual Basic code and click the **Save** button.

Delete a Macro: Click the **Developer** tab on the ribbon and click the **Macros** button. Select a macro and click the **Delete** button.

Macro Security: Click the **Developer** tab on the ribbon and click the **Macro Security** button. Select a security level and click **OK.**

Troubleshoot Formulas

Common Formula Errors:

- **####### -** The column isn't wide enough to display all cell data.
- **#NAME? -** The text in the formula isn't recognized.
- **#VALUE! -** There is an error with one or more formula arguments.
- **#DIV/0 -** The formula is trying to divide a value by 0.
- **#REF! -** The formula references a cell that no longer exists.

Trace Precedents: Click the cell containing the value you want to trace and click the **Formulas** tab on the ribbon. Click the **Trace Precedents** button to see which cells affect the value in the selected cell.

Jan	Feb	Total
6,010	7,010	13,020

Error Checking: Select a cell containing an error. Click the **Formulas** tab on the ribbon and click the **Error Checking** button in the Formula Auditing group. Use the dialog to locate and fix the error.

The Watch Window: Select the cell you want to watch. Click the **Formulas** tab on the ribbon and click the **Watch Window** button. Click the **Add Watch** button. Ensure the correct cell is identified and click **Add**.

Evaluate a Formula: Select a cell with a formula. Click the **Formulas** tab on the ribbon and click the **Evaluate Formula** button.

Advanced Formatting

Customize Conditional Formatting: Click the **Conditional Formatting** button on the Home tab and select **New Rule**. Select a rule type, then edit the styles and values. Click **OK**.

Edit a Conditional Formatting Rule: Click the **Conditional Formatting** button on the Home tab and select **Manage Rules**. Select the rule you want to edit and click **Edit Rule**. Make your changes to the rule. Click **OK**.

Change the Order of Conditional Formatting Rules: Click the **Conditional Formatting** button on the Home tab and select **Manage Rules**. Select the rule you want to re-sequence. Click the **Move Up** or **Move Down** arrow until the rule is positioned correctly. Click **OK**.

Analyze Data

Goal Seek: Click the **Data** tab on the ribbon. Click the **What-If Analysis** button and select **Goal Seek**. Specify the desired value for the given cell and which cell can be changed to reach the desired result. Click **OK**.

Advanced Formulas

Nested Functions: A nested function is when one function is tucked inside another function as one of its arguments, like this:

```
=IF(D2>AVERAGE(B2:B10),1,0)
```

Initial Function — **Nested Function**

IF: Performs a logical test to return one value for a true result, and another for a false result.

```
=IF(B2>69,"True","False")
```

logical_test that can be evaluated as true or false — **value_if_true** value to return when the test is true — **value_if_false** value to return when the test is false

AND, OR, NOT: Often used with IF to support multiple conditions.

- **AND** requires multiple conditions.
- **OR** accepts several different conditions.
- **NOT** returns the opposite of the condition.

```
=OR(B5="MN",B5="WI")
```

logical1 the first condition to evaluate — **logical2** the second condition to evaluate

SUMIF and AVERAGEIF: Calculates cells that meet a condition.

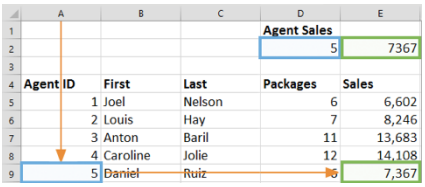
- **SUMIF** finds the total.
- **AVERAGEIF** finds the average.

```
=SUMIF(C6:C10,"MN",D6:D10)
```

range of cells you want to apply criteria against — **criteria** used to determine what cells to sum or average — **calc_range** to calculate, if different than the range

Advanced Formulas

VLOOKUP: Looks for and retrieves data from a specific column in a table.



	A	B	C	D	E
1				Agent Sales	
2				5	7367
3					
4	Agent ID	First	Last	Packages	Sales
5	1	Joel	Nelson	6	6,602
6	2	Louis	Hay	7	8,246
7	3	Anton	Baril	11	13,683
8	4	Caroline	Jolie	12	14,108
9	5	Daniel	Ruiz	5	7,367

```
=VLOOKUP(D2,A4:E10,5)
```

value to look for in the first column of the table — **table** from which to retrieve a value — **col_index** the column number in the table from which to retrieve a value

HLOOKUP: Looks for and retrieves data from a specific row in a table.

```
=HLOOKUP(B5,B2:I3,3)
```

value to look for in the first row of the table — **table** from which to retrieve a value — **row_index** the row number in the table from which to retrieve a value

UPPER, LOWER, and PROPER: Changes how text is capitalized.

UPPER Case | lower case | Proper Case

```
=UPPER(B4)
```

text to change case or capitalization

LEFT and RIGHT: Extracts a given number of characters from the left or right.

```
=LEFT(B5,3)
```

text from which to extract characters — **num_chars** to extract from the left or right side of the text

MID: Extracts a given number of characters from the middle of text; the example below would return "day".

```
=MID("Sunday",4,3)
```

text from which to extract characters — **start_num** location of the first character to extract — **num_chars** the number of characters to extract

MATCH: Locates the position of a lookup value in a row or column.

```
=MATCH("Dog",B2:B10)
```

lookup_value to match in the lookup_array — **lookup_array** range of cells

INDEX: Returns a value or the reference to a value from within a range.

```
=INDEX(A1:B5,2,2)
```

array a range of cells — **row_num** the row position — **col_num** the column position (optional)

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