

DR. ALVIN'S PUBLICATIONS

# DATA WRANGLING WITH EXCEL PART II

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DR. ALVIN ANG



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I. IF + AND + OR / IFS / COUNTIF / AVGIF / SUMIF

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<https://www.alvinang.sg/s/if.xlsx>

A. IF 1

	A	B	C	D
1	<b>Price</b>	<b>Result</b>		
2	\$644	High		
3	\$911	High		
4	\$74	Low		
5	\$312	Low		
6	\$970	High		
7				
8				
9				
10				
11				
12				
13				
14				

If Result > \$500 then “High”

B. IF 2

<https://www.alvinang.sg/s/if.xlsx>

	A	B	C	D	E	F
1	Country	Result				
2	USA	5				
3	UK	0				
4	USA	5				
5	UK	0				
6	UK	0				
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

If USA then > "5"

1. ACTIVITY: IF

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: Nested IF

- Open topic2.xlsx
- Select Nested IF worksheet
- Compute the Bonus as follows
  - If Job Rating  $\geq 4$ , then \$5000
  - If Job Rating  $\geq 3$ , then \$3000
  - else no bonus

	A	B	C	D	E	F	G	H	I
1	Employee Name	Building	Department	Hire Date	Years	Benefits	Salary	Job Rating	Bonus
2	Page, Lisa	West	ADC	14-Feb-05	17	DMR	62,262	5	5,000
3	Taylor, Hector	West	ADC	27-Mar-17	4	DM	62,194	3	3,000
4	Perez, Joseph	West	ADC	9-Apr-13	8		99,109	5	5,000
5	Duran, Brian	Taft	ADC	4-Oct-18	3		117,845	3	3,000
6	Weber, Larry	Watson	ADC	3-Feb-14	8	M	117,973	4	5,000
7	Pratt, Erik	North	Training	9-Mar-12	9	DMR	70,665	2	
8	O'Connor, Kent	Taft	Training	1-Apr-05	16	DMR	122,722	1	
9	Spencer, Boyd	Main	Training	21-May-13	8		109,895	5	5,000
10	Wiggins, Frank	North	Training	14-May-05	16	DMR	115,393	1	
11	Tanner, Timothy	Taft	Training	1-Jul-08	13	DMR	84,070	4	5,000
12	Strickland, Rajean	Main	Training	14-Jul-09	12	D	100,669	3	3,000
13	Chase, Troy	Main	Training	9-Jul-10	11	DMR	47,323	4	5,000
14	Brewer, Kent	Main	Training	27-Sep-17	4	DM	62,359	1	



a) Answer to IF

The screenshot shows the Microsoft Excel interface. The title bar indicates the file name is "Excel Activities - Excel". The ribbon is set to "Home". The formula bar displays the formula: `=IF(A2>=4,5000,IF(A2>=3,3000,""))`. The spreadsheet data is as follows:

	A	B	C
1	<b>Job Rating</b>	<b>Bonus</b>	
2	5	5,000	
3	3	3,000	
4	5	5,000	
5	3	3,000	
6	4	5,000	
7	2		
8	1		
9	5	5,000	
10	1		
11	4	5,000	
12	3	3,000	
13	4	5,000	
14	1		
15		5,000	

The task pane at the bottom shows "Nested IF (2)" selected.



C. IF + AND 1

<https://www.alvinang.sg/s/if.xlsx>

	A	B	C	D	E	F	G
1	Name	Score 1	Score 2	Result			
2	Richard	93	80	Fail			
3	Jennifer	60	91	Pass			
4	James	58	75	Fail			
5	Lisa	79	94	Pass			
6	Sharon	41	33	Fail			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

if Score 1 >= 60  
and Score 2 >= 90  
Then "Pass"

Simple 1 | Simple 2 | **And** | Or | And, Or | Nested If 1 | Nested If 2

D. IF + AND 2

<https://www.alvinang.sg/s/if.xlsx>

	A	B	C	D	E	F	G	H	I	J
1	<b>Name</b>	<b>Age</b>	<b>Teen?</b>							
2	Richard	41	No							
3	Jennifer	17	Yes							
4	James	28	No							
5	Lisa	15	Yes							
6	Sharon	33	No							
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										

if Age is between 12 and 20  
then YES

else NO

Formula Bar: `=IF(AND(B2>12,B2<20),"Yes","No")`

More about If

1. ACTIVITY: IF + AND

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: Compound IF

- Open topic2.xlsx
- Select Compound IF worksheet
- Compute the Bonus as follows
  - If Job Rating  $\geq 4$  and Stats = Full Time, then the bonus is \$5000

	A	B	C	D	E	F	G	H	I	J
1	<b>Employee Name</b>	<b>Building</b>	<b>Department</b>	<b>Hire Date</b>	<b>Years</b>	<b>Status</b>	<b>Benefits</b>	<b>Salary</b>	<b>Bonus</b>	<b>Job Rating</b>
2	Page, Lisa	West	ADC	14-Feb-05	17	Full Time	DMR	62,262	5,000	5
3	Taylor, Hector	West	ADC	27-Mar-17	4	Full Time	DM	62,194		3
4	Perez, Joseph	West	ADC	9-Apr-13	8	Contract		99,109		5
5	Duran, Brian	Taft	ADC	4-Oct-18	3	Contract		117,845		3
6	Weber, Larry	Watson	ADC	3-Feb-14	8	Full Time	M	117,973	5,000	4
7	Pratt, Erik	North	Training	9-Mar-12	9	Hourly	DMR	70,665		2
8	O'Connor, Kent	Taft	Training	1-Apr-05	16	Full Time	DMR	122,722		1
9	Spencer, Boyd	Main	Training	21-May-13	8	Contract		109,895		5
10	Wiggins, Frank	North	Training	14-May-05	16	Half-time	DMR	115,393		1
11	Tanner, Timothy	Taft	Training	1-Jul-08	13	Full Time	DMR	84,070	5,000	4
12	Strickland, Rajean	Main	Training	14-Jul-09	12	Full Time	D	100,669		3
13	Chase, Troy	Main	Training	9-Jul-10	11	Half-Time	DMR	47,323		4
14	Brewer, Kent	Main	Training	27-Sep-17	4	Full Time	DM	62,359		1
15	Wilkins, Jesse	North	Training	19-Sep-18	3	Full Time	DMR	110,235		2
16	White, Daniel	Watson	Training	30-Sep-06	15	Full Time	D	104,291	5,000	5

2. ANSWER TO IF + AND

The screenshot displays an Excel spreadsheet with the following data:

	A	B	C
1	<b>Status</b>	<b>Job Rating</b>	<b>Bonus</b>
2	Full Time	5	5,000
3	Full Time	3	
4	Contract	5	
5	Contract	3	
6	Full Time	4	5,000
7	Hourly	2	
8	Full Time	1	
9	Contract	5	
10	Half-time	1	
11	Full Time	4	5,000
12	Full Time	3	
13	Half-Time	4	
14	Full Time	1	
15	Full Time	2	

The formula bar at the top shows the formula: `=IF(AND(B2>=4,A2="Full Time"),5000,"")`. The task pane at the bottom shows the following tabs: XLookup, Nested IF, **Compound IF**, and IFS Function.

E. IF + OR

<https://www.alvinang.sg/s/if.xlsx>

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1	<b>Name</b>	<b>Score 1</b>	<b>Score 2</b>	<b>Result</b>			
2	Richard	93	80	Pass			
3	Jennifer	60	91	Pass			
4	James	58	75	Pass			
5	Lisa	79	94	Pass			
6	Sharon	41	33	Fail			

The formula bar displays: `=IF(OR(B2>=60,C2>=60),\"Pass\", \"Fail\")`

Red text explanation:  
IF Score 1  $\geq$  60  
OR  
Score 2  $\geq$  60  
then "Pass"

The ribbon shows the 'Or' button highlighted.

## F. IF + AND + OR

<https://www.alvinang.sg/s/if.xlsx>

	A	B	C	D	E	F	G	H	I	J
1	Product	Color	Price	Sale						
2	Table	Red	\$300	\$270						
3	Chair	Blue	\$500	\$450						
4	Table	Green	\$100	\$50						
5	Lamp	Yellow	\$100	\$90						
6	Table	Blue	\$350	\$175						
7	Table	Green	\$500	\$250						
8	Chair	Black	\$600	\$540						
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

IF is a "Table" AND is "Green" OR "Blue"... then 50% discount....  
else, 10% discount....



## G. NESTED IF 1

<https://www.alvinang.sg/s/if.xlsx>

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J
1	Name	Score	Result							
2	Richard	3	Excellent							
3	Jennifer	1	Bad							
4	James	2	Good							
5	Lisa	25	Not Valid							
6	Sharon	2	Good							

The formula bar for cell C2 contains the following nested IF formula:

```
=IF(B2=1,"Bad",IF(B2=2,"Good",IF(B2=3,"Excellent","Not Valid")))
```

Below the spreadsheet, the following text is displayed in blue:

if Score = 1 then Bad  
if Score = 2 then Good  
if Score = 3 then Excellent  
else "NOT VALID"

The bottom of the screenshot shows a navigation bar with the following tabs: Simple 1, Simple 2, And, Or, And, Or, **Nested If 1**, Nested If 2, More about If, and a plus sign icon.

## H. NESTED IF 2

<https://www.alvinang.sg/s/if.xlsx>

	A	B	C	D	E	F	G	H	I
1	<b>Name</b>	<b>Score</b>	<b>Grade</b>						
2	Richard	41	F						
3	Jennifer	95	A						
4	James	82	B						
5	Lisa	73	C						
6	Sharon	60	D						
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

if Score < 60 then F  
if Score < 70 then D (but > 60)  
if Score < 80 then C (but > 70)  
if Score < 90 then B (but > 80)  
Else "A"

## I. ACTIVITY: NESTED IF

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

# Activity: Nested IF

- Open topic2.xlsx
- Select Nested IF worksheet
- Compute the Bonus as follows
  - If Job Rating  $\geq 4$ , then \$5000
  - If Job Rating  $\geq 3$ , then \$3000
  - else no bonus

	A	B	C	D	E	F	G	H	I
1	Employee Name	Building	Department	Hire Date	Years	Benefits	Salary	Job Rating	Bonus
2	Page, Lisa	West	ADC	14-Feb-05	17	DMR	62,262	5	5,000
3	Taylor, Hector	West	ADC	27-Mar-17	4	DM	62,194	3	3,000
4	Perez, Joseph	West	ADC	9-Apr-13	8		99,109	5	5,000
5	Duran, Brian	Taft	ADC	4-Oct-18	3		117,845	3	3,000
6	Weber, Larry	Watson	ADC	3-Feb-14	8	M	117,973	4	5,000
7	Pratt, Erik	North	Training	9-Mar-12	9	DMR	70,665	2	
8	O'Connor, Kent	Taft	Training	1-Apr-05	16	DMR	122,722	1	
9	Spencer, Boyd	Main	Training	21-May-13	8		109,895	5	5,000
10	Wiggins, Frank	North	Training	14-May-05	16	DMR	115,393	1	
11	Tanner, Timothy	Taft	Training	1-Jul-08	13	DMR	84,070	4	5,000
12	Strickland, Rajean	Main	Training	14-Jul-09	12	D	100,669	3	3,000
13	Chase, Troy	Main	Training	9-Jul-10	11	DMR	47,323	4	5,000
14	Brewer, Kent	Main	Training	27-Sep-17	4	DM	62,359	1	

1. ANSWER TO NESTED IF

	A	B	C
1	<b>Job Rating</b>	<b>Bonus</b>	
2	5	5,000	
3	3	3,000	
4	5	5,000	
5	3	3,000	
6	4	5,000	
7	2		
8	1		
9	5	5,000	
10	1		
11	4	5,000	
12	3	3,000	
13	4	5,000	
14	1		
15	5	5,000	

Formula Bar: `=IF(A2>=4,5000,IF(A2>=3,3000, ""))`

Taskbar: XLookupUp, **Nested IF**, Compound IF, IFS Function

## J. IFS

<https://www.alvinang.sg/s/ifs.xlsx>

`=IFS(A1=1,"Bad",A1=2,"Good",A1=3,"Excellent",TRUE,"No Valid Score")`

1 Bad

41 F

if A1 = 1, then "Bad"

if A1 = 2, then "Good"

if A1 = 3, then "Excellent"

else "No Valid Score"

TRUE means IFS return a value corresponding to the first TRUE condition

(or just IGNORE it! u may leave it blank)

Sheet1

1 Bad

2 41 F

3

4 if  $A2 < 60$ , then "F"

5

6 if  $A2 < 70$ , then "D" (but  $\geq 60$ )

7

8 if  $A2 < 80$ , then "C" (but  $\geq 70$ )

9

10 if  $A2 < 90$ , then "B"

11

12 if  $A2 \geq 90$ , then "A"

13

14

15

16

17

18

19

20

21

Sheet1

1. ACTIVITY: IFS

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: IFS

- Open topic2.xlsx
- Select IFS Function worksheet
- Compute the Bonus as follows
  - If Job Rating=5, Bonus = 5000
  - If Job Rating=4, Bonus = 4000
  - If Job Rating=3, Bonus = 3000
  - If Job Rating=2, Bonus = 2000
  - else no bonus

2. ANSWER TO IFS

B2 =IF(A2=5,5000,IF(A2=4,4000,IF(A2=3,3000,IF(A2=2,2000,""))))

	A	B	C	D
1	<b>Job Rating</b>	<b>Bonus</b>		
2	2	2,000	if rating = 5, bonus = 5,000	
3	4	4,000	if rating = 4, bonus = 4,000	
4	5	5,000	if rating = 3, bonus = 3,000	
5	3	3,000	if rating = 2, bonus = 2,000	
6	4	4,000	ELSE NO BONUS!	
7	2	2,000		
8	1			
9	5	5,000		
10	1			
11	4	4,000		
12	3	3,000		
13	4	4,000		

VLOOKUP and HLOOKUP XLookUp Nested IF Compound IF **IFS Function**



## K. COUNTIF

<https://www.alvinang.sg/s/countif.xlsx>

### 1. COUNT NUMBERS

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F
1	10		20			
2	1		10			
3	7					
4	20					
5	3					
6						
7	1					
8	1					
9	2					
10	2					
11	4					
12	2					
13						
14						
15						
16						
17						
18						
19						
20						
21						

The formula bar shows the formula: `=COUNTIF(A1:A5,20)`

The cell A7 contains the value 1.

Red text overlay: "how many '20's are there in A1 to A5?"

Navigation tabs at the bottom: **Numeric Criteria**, Text Tricks, Count Errors, And Crite

Excel screenshot showing a spreadsheet with data in column A (rows 1-5) and a formula bar containing `=COUNTIF(A1:A5,C1)`. The formula bar and the value '20' in cell C1 are highlighted with red boxes. A red arrow points from the formula bar to cell C1. The spreadsheet data is as follows:

	A	B	C	D	E	F	G
1	10		20				
2	1		10				
3	7						
4	20						
5	3						
6							
7	1						
8	1						
9	2						
10	2						
11	4						
12	2						
13							
14							
15							
16							
17							
18							
19							
20							
21							

how many "20"s are there in A1 to A5?

Navigation tabs: Numeric Criteria, Text Tricks, Count Errors, And Criteria

Excel screenshot showing a spreadsheet with data in column A (rows 1-5) and a formula bar containing `=COUNTIF(A1:A5,">=10")`. The formula bar and the value '2' in cell A9 are highlighted with red boxes. The spreadsheet data is as follows:

	A	B	C	D	E	F	G
1	10		20				
2	1		10				
3	7						
4	20						
5	3						
6							
7	1						
8	1						
9	2						
10	2						
11	4						
12	2						
13							
14							
15							
16							
17							
18							
19							
20							
21							

how many ">=10" are there in A1 to A5?

Navigation tabs: Numeric Criteria, Text Tricks, Count Errors, And Criteria

Excel screenshot showing a spreadsheet with data in column A (rows 1-5) and a formula bar containing `=COUNTIF(A1:A5,">="&C2)`. The formula bar and the cell C2 (containing 10) are highlighted with red boxes. A red arrow points from the formula bar to cell C2. The spreadsheet data is as follows:

Row	Column A	Column C
1	10	20
2	1	10
3	7	
4	20	
5	3	
6		
7	1	
8	1	
9	2	
10	2	
11	4	
12	2	
13		
14		
15		
16		
17		
18		
19		
20		
21		

how many " $\geq 10$ " are there in A1 to A5?

**Numeric Criteria** | Text Tricks | Count Errors | And Criteria

Excel screenshot showing a spreadsheet with data in column A (rows 1-5) and a formula bar containing `=COUNTIF(A1:A5,"<>7")`. The formula bar and the cell C2 (containing 10) are highlighted with red boxes. A red arrow points from the formula bar to cell C2. The spreadsheet data is as follows:

Row	Column A	Column C
1	10	20
2	1	10
3	7	
4	20	
5	3	
6		
7	1	
8	1	
9	2	
10	2	
11	4	
12	2	
13		
14		
15		
16		
17		
18		
19		
20		
21		

how many NOT EQUAL TO 7 are there in A1 to A5?

**Numeric Criteria** | Text Tricks | Count Errors | And Criteria

The image shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1	10		20					
2	1		10					
3	7							
4	20							
5	3							
6								
7	1							
8	1							
9	2							
10	2							
11	4							
12	2							
13								
14								
15								
16								
17								
18								
19								
20								
21								

The formula bar contains: `=COUNTIF(A1:A5,3)+COUNTIF(A1:A5,7)`

Red boxes highlight the formula bar, the data in column A (rows 1-5), and the 'Numeric Criteria' tab. Red arrows point from the formula to the data. Red text asks: "how many 3 or 7 are there in A1 to A5?"

## 2. COUNT TEXT

Excel screenshot showing a formula bar with the formula `=COUNTIF(A1:A7,"star")`. The spreadsheet displays a data table with the following content:

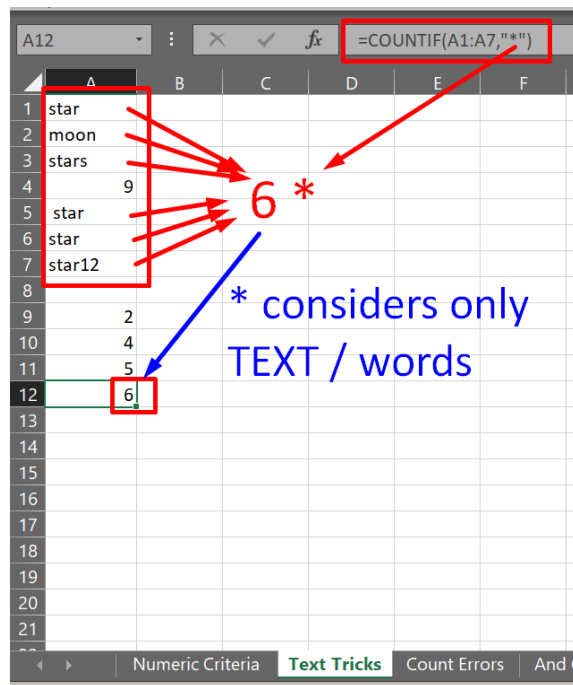
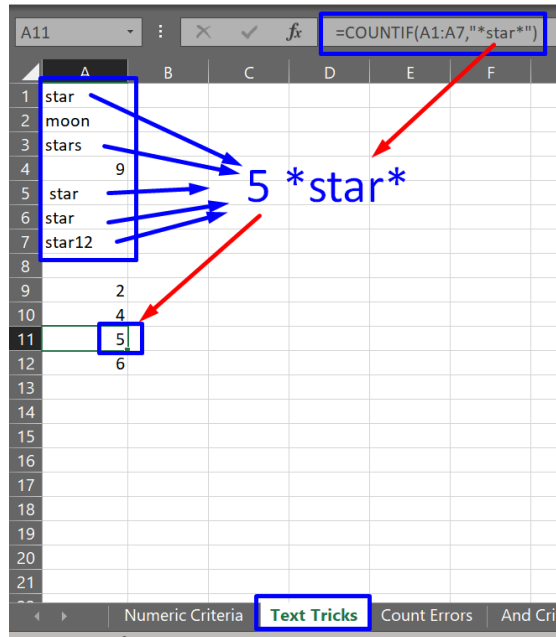
	A	B	C	D	E	F	G
1	star						
2	moon						
3	stars						
4	9						
5	star						
6	star						
7	star12						
8							
9	2						
10	4						
11	5						
12	6						
13							
14							
15							
16							
17							
18							
19							
20							
21							

how many "star" are there in A1 to A7?

Excel screenshot showing a formula bar with the formula `=COUNTIF(A1:A7,"star*")`. The spreadsheet displays a data table with the following content:

	A	B	C	D	E	F	G
1	star						
2	moon						
3	stars						
4	9						
5	star						
6	star						
7	star12						
8							
9	2						
10	4						
11	5						
12	6						
13							
14							
15							
16							
17							
18							
19							
20							
21							

4 "star\*"



### 3. COUNT ERRORS

	A	B	C	D	E	F	G
1	#REF!		#DIV/0!				
2	4	7	2				
3	5		#NAME?				
4							
5				1			
6				3			

how many #NAME?  
are there?  
from A1 to C3

	A	B	C	D	E	F	G
1	#REF!		#DIV/0!				
2	4	7	2				
3	5		#NAME?				
4							
5				1			
6				3			

how many ERRORS  
are there in cells  
A1 to C3?

#### 4. COUNTIF + AND

The image shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1	Google	Stanford		ONE				
2	Facebook	Harvard						
3	Twitter	Stanford						
4	Facebook	Columbia						
5	Google	Harvard						
6	Twitter	Harvard		TWO				
7	Google	Stanford						
8	Twitter	Harvard						
9								
10		2						
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

The formula bar shows: `=COUNTIFS(A1:A8,"Google",B1:B8,"Stanford")`

Blue arrows point from the highlighted cells (A1, B1, A7, B7) to the text "ONE" and "TWO".

Blue text asks: "how many GOOGLE and STANFORD ROWS are there?"

The bottom navigation bar includes: Numeric Criteria, Text Tricks, Count Errors, **And Criteria**, More about Co



## 5. MORE ABOUT COUNTIF

Ages

	A	B	C	D	E	F	G	H	I
1	15	Unique							
2	32	Unique							
3	24	Duplicate							
4	38	Unique							
5	24	Duplicate							
6	60	Unique							
7									
8		3							
9		4							
10		2							
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

"Ages" refer to Cells A1 to A6

Numeric Criteria | Text Tricks | Count Errors | And Criteria | [More about Countif](#)

A8

=COUNTIF(Ages,">=30")

	A	B	C	D	E	F	G	H	I
1	15	Unique							
2	32	Unique							
3	24	Duplicate							
4	38	Unique							
5	24	Duplicate							
6	60	Unique							
7									
8	3								
9		4							
10		2							
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

how many  $\geq 30$  are there in the Ages table?

Numeric Criteria | Text Tricks | Count Errors | And Criteria | [More about Countif](#)

A9    `=COUNTIF(Ages,"<"&AVERAGE(Ages))`

	A	B	C	D	E	F	G	H	I
1	15	Unique							
2	32	Unique							
3	24	Duplicate							
4	38	Unique							
5	24	Duplicate							
6	60	Unique							
7									
8	3								
9	4								
10	2								
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

how many Cells in the Ages table are below the Average?  
4 cells are below Average (=32.2)

Numeric Criteria    Text Tricks    Count Errors    And Criteria    [More about Countif](#)

A10    `=COUNTIFS(Ages,">=30",Ages,"<=40")`

	A	B	C	D	E	F	G	H	I	J
1	15	Unique								
2	32	Unique								
3	24	Duplicate								
4	38	Unique								
5	24	Duplicate								
6	60	Unique								
7										
8	3									
9	4									
10	2									
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

how many  $\geq 30$  and  $\leq 40$  are there in the Ages Table?

Numeric Criteria    Text Tricks    Count Errors    And Criteria    [More about Countif](#)

## L. AVERAGEIF

<https://www.alvinang.sg/s/averageif.xlsx>

### 1. AVG NUMBERS

The screenshot displays an Excel spreadsheet with the following data in column A:

	A	B	C	D	E	F	G
1	0						
2	10						
3	0						
4	0						
5	20						
6	0						
7	0						
8							
9	15						
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

Red text in the spreadsheet reads: "find the average of all >0 from A1 to A7 30/2".

The bottom tab bar shows "Ex 1" selected.

2. AVG TEXT

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1	Banana	70						
2	Strawberry	1						
3	Apple	4						
4	Pear	60						
5	Kiwi	20						
6	Raspberry	5						
7	Apple	8						
8								
9		6						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

The formula bar shows: `=AVERAGEIF(A1:A7,"Apple",B1:B7)`

Red text: find the average of all Apple-s from A1 to A7

Red text: 12/2

The tab bar shows: Ex 1, Ex 2, Ex 3, Ex 4, Ex 5, Ex 6, Ex 7

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1	Banana	70						
2	Strawberry	1						
3	Apple	4						
4	Pear	60						
5	Kiwi	20						
6	Raspberry	5						
7	Apple	8						
8								
9		16.33333						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

The formula bar shows: `=AVERAGEIF(A1:A7,"<>Banana",B1:B7)`

Red text: find the average of all those NON Banana

The tab bar shows: Ex 1, Ex 2, Ex 3, Ex 4, Ex 5, Ex 6, Ex 7

B9    fx    =AVERAGEIF(A1:A7,"\*berry",B1:B7)

	A	B	C	D	E	F	G
1	Banana	70					
2	Strawberry	1					
3	Apple	4					
4	Pear	60					
5	Kiwi	20					
6	Raspberry	5					
7	Apple	8					
8							
9		3					
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

Ex 1   Ex 2   Ex 3   **Ex 4**   Ex 5   Ex 6   Ex 7

find avg of all \*berry

6/2

B9    fx    =AVERAGEIF(A1:A7,"????",B1:B7)

	A	B	C	D	E	F	G
1	Banana	70					
2	Strawberry	1					
3	Apple	4					
4	Pear	60					
5	Kiwi	20					
6	Raspberry	5					
7	Apple	8					
8							
9		40					
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

Ex 1   Ex 2   Ex 3   Ex 4   **Ex 5**   Ex 6   Ex 7

avg of all those with  
4 characters ?????

### 3. AVG + AND

The screenshot shows an Excel spreadsheet with the following data in column A:

Row	Value
1	58
2	1000
3	4
4	1200
5	12
6	600
7	9
8	
9	800

The formula bar shows: `=AVERAGEIFS(A1:A7,A1:A7,">=500",A1:A7,"<=1000")`

Red text annotations: "avg of >=500 and <=1000" and "1600/2".

The sheet tab is labeled "Ex 6".

The screenshot shows an Excel spreadsheet with the following data:

Row	Item	Color	Value
1	Apple	Green	58
2	Banana	Yellow	1000
3	Banana	Yellow	4
4	Apple	Red	1200
5	Apple	Green	12
6	Apple	Red	600
7	Banana	Yellow	9
8			
9			900

The formula bar shows: `=AVERAGEIFS(C1:C7,A1:A7,"Apple",B1:B7,"Red")`

Red text annotation: "AVG of 'Apple' and 'Red'".

The sheet tab is labeled "Ex 7".

4. ACTIVITY: COUNTIF / AVGIF

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: COUNTIF & AVERAGEIF

- Open topic2.xlsx
- Select COUNTIF SUMIF AVERAGEIF worksheet
- Count the number of stuff in each status and their average compensation

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Employee Name	Building	Dept.	Hire Date	Years	Status	Benefits	Compensation	Rating			Count	Average Compensation
2	Page, Lisa	West	ADC	28-Feb-05	17	Full Time	DMR	60,981	2	Full Time		374.00	92364.39
3	Taylor, Hector	West	ADC	10-Apr-17	4	Full Time	DM	60,915	1	Half-Time			
4	Dawson, Jonathan	West	ADC	23-Apr-13	8	Contract		48,536	1	Contract			
5	Duran, Brian	Taft	ADC	18-Oct-18	3	Contract		57,711	3	Hourly			
6	Weber, Larry	Watson	ADC	17-Feb-14	8	Full Time	M	115,547	5				
7	Pratt, Erik	North	Training	23-Mar-12	9	Full Time	DMR	69,212	4				
8	O'Connor, Kent	Taft	Training	15-Apr-05	16	Full Time	DMR	120,198	2				
9	Spencer, Boyd	Main	Training	4-Jun-13	8	Contract		53,818	5				
10	Wiggins, Frank	North	Training	28-May-05	16	Full Time	DMR	113,020	4				
11	Tanner, Timothy	Taft	Training	15-Jul-08	13	Full Time	DMR	82,341	4				
12	Strickland, Rajean	Main	Training	28-Jul-09	12	Full Time	D	98,598	3				

a) Answer to COUNTIF

G2    fx    =COUNTIF(\$A\$1:\$A\$20,"Full Time")

	A	B	C	D	E	F	G	H	I
1	Status	Benefits	Compensation	Rating			Count	Average Compensation	
2	Full Time	DMR	60,981	2		Full Time	12.00	88420.00	
3	Full Time	DM	60,915	1		Half-Time	3.00	22963.33	
4	Contract		48,536	1		Contract	3.00	53355.00	
5	Contract		57,711	3		Hourly	1.00	26700.00	
6	Full Time	M	115,547	5					
7	Full Time	DMR	69,212	4					
8	Full Time	DMR	120,198	2					
9	Contract		53,818	5					
10	Full Time	DMR	113,020	4					
11	Full Time	DMR	82,341	4					
12	Full Time	D	98,598	3					
13	Half-Time	DMR	23,175	1					
14	Full Time	DM	61,076	1					
15	Full Time	DMR	107,968	2					
16	Full Time	D	102,146	5					
17	Half-Time	DMR	23,005	3					
18	Hourly		26,700	2					
19	Half-Time	D	22,710	5					
20	Full Time	R	69,038	4					
21									

VLOOKUP and HLOOKUP    XLookup    Nested IF    Compound IF    COUNTIF AVGIF    IFS Function

G3    fx    =COUNTIF(\$A\$1:\$A\$20,"Half-Time")

	A	B	C	D	E	F	G	H	I
1	Status	Benefits	Compensation	Rating			Count	Average Compensation	
2	Full Time	DMR	60,981	2		Full Time	12.00	88420.00	
3	Full Time	DM	60,915	1		Half-Time	3.00	22963.33	
4	Contract		48,536	1		Contract	3.00	53355.00	
5	Contract		57,711	3		Hourly	1.00	26700.00	
6	Full Time	M	115,547	5					
7	Full Time	DMR	69,212	4					
8	Full Time	DMR	120,198	2					
9	Contract		53,818	5					
10	Full Time	DMR	113,020	4					
11	Full Time	DMR	82,341	4					
12	Full Time	D	98,598	3					
13	Half-Time	DMR	23,175	1					
14	Full Time	DM	61,076	1					
15	Full Time	DMR	107,968	2					
16	Full Time	D	102,146	5					
17	Half-Time	DMR	23,005	3					
18	Hourly		26,700	2					
19	Half-Time	D	22,710	5					
20	Full Time	R	69,038	4					
21									

VLOOKUP and HLOOKUP    XLookup    Nested IF    Compound IF    COUNTIF AVGIF    IFS Function

Ready    Accessibility: Investigate



b) Answer to AVGIF

H2    fx    =AVERAGEIF(A:A,"Full Time",C:C)

	A	B	C	D	E	F	G	H
1	Status	Benefits	Compensation	Rating			Count	Average Compensation
2	Full Time	DMR	60,981	2		Full Time	12.00	88420.00
3	Full Time	DM	60,915	1		Half-Time	3.00	22963.33
4	Contract		48,536	1		Contract	3.00	53355.00
5	Contract		57,711	3		Hourly	1.00	26700.00
6	Full Time	M	115,547	5				
7	Full Time	DMR	69,212	4				
8	Full Time	DMR	120,198	2				
9	Contract		53,818	5				
10	Full Time	DMR	113,020	4				
11	Full Time	DMR	82,341	4				
12	Full Time	D	98,598	3				
13	Half-Time	DMR	23,175	1				
14	Full Time	DM	61,076	1				
15	Full Time	DMR	107,968	2				
16	Full Time	D	102,146	5				
17	Half-Time	DMR	23,005	3				
18	Hourly		26,700	2				
19	Half-Time	D	22,710	5				
20	Full Time	R	69,038	4				
21								

Ready    Accessibility: Investigate

H3    fx    =AVERAGEIF(A:A,"Half-Time",C:C)

	A	B	C	D	E	F	G	H	I
1	Status	Benefits	Compensation	Rating			Count	Average Compensation	
2	Full Time	DMR	60,981	2		Full Time	12.00	88420.00	
3	Full Time	DM	60,915	1		Half-Time	3.00	22963.33	
4	Contract		48,536	1		Contract	3.00	53355.00	
5	Contract		57,711	3		Hourly	1.00	26700.00	
6	Full Time	M	115,547	5					
7	Full Time	DMR	69,212	4					
8	Full Time	DMR	120,198	2					
9	Contract		53,818	5					
10	Full Time	DMR	113,020	4					
11	Full Time	DMR	82,341	4					
12	Full Time	D	98,598	3					
13	Half-Time	DMR	23,175	1					
14	Full Time	DM	61,076	1					
15	Full Time	DMR	107,968	2					
16	Full Time	D	102,146	5					
17	Half-Time	DMR	23,005	3					
18	Hourly		26,700	2					
19	Half-Time	D	22,710	5					
20	Full Time	R	69,038	4					
21									

Ready    Accessibility: Investigate



## M. SUMIF

<https://www.alvinang.sg/s/sumif.xlsx>

### 1. SUM NUMBERS

The screenshot shows an Excel spreadsheet with the following data in column B:

Row	Value
1	10
2	1
3	7
4	20
5	3

The formula bar shows the formula: `=SUMIF(B1:B5,"<=10")`. The result of the formula, 21, is displayed in cell B7. A red box highlights the formula bar and the result cell. Blue arrows point from the formula bar to the data range, and a red arrow points from the result cell to the data range. A text box explains: "sum all those <=10 in B1 to B5 = 21". The "Numeric Criteria" tab is selected at the bottom.

B8    fx    =SUMIF(B1:B5,"<="&D1)

	A	B	C	D	E	F
1	75	10		10		
2	25	1		25		
3	100	7				
4	50	20				
5	25	3				
6						
7		21				
8		21				
9		4				
10		4				
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

sum up all those <=10 in B1 to B5

Numeric Criteria    Text Criteria    Date Criteria    And C

B9    fx    =SUMIF(A1:A5,25,B1:B5)

	A	B	C	D	E	F
1	75	10		10		
2	25	1		25		
3	100	7				
4	50	20				
5	25	3				
6						
7		21				
8		21				
9		4				
10		4				
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

locate all 25 in A1 to A5 then sum all related in B1 to B5

Numeric Criteria    Text Criteria    Date Criteria    And C

	A	B	C	D	E	F	G
1	75	10		10			
2	25	1		25			
3	100	7					
4	50	20					
5	25	3					
6							
7		21					
8		21					
9		4					
10		4					
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

locate all the 25 in A1 to A5  
then sum the related in B1 to B5

2. SUM TEXT

The screenshot shows an Excel spreadsheet with the following data in columns A and B:

	A	B
1	circle6	10
2	triangle	1
3	circle	7
4	circle8	20
5	triangle5	3
6		
7		7
8		40
9		30
10		8
11		21

The formula bar at the top shows the formula: `=SUMIF(A1:A5,"circle",B1:B5)`. The cell B7 contains the result 7. The cell B8 contains the result 40. The text "from A1 to A5 find circle sum the related in B1 to B5" is written in red below the spreadsheet.

The screenshot shows the same Excel spreadsheet as above. The formula bar at the top shows the formula: `=SUMIF(A1:A5,"<>triangle",B1:B5)`. The cell B7 contains the result 7. The cell B8 contains the result 40. Blue arrows point from the text "sum all those that are NOT triangle" to the cells B7 and B8. The text "sum all those that are NOT triangle" is written in red below the spreadsheet.

B9    fx    =SUMIF(A1:A5,"circle?",B1:B5)

	A	B	C	D	E	F	G
1	circle6	10					
2	triangle	1					
3	circle	7					
4	circle8	20					
5	triangle5	3					
6							
7		7					
8		40					
9		30					
10		8					
11		21					
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

sum all those "circle?"

Numeric Criteria    **Text Criteria**    Date Criteria    And Criteria    Or

B10    fx    =SUMIF(A1:A5,"\*le",B1:B5)

	A	B	C	D	E	F	G
1	circle6	10					
2	triangle	1					
3	circle	7					
4	circle8	20					
5	triangle5	3					
6							
7		7					
8		40					
9		30					
10		8					
11		21					
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

sum those ending with "le"

Numeric Criteria    **Text Criteria**    Date Criteria    And Crite

B11     $\times$      $\checkmark$      $f_x$     =SUMIF(A1:A5,"triangle",B1:B5)+SUMIF(A1:A5,"circle8",B1:B5)

	A	B	C	D	E	F	G	H	I	J
1	circle6	10								
2	triangle	1								
3	circle	7								
4	circle8	20								
5	triangle5	3								
6										
7		7								
8		40								
9		30								
10		8								
11		21								
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

Numeric Criteria    **Text Criteria**    Date Criteria    And Criteria    Or Criteria     $\oplus$



### 3. SUM DATES

`=SUMIF(A1:A5,">="&DATE(2018,1,20),B1:B5)`

	A	B
1	21/1/2018	10
2	25/9/2017	1
3	3/8/2018	7
4	30/8/2017	20
5	6/4/2017	3
6		
7		17
8		0
9		21

sum the dates after 20th jan 2018

Numeric Criteria Text Criteria **Date Criteria** And Criteria Or Criteria

`=SUMIF(A1:A5,TODAY(),B1:B5)`

	A	B
1	21/1/2018	10
2	25/9/2017	1
3	3/8/2018	7
4	30/8/2017	20
5	6/4/2017	3
6		
7		17
8		0
9		21

none of them show today's date.. so 0

Numeric Criteria Text Criteria **Date Criteria** And Criteria Or Criteria

`=SUMIFS(B1:B5,A1:A5,">="&DATE(2017,6,1),A1:A5,"<="&DATE(2017,12,31))`

	A	B
1	21/1/2018	10
2	25/9/2017	1
3	3/8/2018	7
4	30/8/2017	20
5	6/4/2017	3
6		
7		17
8		0
9		21
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		

sum the dates between  
1st june 2017 and  
31st dec 2017

Numeric Criteria | Text Criteria | **Date Criteria** | And Criteria | Or Criteria

4. SUM + AND

The screenshot displays an Excel spreadsheet with the following data:

	A	B	C
1	Google	Stanford	3
2	Facebook	Harvard	5
3	Twitter	Stanford	2
4	Facebook	Columbia	5
5	Google	Harvard	4
6	Twitter	Harvard	3
7	Google	Stanford	1
8	Twitter	Harvard	1
9			
10			4
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

The formula bar contains: `=SUMIFS(C1:C8,A1:A8,"Google",B1:B8,"Stanford")`

Red text overlay: only Google AND Stanford together

Bottom ribbon: And Criteria

5. SUM + OR

	A	B	C	D	E	F	G	H	I	J
1	Google	Stanford	3							
2	Facebook	Harvard	5							
3	Twitter	Stanford	2							
4	Facebook	Columbia	5							
5	Google	Harvard	4							
6	Twitter	Harvard	3							
7	Google	Stanford	1							
8	Twitter	Harvard	1							
9										
10			10							
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

Google OR Stanford

Numeric Criteria | Text Criteria | Date Criteria | And Criteria | Or Criteria

---

## II. PIVOT TABLES

---

### A. PART I: PIVOT TABLE USING MANAGE.XLSX

#### 1. USING RECOMMENDED PIVOT TABLES

<https://www.alvinang.sg/s/Manage.xlsx>

The screenshot shows the Microsoft Excel interface with the 'Insert' ribbon selected. The 'Recommended PivotTables' button is highlighted with a red box. A tooltip is visible over this button, containing the text: 'Recommended PivotTables', 'Want us to recommend PivotTables that summarize your complex data?', and 'Click this button to get a customized set of PivotTables that we think will best suit your data.' Below the ribbon, a data table is visible with columns for Year, Month, Location, and Revenue. A red arrow points to the 'Cambridge' cell in row 8, column D, with the text 'select anywhere inside' written next to it.

Year	Month	Location	Revenue
2015	May	Cambridge	\$ 111,353
2015	June	Cambridge	\$ 94,292
2015	July	Cambridge	\$ 112,334
2015	August	Cambridge	\$ 68,446
2015	September	Cambridge	\$ 82,581
2015	October	Cambridge	\$ 103,366
2015	November	Cambridge	\$ 82,564

Recommended PivotTables

Sum of Revenue by RoomType and Year

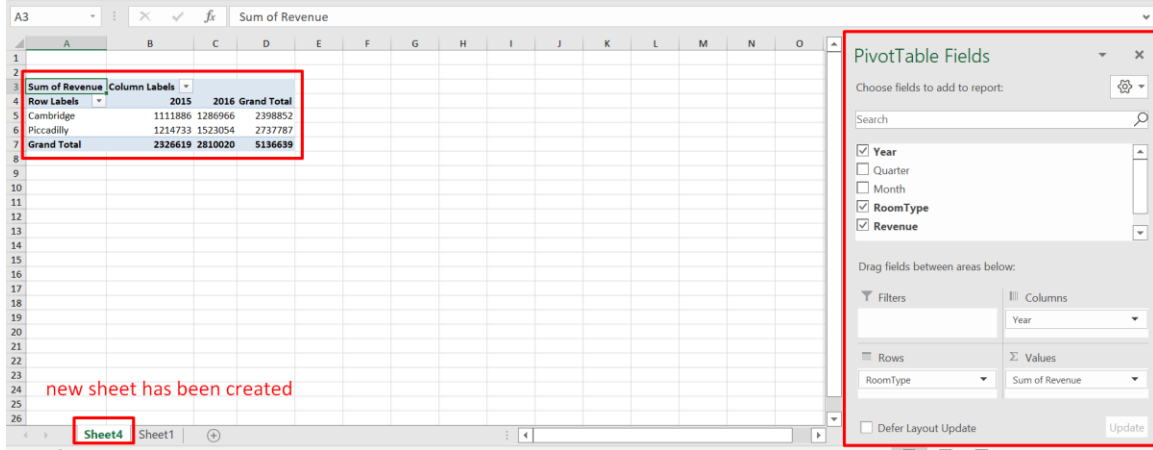
Row Labels	2015	2016	Grand Total
Cambridge	1111886	1286966	2398852
Piccadilly	1214733	1523054	2737787
<b>Grand Total</b>	<b>2326619</b>	<b>2810020</b>	<b>5136639</b>

Sum of Revenue by RoomT...

Row Labels	2015	2016	Grand
Cambridge	1111886	1286966	23
Piccadilly	1214733	1523054	27
<b>Grand Total</b>	<b>2326619</b>	<b>2810020</b>	<b>51</b>

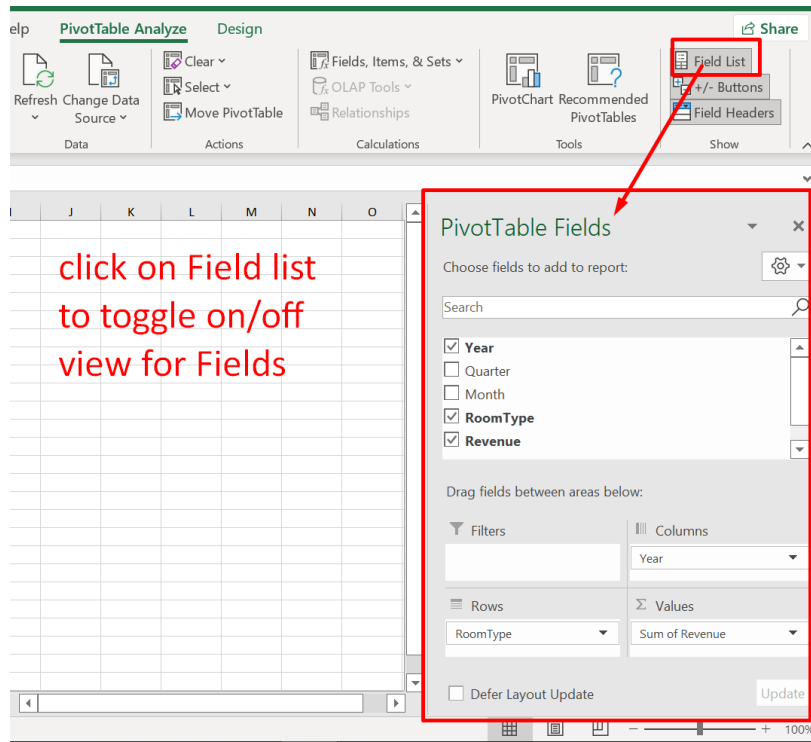
Sum of Revenue by Quarter

Blank PivotTable   [Change Source Data...](#)   **OK**   Cancel



## 2. TOGGLING VIEWING FIELDS

<https://www.alvinang.sg/s/Manage.xlsx>



toggle Field Headers on/off to clear "Row Labels" and "Column Labels" away

Sum of Revenue	Column Labels		
Row Labels	2015	2016	Grand Total
Cambridge	1111886	1286966	2398852
Piccadilly	1214733	1523054	2737787
<b>Grand Total</b>	<b>2326619</b>	<b>2810020</b>	<b>5136639</b>

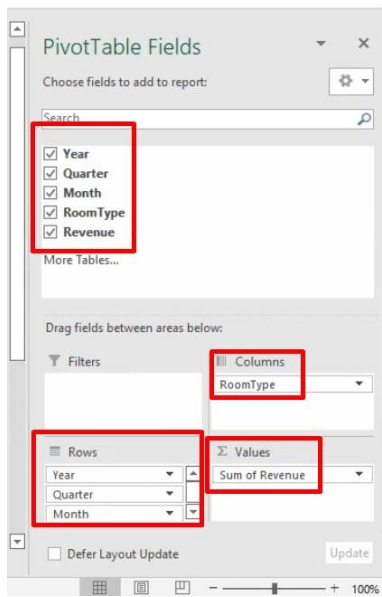


### 3. SUBTOTALS / GRAND TOTALS

<https://www.alvinang.sg/s/Manage.xlsx>

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'PivotTable' icon in the 'Tables' group is highlighted with a red box. The 'PivotTable from table or range' dialog box is open, also highlighted with a red box. The dialog box shows 'Table1' selected as the data source. The 'New Worksheet' radio button is selected. The 'OK' button is highlighted with a blue box. A red arrow points to the 'Table1' selection, with the text 'select anywhere inside the table' written in red.

Year	Quarter	Month	RoomType	Revenue	F	G	H	I	J
2015	1	January	Cambridge	\$ 90,005					
2015	1	February	Cambridge	\$ 104,397					
2015	1	March	Cambridge						
2015	2	April	Cambridge						
2015	2	May	Cambridge						
2015	2	June	Cambridge						
2015	3	July	Cambridge						
2015	3	August	Cambridge						
2015	3	September	Cambridge						
2015	4	October	Cambridge						
2015	4	November	Cambridge						
2015	4	December	Cambridge						
2015	1	January	Piccadilly						
2015	1	February	Piccadilly						
2015	1	March	Piccadilly						
2015	2	April	Piccadilly						
2015	2	May	Piccadilly						
2015	2	June	Piccadilly						
2015	3	July	Piccadilly	\$ 75,955					
2015	3	August	Piccadilly	\$ 76,590					
2015	3	September	Piccadilly	\$ 152,078					
2015	4	October	Piccadilly	\$ 78,984					
2015	4	November	Piccadilly	\$ 134,740					
2015	4	December	Piccadilly	\$ 98,717					
2016	1	January	Cambridge	\$ 134,521					
2016	1	February	Cambridge	\$ 85,955					



File Home Insert Page Layout Formulas Data Review View Help PivotTable Analyze **Design**

Subtotals Grand Totals Report Layout Blank Layout Rows Columns

Row Headers  Banded Rows

Column Headers  Banded Columns

Do Not Show Subtotals

**Show all Subtotals at Bottom of Group**

Show all Subtotals at Top of Group

Include Filtered Items in Totals

Revenue

	E	F	G	H	I	J	K	L	M	N	O
11	April	103543	98960	202503							
12	May	111353	93664	205017							
13	June	94292	98108	192400							
14	<b>3</b>	<b>263361</b>	<b>302621</b>	<b>565982</b>							
15	July	112334	73953	186387							
16	August	68446	76590	145036							
17	September	82581	152078	234659							
18	<b>4</b>	<b>291389</b>	<b>312441</b>	<b>603830</b>							
19	October	103366	78984	182350							
20	November	82564	134740	217304							
21	December	105459	98717	204176							
22	<b>2016</b>	<b>1286966</b>	<b>1523054</b>	<b>2810020</b>							
23	<b>1</b>	<b>350257</b>	<b>387707</b>	<b>737964</b>							
24	January	134521	96206	230727							
25	February	85955	140144	226099							
26	March	129781	151357	281138							
27	<b>2</b>	<b>313819</b>	<b>359937</b>	<b>673756</b>							
28	April	101496	100182	201678							
29	May	89009	130772	219781							
30	June	123314	128983	252297							

all subtotals will appear

Sheet2 Sheet1

File Home Insert Page Layout Formulas Data Review View Help PivotTable Analyze **Design**

Subtotals Grand Totals Report Layout Blank Rows

Row Headers Banded Rows

Column Headers Banded Columns

PivotTable Style Options PivotTable Styles

Revenue

E F G H I J K L M N O

11 April 103543 98960 202503

12 May 111353 93664 205017

13 June 94292 98108 192400

14 **263361 302621 565982**

15 July 112334 73953 186287

16 August 68446 76590 145036

17 September 82581 152078 234659

18 **291389 312441 603830**

19 October 103366 78984 182350

20 November 82564 134740 217304

21 December 105459 98717 204176

22 **1286966 1523054 2810020**

23 **350257 387707 737964**

24 January 134521 96206 230727

25 February 85955 140144 226099

26 March 129781 151357 281138

27 **313819 359937 673756**

28 April 101496 100182 201678

29 May 89009 130772 219781

30 June 123314 128983 252297

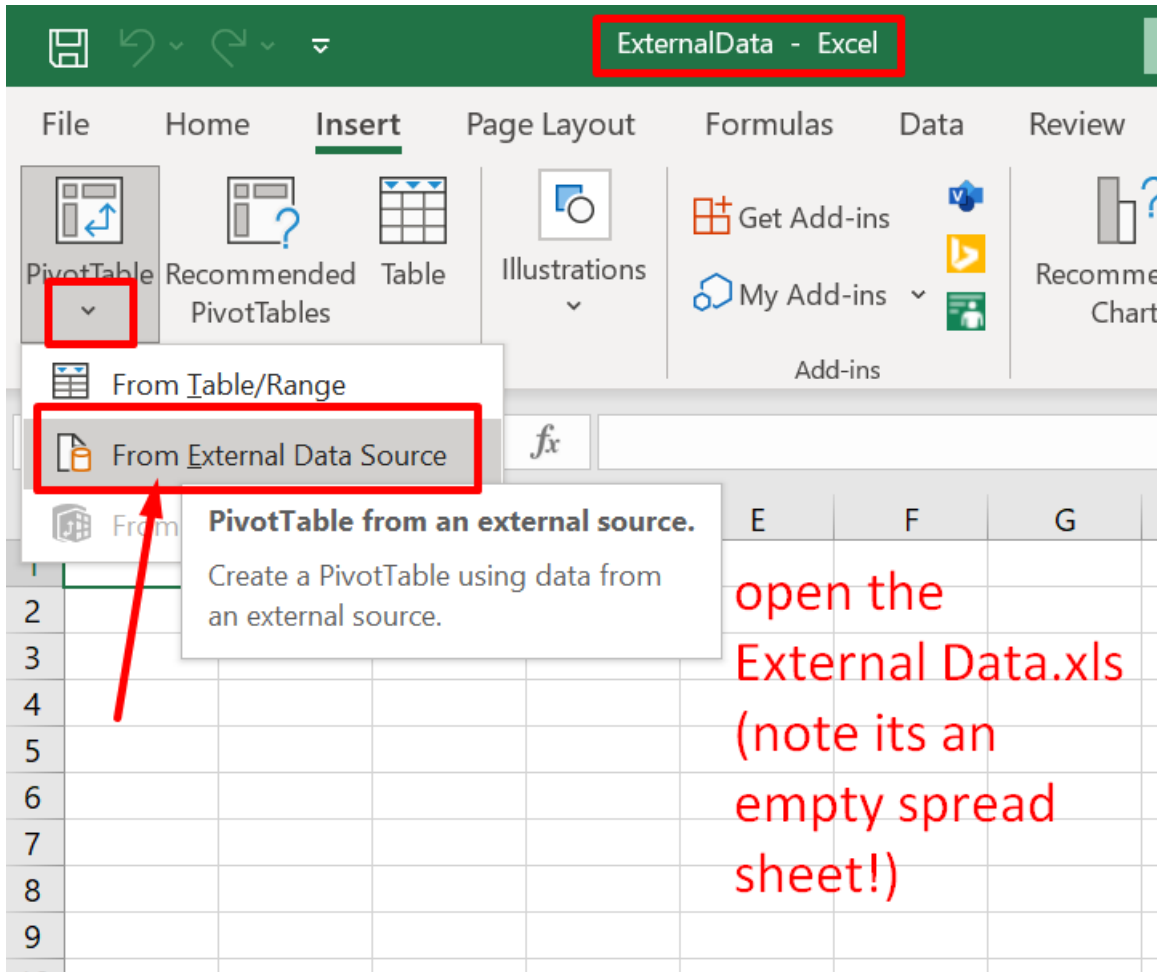
Sheet2 Sheet1

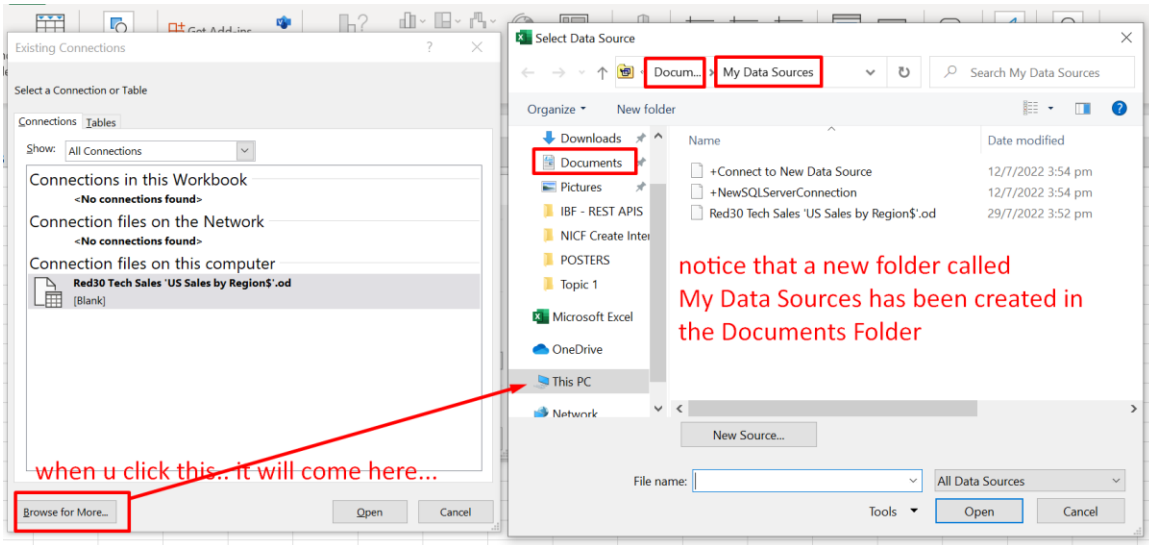
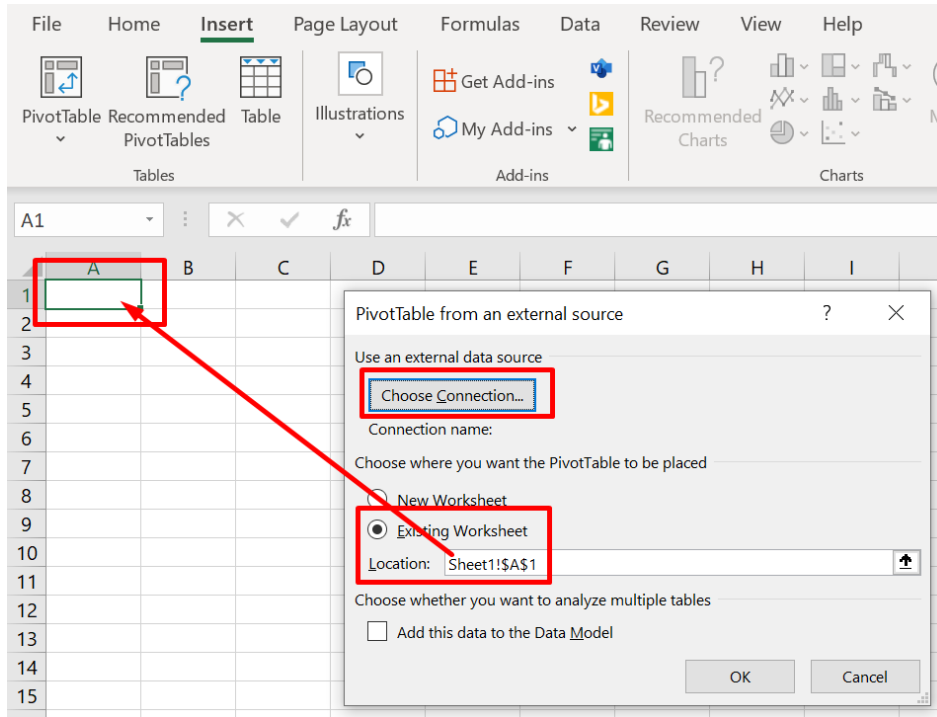
all subtotals will appear

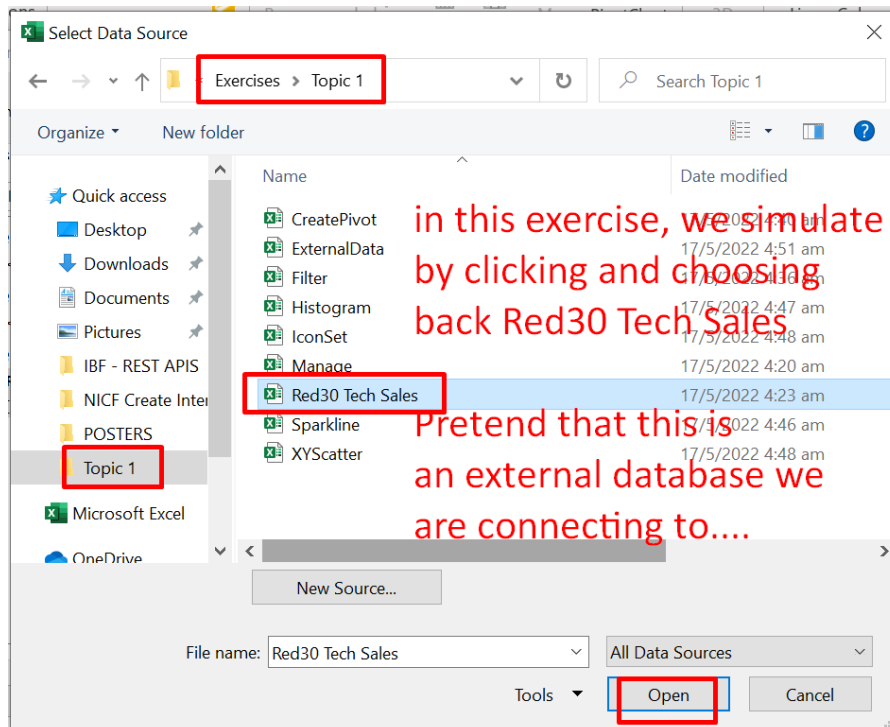
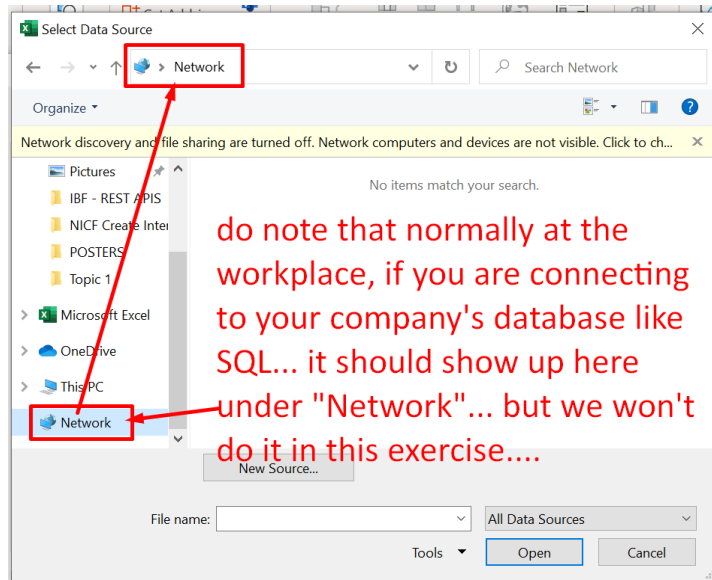
## B. PART II: PIVOT TABLES USING EXTERNALDATA.XLSX

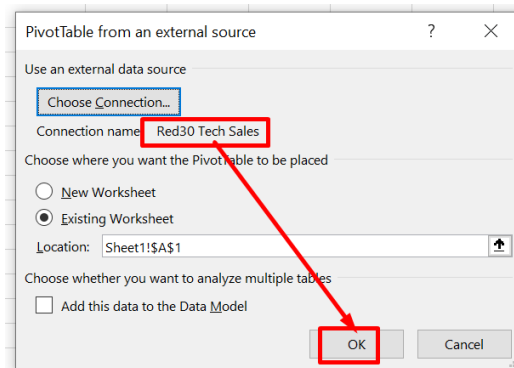
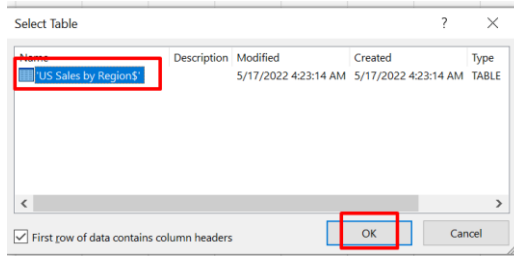
### 1. CONNECTING TO EXTERNAL DATA USING PIVOT TABLE

- External Databases for example Microsoft Access / SQL
- <https://www.alvinang.sg/s/ExternalData.xlsx>
- <https://www.alvinang.sg/s/Red30-Tech-Sales.xlsx>









ExternalData - Excel

File Home Insert Page Layout Formulas Data Review View Help PivotTable Analyze Design

Active Field: Sales Region

Row Labels

Row Labels	Sum of Order Total
Central East	1242641.676
N Central East	1059021.83
N Central West	118137.716
Northeast	1212616.544
Northwest	597354.31
S Central East	824063.202
S Central West	364584.284
Southeast	825828.666
Southwest	654988.126
<b>Grand Total</b>	<b>6899236.354</b>

notice that now ExternalData.xlsx is connected to the Redtech30 Sales.xlsx and you can pivot it

PivotTable Fields

Choose fields to add to report:

Search

Employee Name

Order Total

OrderDate

OrderNum

OrderType

Drag fields between areas below:

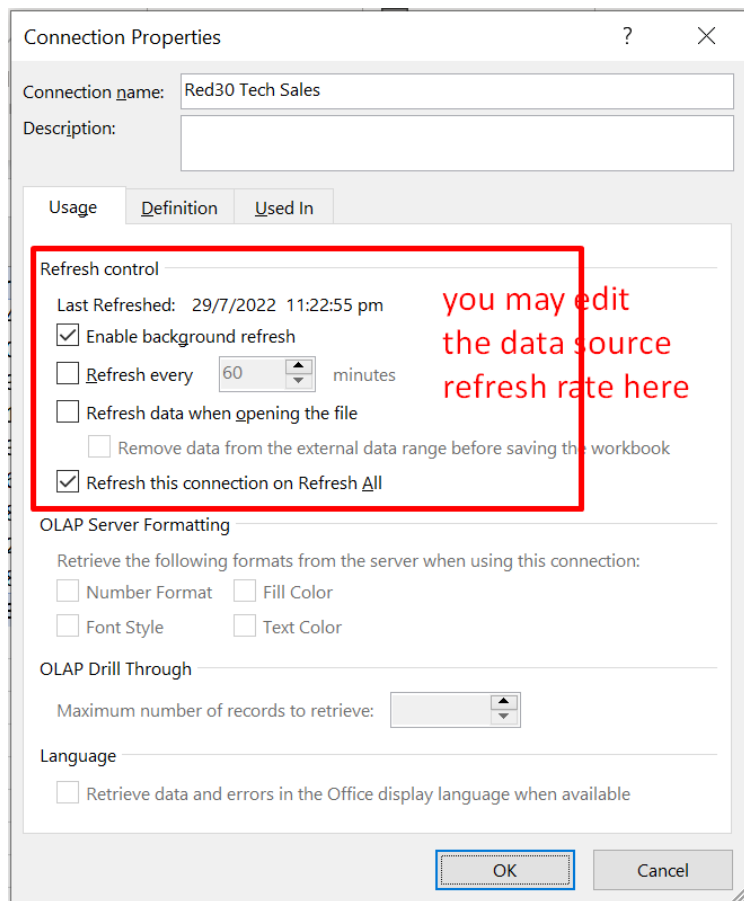
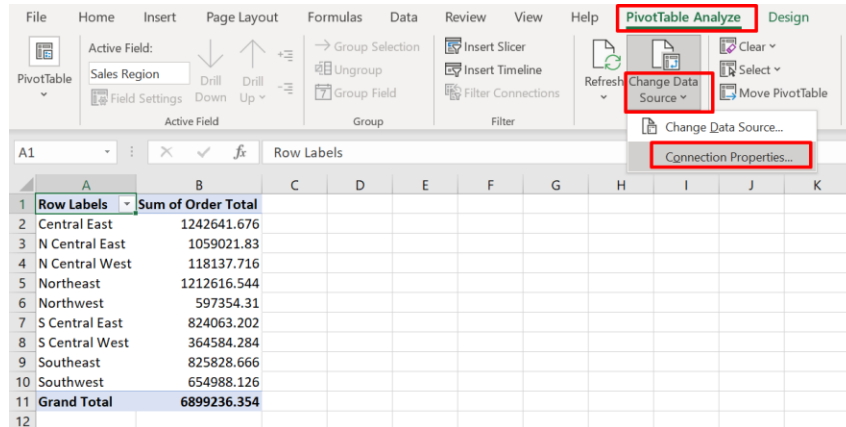
Filters Columns

Rows Values

Sales Region Sum of Order Total

Defer Layout Update Update

## 2. EXTERNAL DATA REFRESH RATE





### C. PART III: PIVOT TABLE USING PIVOT-TABLE.XLSX

#### 1. INSERT PIVOT TABLE

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'PivotTable' icon is highlighted with a red box. The 'PivotTable from table or range' dialog box is open, showing the 'Table/Range' field with the value '=Sheet1 (2)!\$A\$1:\$F\$214'. The 'OK' button is also highlighted with a red box. Red arrows point from the text 'select anywhere inside the data....' to the data range and from 'the data automatically gets selected....' to the 'OK' button.

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$2,320	1/27/2016	United Kingdom
17	Banana	Fruit	\$2,116	1/28/2016	United States
18	Banana	Fruit	\$1,135	1/30/2016	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$2,256	2/4/2016	France

Country (All)

Row Labels	Sum of Amount
Apple	191257
Banana	340295
Beans	57281
Broccoli	142439
Carrots	136945
Mango	57079
Orange	104438
Grand Total	1029734

Product, Amount, Country

Country, Product

Sum of Amount

Sheet1

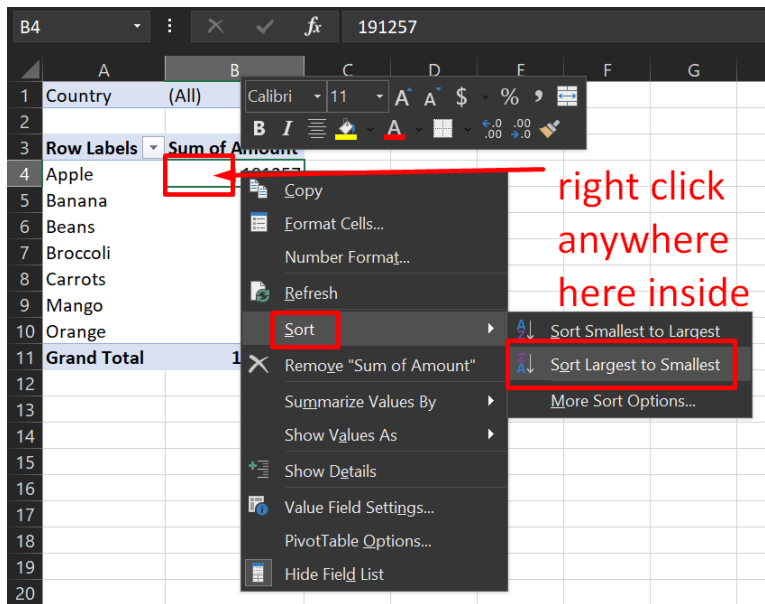
this is shown

drag here

a new worksheet has been created

## 2. SORT PIVOT TABLE

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

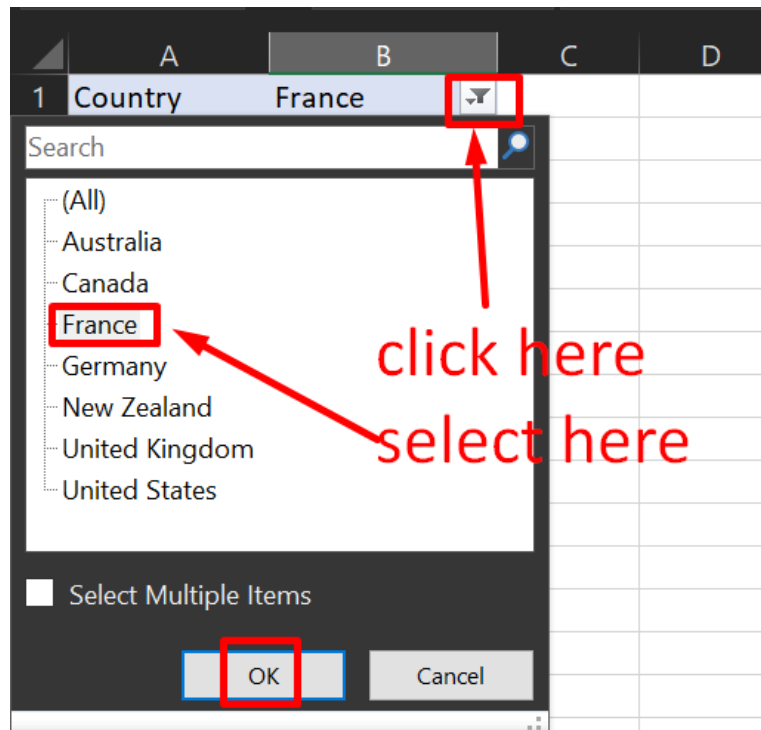


	A	B	C	D
1	Country	(All)		
2				
3	Row Labels	Sum of Amount		
4	Banana	340295		
5	Apple	191257		
6	Broccoli	142439		
7	Carrots	136945		
8	Orange	104438		
9	Beans	57281		
10	Mango	57079		
11	Grand Total	1029734		

this  
is  
shown

### 3. FILTER PIVOT TABLE

File: <https://www.alvinang.sg/s/pivot-table.xlsx>



	A	B	C	D
1	Country	France		
2				
3	Row Labels	Sum of Amount		
4	Apple	80193	this	
5	Banana	36094	is	
6	Carrots	9104	shown	
7	Mango	7388		
8	Broccoli	5341		
9	Orange	2256		
10	Beans	680		
11	Grand Total	141056		

#### 4. VALUE FIELD SETTINGS

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

right click anywhere inside here

Country	France
Apple	8019
Banana	3609
Carrots	910
Mango	738
Broccoli	534
Orange	225
Beans	68
<b>Grand Total</b>	<b>14105</b>

Value Field Settings

Source Name: Amount

Custom Name: Count of Amount

Summarize Values By: Show Values As

Summarize value field by

Choose the type of calculation that you want to use to summarize data from the selected field

- Count
- Average
- Max
- Min
- Product

Number Format OK Cancel

Country	France
Apple	16
Banana	7
Carrots	1
Mango	1
Orange	1
Beans	1
Broccoli	1
<b>Grand Total</b>	<b>28</b>

## 5. PIVOT CHART

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

go back to the original worksheet

click anywhere inside here

we create a new pivot table

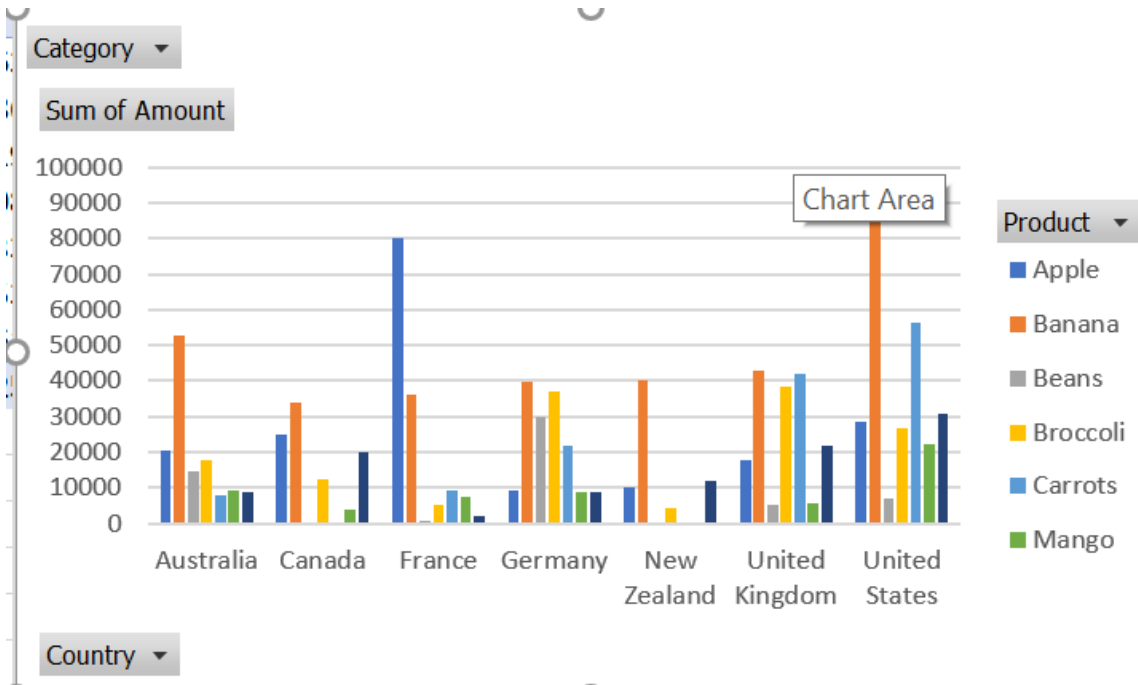
Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
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19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$2,256	2/4/2016	France

Row Labels	Apple	Banana	Beans	Broccoli	Carrots	Mango	Orange	Grand Total
Australia	20634	52721	14433	17953	8106	9186	8680	131713
Canada	24867	33775	12407	12407	3767	19929	94745	
France	80193	36094	680	5341	9104	7388	2256	141056
Germany	9082	39686	29905	37197	21636	8775	8887	155168
New Zealand	10332	40050	4390				12010	66782
United Kingdom	17534	42908	5100	38436	41815	5600	21744	173137
United States	28615	95061	7163	26715	56284	22363	30932	267133
Grand Total	191257	340295	57281	142439	136945	57079	104438	1029734

Microsoft Excel interface showing a PivotTable and the PivotTable Tools ribbon. The 'PivotChart' button is highlighted with a red box. A tooltip for 'PivotChart' is visible, stating: "Insert a PivotChart tied to the data in this PivotTable." The PivotTable data is as follows:

Row Labels	Apple	Banana	Beans	Broccoli	Carrots	Mango	Orange	Grand Total
Australia	20634	52721	14433	17953	8106	9186	8680	131713
Canada	24867	33775		12407		3767	19929	94745
France	80193	36094	680	5341	9104	7388	2256	141056
Germany	9082	39686	29905	37197	21636	8775	8887	155168
New Zealand	10332	40050		4390			12010	66782
United Kingdom	17534	42908	5100	38436	41815	5600	21744	173137
United States	28615	95061	7163	26715	56284	22363	30932	267133
<b>Grand Total</b>	<b>191257</b>	<b>340295</b>	<b>57281</b>	<b>142439</b>	<b>136945</b>	<b>57079</b>	<b>104438</b>	<b>1029734</b>

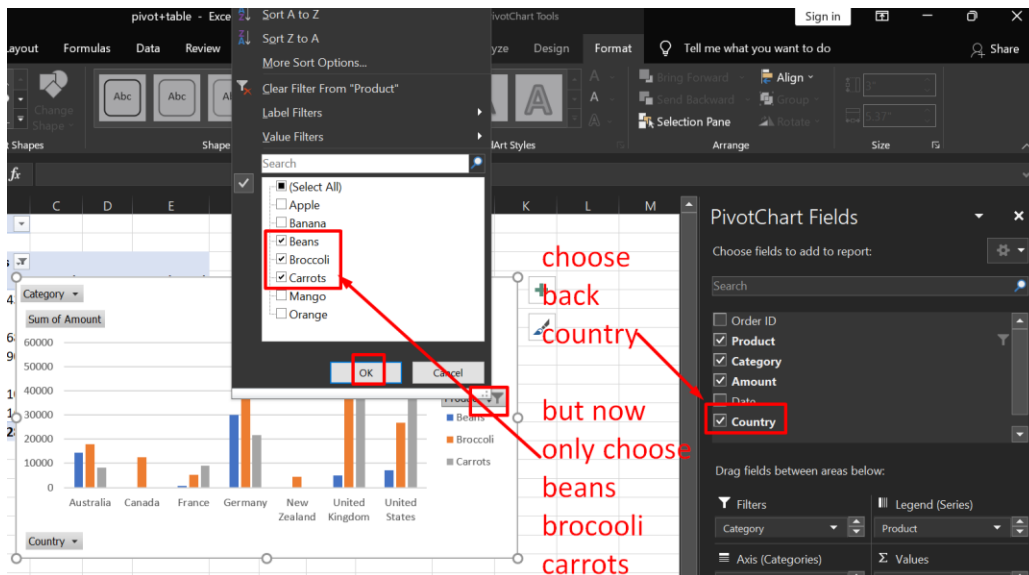
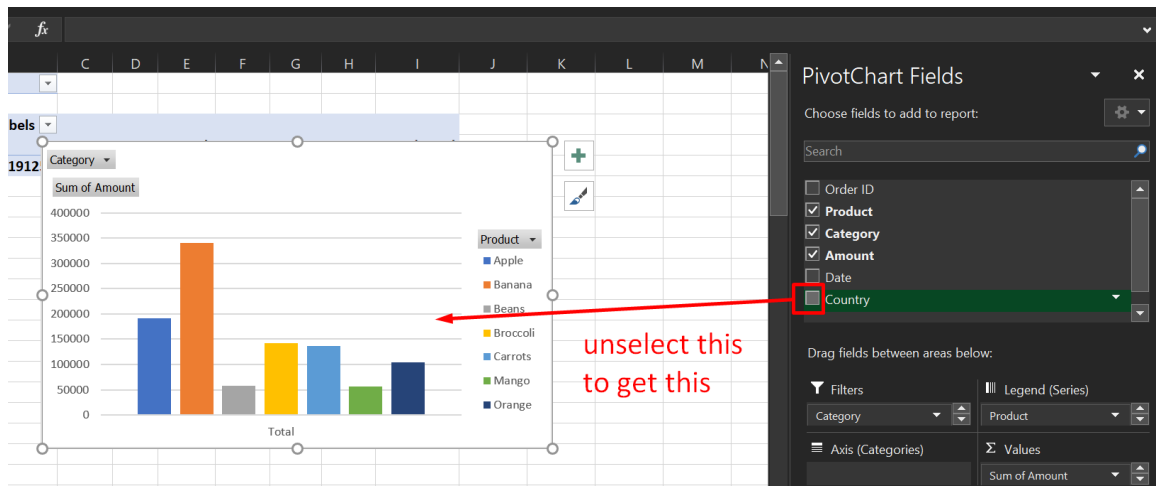
Microsoft Excel 'Insert Chart' dialog box. The 'Column' chart type is selected and highlighted with a red box. A preview of a 'Clustered Column' chart is shown, displaying grouped bars for each country across the product categories. The 'OK' button is also highlighted with a red box.

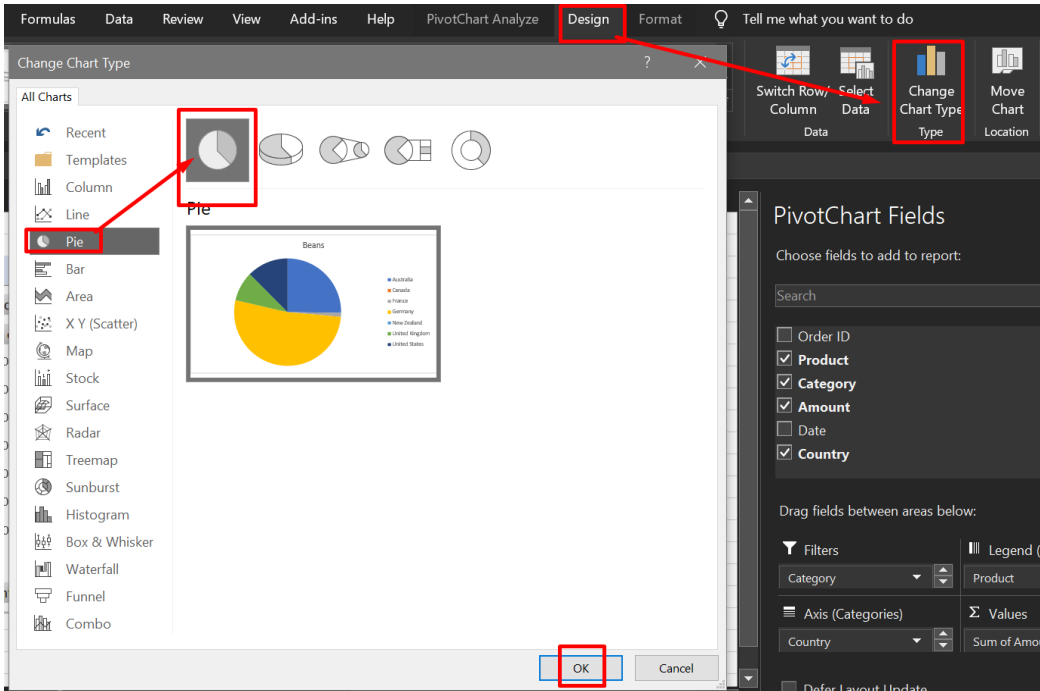




## 6. FILTER PIVOT CHART

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

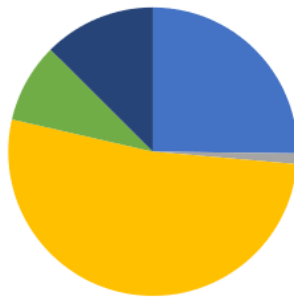




Category ▾

Sum of Amount

Beans



Country ▾

- Australia
- Canada
- France
- Germany
- New Zealand

Product ▾

D. ACTIVITY: CREATE PIVOT TABLE

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: Create PivotTable

- Open topic4.xlsx
- Select AllData worksheet
- Create a PivotTable as shown below

Sum of Order Total	Column Labels			
Row Labels	Bath products	Gift Basket	Olive Oil	Grand Total
Northwest	\$1,909.24	\$6,115.00	\$59,781.50	\$67,805.74
N Central West	\$690.92	\$2,023.50	\$9,023.50	\$11,737.92
S Central West	\$2,250.08	\$9,118.00	\$94,364.75	\$105,732.83
Southwest	\$5,897.97	\$19,232.00	\$201,590.75	\$226,720.72
Northeast	\$4,267.56	\$16,985.00	\$190,249.75	\$211,502.31
N Central East	\$6,905.36	\$21,533.00	\$241,459.75	\$269,898.11
Central East	\$5,315.40	\$16,309.50	\$230,126.50	\$251,751.40
S Central East	\$7,458.55	\$25,524.50	\$306,705.00	\$339,688.05
Southeast	\$5,101.97	\$18,900.50	\$199,862.25	\$223,864.72
<b>Grand Total</b>	<b>\$39,797.05</b>	<b>#####</b>	<b>#####</b>	<b>#####</b>

# 1. ANSWER TO CREATE PIVOT TABLE

**GIVEN DATA**

OrderNum	OrderDate	EmpID	Employee Name	Employee Job Title	Sales Region	OrderType	CustID	CustType	CustName	CustState	ProdCat	ProdNumber	ProdName	Quantity	Price	Order Total
1102898	3/1/2020	900018625	Norm Hawkins	Sales Representative	Southwest	Retail	3355	Individual	Nike Vero Florida	Olive Oil	OO126	Lemon Extra Virj	1	\$	234.00	\$ 234.00
1102899	3/1/2020	900019273	Michelle Tiffany	Sales Representative	Central East	Retail	2211	Individual	Trip Trow Maryland	Olive Oil	OO609	Lemon Extra Virj	3	\$	123.00	\$ 369.00
1102900	3/1/2020	900018625	Norm Hawkins	Sales Representative	Southwest	Retail	2275	Individual	Uriel Cast Florida	Olive Oil	OO201	Extra Virgin Oliv	2	\$	45.00	\$ 90.00
1102901	4/1/2020	900012995	Brenda Albany	Senior Sales Represen	Central East	Retail	1590	Individual	Brandea A Kentucky	Olive Oil	OO124	Basil Extra Virg	2	\$	234.00	\$ 468.00
1102902	4/1/2020	900016415	Tanya Tibbets	Sales Representative	Northwest	Retail	2951	Individual	Deonne Di Washington	Olive Oil	OO602	Extra Virgin Oliv	3	\$	134.00	\$ 342.00
1102903	4/1/2020	900019856	Henry Rodriguez	Sales Associate I	Southwest	Retail	1337	Individual	Evangelini California	Olive Oil	OO303	Extra Virgin Oliv	3	\$	24.50	\$ 73.50
1102904	4/1/2020	900015961	Wyrona Smith	Sales Associate II	Northwest	Retail	1589	Individual	Forrest H New York	Olive Oil	OO606	Basil Extra Virg	2	\$	123.00	\$ 246.00
1102905	4/1/2020	900017953	Delaney Marschke	Sales Associate I	S Central West	Wholesale	4070	Business	Kub Inc Utah	Olive Oil	OO126	Lemon Extra Virj	5	\$	234.00	\$ 1170.00
1102906	4/1/2020	900018625	Norm Hawkins	Sales Representative	Southwest	Retail	2161	Individual	Sollie Iwer Alabama	Bath produc	BP101	Lavender and Ol	1	\$	8.50	\$ 8.50
1102907	4/1/2020	900011079	Marla Pflifer	Sales Representative	Southwest	Retail	1606	Individual	Stephine I California	Olive Oil	OO608	Rosemary Extra	2	\$	123.00	\$ 246.00
1102908	5/1/2020	900019019	Alexandra Kundt	Senior Sales Associate S	Central East	Wholesale	2402	Business	Daugherty Texas	Olive Oil	OO127	Rosemary Extra	14	\$	234.00	\$ 3276.00
1102909	5/1/2020	900015961	Wyrona Smith	Sales Associate II	Northwest	Retail	3422	Individual	Horatio B New York	Olive Oil	OO605	Chili Extra Virg	2	\$	123.00	\$ 246.00
1102910	6/1/2020	900011701	Georgia Eddowes	Sales Representative	Southwest	Retail	3189	Individual	Dara Pres Alabama	Olive Oil	OO602	Extra Virgin Oliv	4	\$	134.00	\$ 536.00
1102911	6/1/2020	900010859	Nick Chen	Sales Representative	S Central East	Retail	1311	Individual	Geri Hadd Arkansas	Olive Oil	OO121	Extra Virgin Oliv	4	\$	19.50	\$ 78.00
1102912	6/1/2020	900015499	Lauren Skip	Senior Sales Associate N	Central East	Retail	2748	Individual	Odele Car Indiana	Olive Oil	OO609	Lemon Extra Virj	2	\$	123.00	\$ 246.00
1102913	7/1/2020	900012506	Lisa Freere	Sales Associate V	N Central East	Retail	3236	Individual	Helene Sp Ohio	Olive Oil	OO126	Lemon Extra Virj	4	\$	234.00	\$ 936.00
1102914	7/1/2020	900019334	Mitch White	Sales Associate I	Southwest	Wholesale	2963	Business	Homemick Georgia	Olive Oil	OO123	Extra Virgin Oliv	2	\$	234.00	\$ 468.00
1102915	7/1/2020	900010428	Colby Hallberg	Sales Representative	N Central East	Retail	2888	Individual	Lane Wash Illinois	Olive Oil	OO301	Extra Virgin Oliv	3	\$	24.50	\$ 73.50
1102916	7/1/2020	900012506	Lisa Freere	Sales Associate V	N Central East	Retail	2730	Individual	Loria Breu Indiana	Olive Oil	OO604	Extra Virgin Oliv	3	\$	134.00	\$ 342.00
1102917	7/1/2020	900011701	Georgia Eddowes	Sales Representative	Southwest	Retail	1251	Individual	Odele Hal Alabama	Bath produc	BP505	Vanilla and Olive	1	\$	9.99	\$ 9.99
1102918	8/1/2020	900019019	Alexandra Kundt	Senior Sales Associate S	Central East	Retail	2253	Individual	Far Pow Mississippi	Olive Oil	OO302	Chili Extra Virg	4	\$	26.00	\$ 104.00
1102919	9/1/2020	900019856	Henry Rodriguez	Sales Associate I	Southwest	Retail	2968	Individual	Binky Esca California	Bath produc	BP103	Lavender and Ol	3	\$	5.99	\$ 17.97
1102920	9/1/2020	900018712	Dru Clingman	Sales Associate II	S Central East	Retail	3554	Individual	Gennifer T Texas	Olive Oil	OO120	Extra Virgin Oliv	4	\$	234.00	\$ 936.00
1102921	9/1/2020	900012283	Igor Hansen	Sales Associate	N Central East	Retail	2663	Individual	Guthrie V Michigan	Olive Oil	OO605	Chili Extra Virg	3	\$	123.00	\$ 369.00
1102922	9/1/2020	900015961	Wyrona Smith	Sales Associate II	Northwest	Wholesale	2260	Business	Klocke LLC Connecticut	Olive Oil	OO128	Chili Extra Virg	1	\$	234.00	\$ 234.00
1102923	9/1/2020	900016439	Alyssa Smoak	Sales Associate IV	Northwest	Retail	1240	Individual	Lynelle Te New York	Olive Oil	OO205	Rosemary Extra	1	\$	45.00	\$ 45.00
1102924	9/1/2020	900013621	Hannah Rosenstock	Sales Associate	Southwest	Retail	1639	Individual	Pietro Tea California	Olive Oil	OO121	Extra Virgin Oliv	2	\$	19.50	\$ 39.00
1102925	9/1/2020	900012203	Christen Barrett	Sales Associate I	S Central East	Retail	3582	Individual	Rosemaro Arkansas	Bath produc	BP401	Assorted Olive C	7	\$	18.50	\$ 79.00

**PivotTable Fields**

Choose fields to add to report:

- CustState
- ProdCategory
- ProdNumber
- ProdName
- Quantity
- Price
- Order Total

Drag fields between areas below:

**Filters:** Sales Region

**Columns:** ProdCategory

**Rows:** Sum of Order Total

**Values:** Sum of Order Total

Row Labels	Bath products	Gift Basket	Olive Oil	Grand Total
Northwest	\$1,909.24	\$6,115.00	\$59,781.50	\$67,805.74
N Central West	\$690.92	\$2,023.50	\$9,023.50	\$11,737.92
S Central West	\$2,250.08	\$9,118.00	\$94,364.75	\$105,732.83
Southwest	\$5,897.97	\$19,232.00	\$201,590.75	\$226,720.72
Northeast	\$4,267.56	\$16,985.00	\$190,249.75	\$211,502.31
N Central East	\$6,905.36	\$21,533.00	\$241,459.75	\$269,898.11
Central East	\$5,315.40	\$16,309.50	\$230,126.50	\$251,751.40
S Central East	\$7,458.55	\$25,524.50	\$306,705.00	\$339,688.05
Southwest	\$5,101.97	\$18,900.50	\$199,862.25	\$223,864.72
<b>Grand Total</b>	<b>\$39,797.05</b>	<b>\$135,741.00</b>	<b>\$1,533,163.75</b>	<b>\$1,708,701.80</b>

## E. PIVOT CHART USING CREATEPIVOT.XLSX

<https://www.alvinang.sg/s/CreatePivot.xlsx>

### 1. INSERTING PIVOT CHART

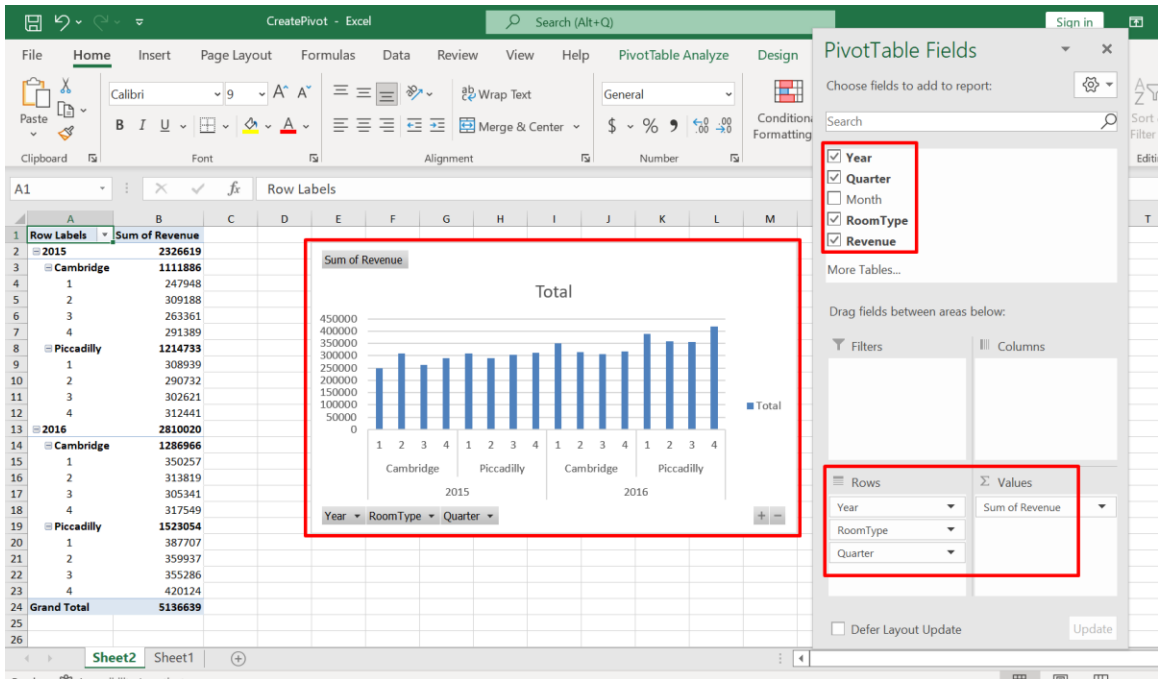
The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'PivotChart' button is highlighted with a red box. Below the ribbon, a PivotTable is displayed with the following data:

Year	Quarter	Month	RoomType	Revenue
2015	1	January	Cambridge	\$ 90,005
2015	1	February	Cambridge	\$ 104,397
2015	1	March	Cambridge	\$ 53,546
2015	2	April	Cambridge	\$ 103,543
2015	2	May	Cambridge	\$ 144,953
2015	2	June	Cambridge	\$ 94,292
2015	3	July	Cambridge	\$ 112,334
2015	3	August	Cambridge	\$ 68,446
2015	3	September	Cambridge	\$ 82,581
2015	4	October	Cambridge	\$ 103,366
2015	4	November	Cambridge	\$ 92,554

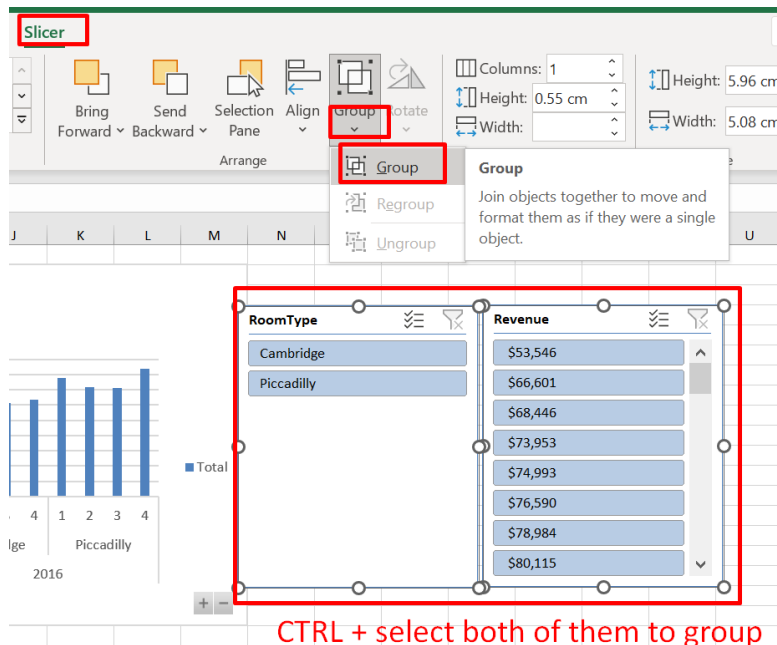
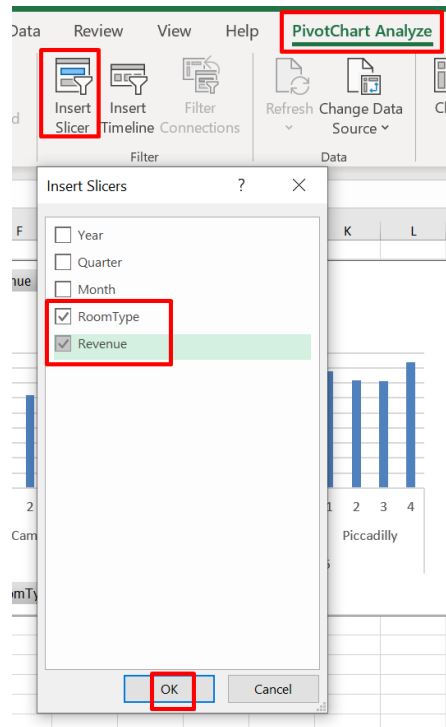
The 'Create PivotChart' dialog box is shown with the following settings:

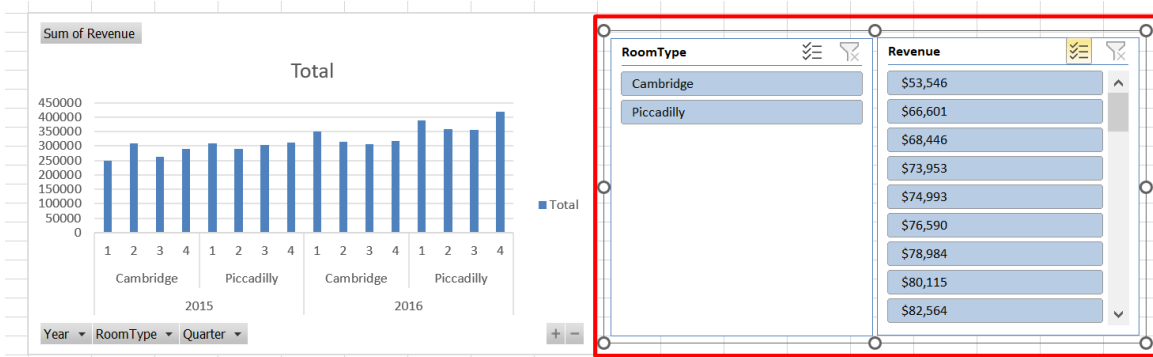
- Choose the data that you want to analyze:
  - Select a table or range
  - Table/Range: Table1
  - Use an external data source
  - Use this workbook's Data Model
- Choose where you want the PivotChart to be placed:
  - New Worksheet
  - Existing Worksheet
- Choose whether you want to analyze multiple tables:
  - Add this data to the Data Model

The 'OK' button is highlighted with a red box.



## 2. INSERT SLICER INTO PIVOT CHART





you can now resize the group of slicers and play around the filter to watch the chart change!!!

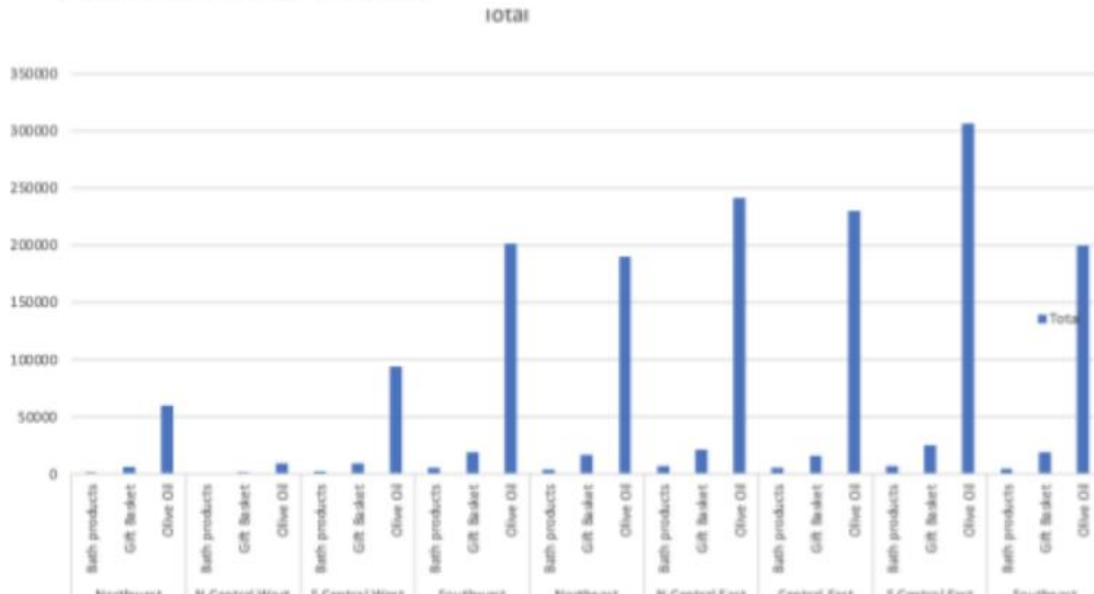


### 3. ACTIVITY: PIVOT CHART

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: PivotChart

- Open topic4.xlsx
- Select Pivot Chart worksheet
- Create a Pivot Chart as show below
- Add a slicer filter.



a) Answer to Pivot Chart

The screenshot shows the Excel interface with the PivotTable Analyze ribbon selected. The PivotTable data is as follows:

Row Labels	Sum of Order Total
Northwest	\$67,805.74
N Central West	\$11,737.92
S Central West	\$105,732.83
Southwest	\$226,720.72
Northeast	\$211,502.31
N Central East	\$269,898.11
Central East	\$251,751.40
S Central East	\$339,688.05
Southeast	\$223,864.72
Grand Total	\$1,708,701.80

The PivotChart is a clustered column chart titled 'Total' showing the sum of order totals for each sales region. The y-axis ranges from \$0.00 to \$400,000.00. The x-axis lists the sales regions. A red box highlights the chart area, and another red box highlights the 'PivotChart' button in the ribbon. A red arrow points from the text 'select anywhere inside' to the cell containing the value \$226,720.72 in the PivotTable.

## F. SLICERS

### 1. SLICERS USING PIVOT-TABLE.XLSX

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

#### a) Create Pivot Table

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'PivotTable' icon is highlighted in red. The 'PivotTable from table or range' dialog box is open, showing the 'Table/Range' field with the formula '=Sheet1 (2)!\$A\$1:\$F\$214' highlighted in red. The 'OK' button is also highlighted in red. Red arrows point from the text 'select anywhere inside the data....' to the 'Table/Range' field and from 'the data automatically gets selected....' to the data range in the spreadsheet.

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$2,320	1/27/2016	United Kingdom
17	Banana	Fruit	\$2,116	1/28/2016	United States
18	Banana	Fruit	\$1,135	1/30/2016	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$2,256	2/4/2016	France

Country (All)

Row Labels	Sum of Amount
Apple	191257
Banana	340295
Beans	57281
Broccoli	142439
Carrots	136945
Mango	57079
Orange	104438
Grand Total	1029734

Product

- Order ID
- Product
- Category
- Amount
- Date
- Country

Filters: Country

Rows: Product

Values: Sum of Amount

Sheet1

this is shown

drag here

a new worksheet has been created

b) Insert Slicer

first, u need to select anywhere inside this dataset

Country	(All)
Row Labels	Sum of Amount
Banana	340295
Apple	191257
Broccoli	142439
Carrots	136945
Orange	104138
Beans	57281
Mango	57079
Grand Total	1029734

Country	United States
Row Labels	Sum of Amount
Banana	95061
Carrots	56284
Orange	30932
Apple	28615
Broccoli	26715
Mango	22363
Beans	7163
Grand Total	267133

### c) Styling a Slicer

first u need to select anywhere inside this dataset

Country	United States
Banana	95061
Carrots	56284
Orange	30932
Apple	28615
Broccoli	26715
Mango	22363
Beans	7163
Grand Total	267133

use ctrl to select these 3

Country	United States
Banana	95061
Broccoli	26715
Beans	7163
Grand Total	128939

d) Slicer with Second Pivot Table

note that this is where we left off from the previous section.... a pivot table with 2 slicers has been created in Sheet 1.....

Country	Sum of Amount
Banana	95061
Beans	7163
Broccoli	26715
<b>Grand Total</b>	<b>128939</b>

we select anywhere inside the dataset.....

we create another pivot table into Sheet 1.....

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$3,230	1/27/2016	United Kingdom

United States

Country	United States
Banana	95061
Beans	7163
Broccoli	26715
<b>Grand Total</b>	<b>128939</b>

PivotTable from table or range

Sheet1!\$E\$1

Country: Australia, Canada, France, Germany, New Zealand, United Kingdom, United States

Product: Apple, Banana, Beans, Broccoli, Carrots, Mango, Orange

Sheet1 | Sheet1 (2)

choose back the sheet 1 where your first pivot table was created....

then choose anywhere to place the 2nd pivot table...

PivotTable from table or range

Select a table or range

Table/Range: 'Sheet1 (2)!\$A\$1:\$F\$214

Choose where you want the PivotTable to be placed

New Worksheet

Existing Worksheet

Location: Sheet1!\$E\$1

Choose whether you want to analyze multiple tables

Add this data to the Data Model

OK Cancel



**PivotTable Fields**

Choose fields to add to report:

- Order ID
- Product**
- Category
- Amount**
- Date
- Country**

Drag fields between areas below:

**Filters:** Country

**Columns:**

Product Sum of Amount

Country	Sum of Amount
Apple	191257
Banana	340295
Beans	57281
Broccoli	142439
Carrots	136945
Mango	57079
Orange	104438
<b>Grand Total</b>	<b>1029734</b>

**Slicer**

Slicer Caption: Country

Report Connections

**Report Connections (Country)**

Select PivotTable and PivotChart reports to connect to this filter

Name	Sheet
<input checked="" type="checkbox"/> PivotTable1	Sheet1
<input checked="" type="checkbox"/> <b>PivotTable2</b>	Sheet1
<input type="checkbox"/> PivotTable2	Sheet2

select this slicer  
click report connection

Country	Count of Amount
Banana	23
Broccoli	4
Beans	1
<b>Grand Total</b>	<b>28</b>

File Home Insert Page Layout Formulas Data Review View Add-ins Help Slicer Tell me what you want to do

Slicer Caption: Product

Slicer Settings Report Connections

Slicer Styles

Product

Country	United States	Country	United States
Row Labels	Count of Amount	Row Labels	Sum of Amount
Banana	23	Banana	95061
Broccoli	4	Beans	7163
Beans	1	Broccoli	26715
Grand Total	28	Grand Total	128939

Report Connections (Product)

Select PivotTable and PivotChart reports to connect to this filter

Name	Sheet
<input checked="" type="checkbox"/> PivotTable1	Sheet1
<input checked="" type="checkbox"/> PivotTable2	Sheet1
<input type="checkbox"/> PivotTable2	Sheet2

OK Cancel

Country

- Australia
- Canada
- France
- Germany
- New Zealand
- United Kingdom
- United States

Product

- Apple
- Banana
- Beans
- Broccoli
- Carrots
- Mango
- Orange

do the same, select this slicer and click report connections

Sheet1 Sheet2 Sheet1 (2)

Country	Canada	Country	Canada
Row Labels	Count of Amount	Row Labels	Sum of Amount
Banana	7	Apple	24867
Apple	6	Banana	33775
Orange	3	Broccoli	12407
Broccoli	3	Mango	3767
Mango	1	Orange	19929
Grand Total	20	Grand Total	94745

Country

- Australia
- Canada
- France
- Germany
- New Zealand
- United Kingdom
- United States

Product

- Apple
- Banana
- Broccoli
- Mango
- Orange
- Beans
- Carrots

click here to remove all filters in second slicer

CONCLUSION:  
No export to Canada for Beans or Carrots

Sheet1 Sheet2 Sheet1 (2)

Country	Canada	Country	Canada
<b>Row Labels</b>	<b>Count of Amount</b>	<b>Row Labels</b>	<b>Sum of Amount</b>
Apple	6	Apple	24867
Orange	3	Orange	19929
<b>Grand Total</b>	<b>9</b>	<b>Grand Total</b>	<b>44796</b>

**Country**

- Australia
- Canada**
- France
- Germany
- New Zealand
- United Kingdom
- United States

**Product**

- Apple**
- Banana
- Broccoli
- Mango
- Orange**
- Beans
- Carrots

**CONCLUSION:**  
 6 orders of Apples to Canada  
 3 orders of Orange to Canada  
 Total amount \$44796

## 2. SLICERS USING FILTER.XLSX

<https://www.alvinang.sg/s/Filter.xlsx>

select anywhere inside

this was predefined

OK

PivotTable Analyze

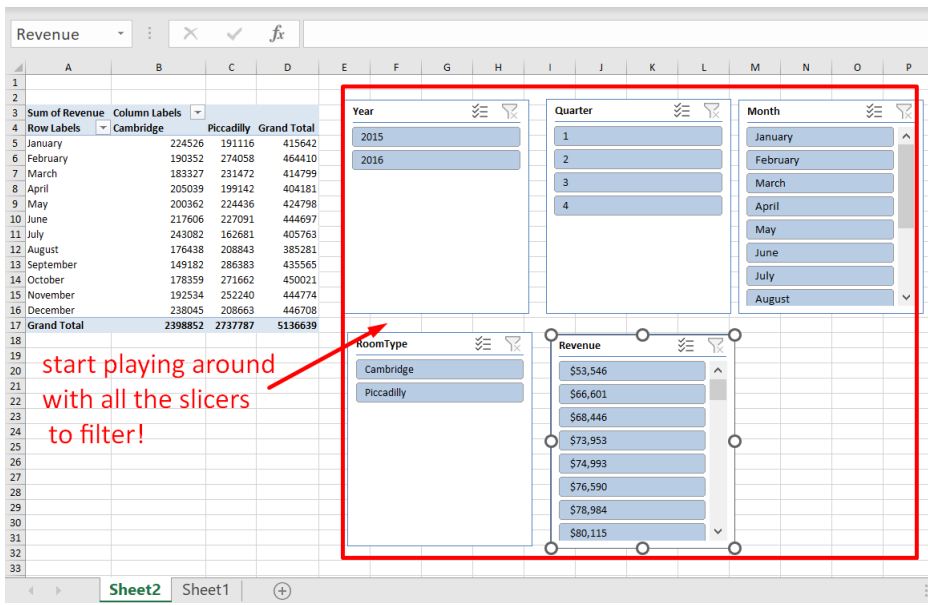
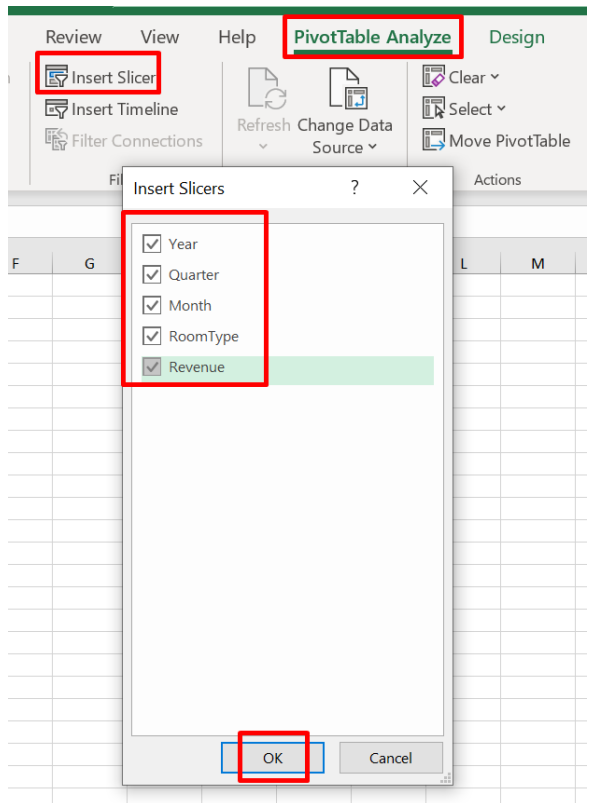
Sum of Revenue

Month	Cambridge	Piccadilly	Grand Total
January	224526	191116	415642
February	190352	274058	464410
March	183327	231472	414799
April	205039	199142	404181
May	200362	224436	424798
June	217606	227091	444697
July	243082	162681	405763
August	176438	208843	385281
September	149182	286383	435565
October	178359	271662	450021
November	192534	252240	444774
December	238045	208663	446708
<b>Grand Total</b>	<b>2398852</b>	<b>2737787</b>	<b>5136639</b>

Month

RoomType

Sum of Revenue



### 3. ACTIVITY: SLICER

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: Slicer

- Open topic4.xlsx
- Select Slicer worksheet
- Add a slicer for the sales region.



a) Answer to Slicer

The screenshot shows the Microsoft Excel interface with the PivotTable Analyze ribbon selected. The 'Insert Slicer' button is highlighted with a red box. The 'Insert Slicers' dialog box is open, showing a list of fields with 'Sales Region' checked and highlighted by a red box. The 'OK' button is also highlighted with a red box. In the background, a PivotTable is visible with columns for 'Gift Basket', 'Olive Oil', and 'Grand Total', and rows for various sales regions. A red box highlights a cell in the 'Olive Oil' column, with the text 'select anywhere inside' written in red above it. The PivotTable Slicer for 'Sales Region' is also visible on the right side of the PivotTable.

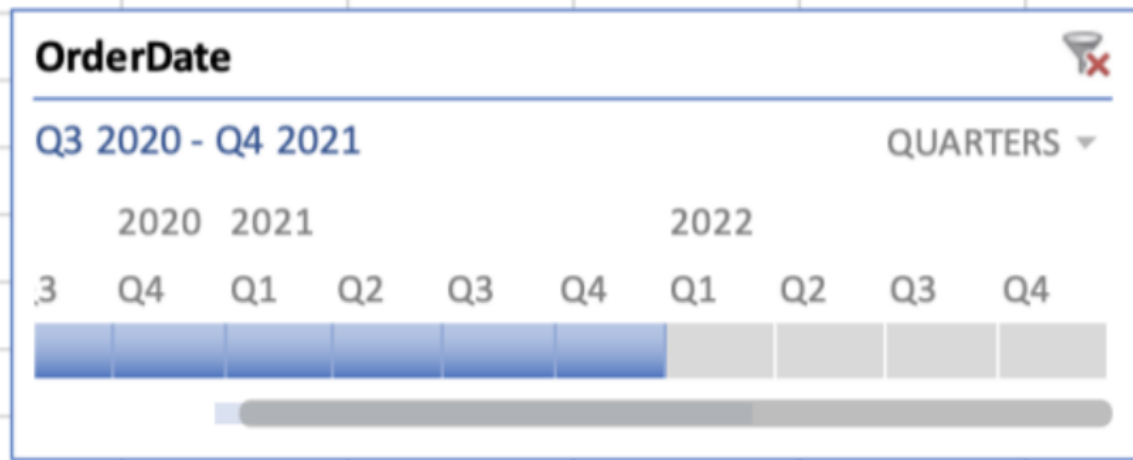
	Gift Basket	Olive Oil	Grand Total	Sales Region
Central East	\$16,309.50	\$230,126.50	\$251,751.40	Central East
N Central East	\$21,533.00	\$241,159.75	\$269,898.11	N Central East
N Central West	\$2,023.50	\$9,023.50	\$11,737.92	N Central West
Northeast	\$16,985.00	\$190,249.75	\$211,502.31	Northeast
Northwest	\$6,115.00	\$59,781.50	\$67,805.74	Northwest
S Central East	\$25,524.50	\$306,705.00	\$339,688.05	S Central East
S Central West	\$9,118.00	\$94,364.75	\$105,732.83	S Central West
Southeast	\$18,900.50	\$199,862.25	\$223,864.72	
Southwest	\$19,232.00	\$201,590.75	\$226,720.72	

4. ACTIVITY: TIMELINE

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: Timeline Filter

- Open topic4.xlsx
- Select Timeline worksheet
- Add a timeline filter for the order date.





a) Answer to Timeline

The screenshot shows the Microsoft Excel interface with the PivotTable Analyze ribbon selected. The ribbon includes options like 'Insert Slicer', 'Insert Timeline', and 'Filter Connections'. The 'Insert Timeline' option is highlighted with a red box. A red arrow points from this option to a PivotTable in the worksheet. The PivotTable has 'Row Labels' and 'Sum of Order Total' columns. The data shows '2021' with a total of '\$318,758.16' and 'Qtr4' with a total of '\$218,758.16'. A 'Timeline Filter' dialog box is open, showing 'OrderDate' selected. The dialog box has a red box around the 'OrderDate' field. A red arrow points from the 'OrderDate' field in the dialog box to the PivotTable. The 'Timeline Filter' dialog box shows a timeline for 'OrderDate' with years 2020, 2021, and 2022, and quarters Q1, Q2, Q3, and Q4. The 'Q4 2021' period is selected. The 'Timeline Filter' dialog box has a red box around the 'Timeline Filter' label. The 'Timeline Filter' dialog box has 'OK' and 'Cancel' buttons.

select anywhere inside

Timeline Filter

Row Labels	Sum of Order Total
2021	\$318,758.16
Qtr4	\$218,758.16
Grand Total	

OrderDate

Q4 2021

2020 2021 2022

3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

## G. CALCULATED FIELDS

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

select anywhere inside the data....

the data automatically gets selected....

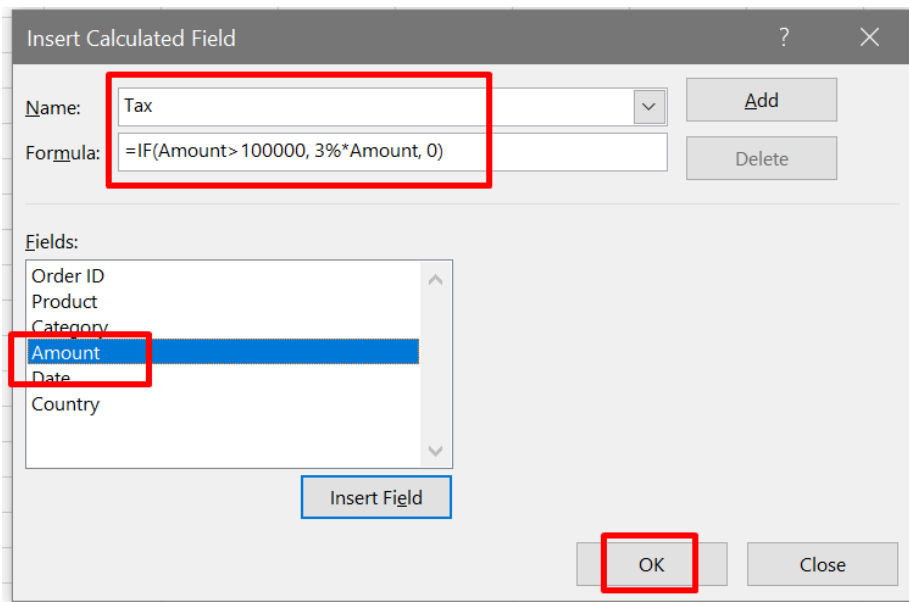
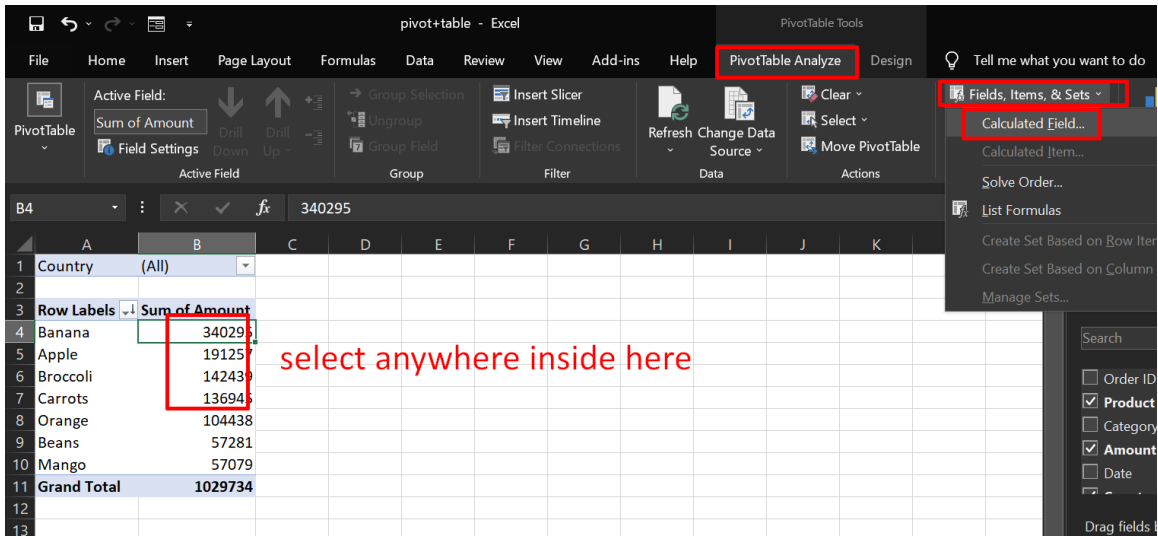
Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$2,320	1/27/2016	United Kingdom
17	Banana	Fruit	\$2,116	1/28/2016	United States
18	Banana	Fruit	\$1,135	1/30/2016	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$2,256	2/4/2016	France

this is shown

drag here

a new worksheet has been created

Country	Sum of Amount
Apple	191257
Banana	340295
Beans	57281
Broccoli	142439
Carrots	136945
Mango	57079
Orange	104438
Grand Total	1029734



=IF(Amount>100000, 3%\*Amount, 0)

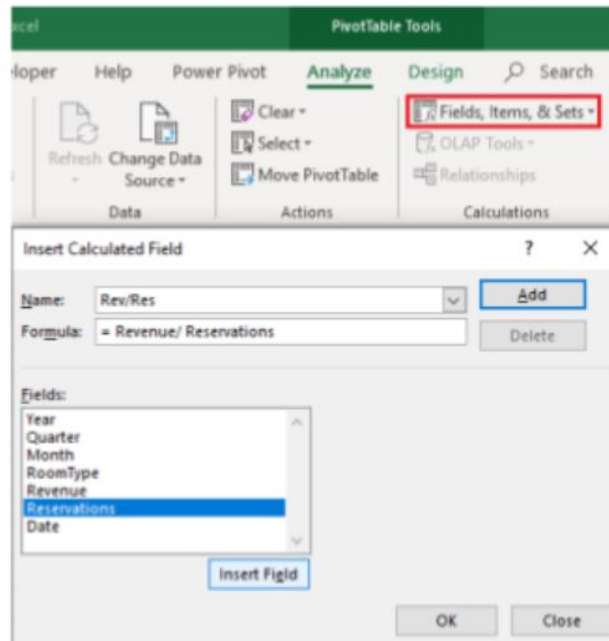
	A	B	C
1	Country	(All) <input type="button" value="v"/>	
2			
3	Row Labels <input type="button" value="v"/>	Sum of Amount	Sum of Tax
4	Banana	340295	\$10,209
5	Apple	191257	\$5,738
6	Broccoli	142439	\$4,273
7	Carrots	136945	\$4,108
8	Orange	104438	\$3,133
9	Beans	57281	\$0
10	Mango	57079	\$0
11	<b>Grand Total</b>	<b>1029734</b>	<b>\$30,892</b>
12			
13			

1. ACTIVITY: CALCULATED FIELD

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: Calculated Field

- Open topic4.xlsx
- Select Calculated Field worksheet
- Add a new field  $\text{Rev/Res} = \text{Revenue/Reservations}$



## 2. ANSWER TO CALCULATED FIELD

The screenshot shows the Excel interface with the 'PivotTable' button in the 'Insert' tab selected. A dropdown menu is open, and the 'From Table/Range' option is highlighted. A red box is drawn around the 'From Table/Range' option and the 'Cambridge' data source in the dialog box. A red arrow points from the 'From Table/Range' option to the 'Cambridge' data source.

	Year	Month	RoomType	Revenue	Reservations
2	2014	1 January	Cambridge	\$ 90,005	451
3	2014	1 February	Cambridge	\$ 104,397	522
4	2014	1 March	Cambridge	\$ 53,546	268
5	2014	2 April	Cambridge	\$ 103,543	518
6	2014	2 May	Cambridge	\$ 111,353	557
7	2014	2 June	Cambridge	\$ 94,292	472
8	2014	3 July	Cambridge	\$ 112,334	562
9	2014	3 August	Cambridge	\$ 68,446	343
10	2014	3 September	Cambridge	\$ 82,581	413
11	2014	4 October	Cambridge	\$ 103,366	517

The screenshot shows the Excel interface with a PivotTable and the PivotTable Fields task pane. The PivotTable is a summary table for 'Sum of Revenue' by 'Year' and 'Month'. The PivotTable Fields task pane shows 'RoomType' in the Filters area, 'Year' and 'Month' in the Rows area, and 'Sum of Revenue' in the Values area. Red boxes highlight the 'RoomType' field in the Filters area, the 'Year' and 'Month' fields in the Rows area, and the 'Sum of Revenue' field in the Values area. A red box also highlights the 'Calculated Field' button in the task pane.

Row Labels	Cambridge	Piccadilly	Grand Total
2014	1111886	1214733	2326619
January	90005	94910	184915
February	104397	133914	238311
March	53546	80115	133661
April	103543	98960	202503
May	111353	93664	205017
June	94292	98108	192400
July	112334	73953	186287
August	68446	76590	145036
September	82581	152078	234659
October	103366	78984	182350
November	82564	134748	217312
December	105459	98717	204176
2015	1286966	1523054	2810020
January	134521	96206	230727
February	85955	140144	226099
March	129781	151357	281138

The screenshot displays an Excel PivotTable with the following data:

Row Labels	Cambridge	Piccadilly	Grand Total
<b>2014</b>	<b>1111886</b>	<b>1214733</b>	<b>2326619</b>
January	90005	94910	184915
February	104397	133914	238311
March	53546	80115	133661
April	103543	98960	202503
May	111353	93664	205017
June	94292	98108	192400
July	112334	73953	186287
August	68446	76590	145036
September	82581	152078	234659
October	103366	78984	182350
November	82564	134740	217304
December	105459	98717	204176
<b>2015</b>	<b>1286966</b>	<b>1523054</b>	<b>2810020</b>
January	134521	96206	230727
February	85955	140144	226099
March	129781	151357	281138

Insert Calculated Field

Name: Revenue per Reservation

Formula: = Revenue/ Reservations

Fields:

- Year
- Quarter
- Month
- RoomType
- Revenue
- Reservations

Insert Field

OK

Close

**FINAL ANSWER FOR CALCULATED FIELD**

Row Labels	Sum of Revenue	Sum of Revenue per Reservation	Sum of Revenue	Sum of Revenue per Reservation	Total Sum of Revenue	Total Sum of Revenue per Reservation
<b>2014</b>	<b>1111886</b>	<b>199.8357297</b>	<b>1214733</b>	<b>274.702171</b>	<b>2326619</b>	<b>232.9880833</b>
January	90005	199.5676275	94910	274.3063584	184915	232.0138018
February	104397	199.9942529	133914	274.9774127	238311	236.185332
March	53546	199.7985075	80115	274.3664384	133661	238.6803571
April	103543	199.8899614	98960	274.8888889	202503	230.6412301
May	111353	199.9156194	93664	274.6744868	205017	228.3040089
June	94292	199.7711864	98108	274.8123249	192400	232.0868516
July	112334	199.8825623	73953	274.9182156	186287	224.1720818
August	68446	199.5510204	76590	274.516129	145036	233.1768489
September	82581	199.9539952	152078	274.5090253	234659	242.6670114
October	103366	199.934236	78984	274.25	182350	226.5217391
November	82564	199.9128329	134740	274.9795918	217304	240.6467331
December	105459	199.7329545	98717	274.9777159	204176	230.1871477
<b>2015</b>	<b>1286966</b>	<b>199.8704768</b>	<b>1523054</b>	<b>274.72114</b>	<b>2810020</b>	<b>234.5005424</b>
January	134521	199.8826152	96206	274.8742857	230727	225.5395894
February	85955	199.8953488	140144	274.7921569	226099	240.5308511
March	129781	199.9707242	151357	274.6950998	281138	234.2816667
April	101496	199.7952756	100182	274.4712329	201678	231.0171821
May	89009	199.5717489	130772	274.7310924	219781	238.3741866
June	123314	199.8606159	128983	274.4319149	252297	232.1039558
July	130748	199.9204893	88728	274.6996904	219476	224.642784
August	107992	199.9851852	132253	274.954262	240245	235.3036239





## H. CALCULATED ITEM

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

appears like this

Row Labels	Sum of Amount	Sum of Tax
<b>Banana</b>	<b>340295</b>	<b>\$10,209</b>
Australia	52721	\$0
Canada	33775	\$0
France	36094	\$0
Germany	39686	\$0
New Zealand	40050	\$0
United Kingdom	42908	\$0
United States	95061	\$0
<b>Apple</b>	<b>191257</b>	<b>\$5,738</b>
Australia	20634	\$0
Canada	24867	\$0
France	80193	\$0
Germany	9082	\$0
New Zealand	10332	\$0
United Kingdom	17534	\$0
United States	28615	\$0
<b>Broccoli</b>	<b>142439</b>	<b>\$4,273</b>

PivotTable Fields

Choose fields to add to report:

Search

Country

Tax

More Tables: drag here

Drag fields between areas below:

Filters

Columns

Rows

Product

Country

Sum of Amount

Sum of Tax

**PivotTable Fields**

Choose fields to add to report:

Search

- Move Up
- Move Down
- Move to Beginning
- Move to End
- Move to Report Filter
- Move to Row Labels
- Move to Column Labels
- Move to Values
- Remove Field**
- Field Settings...

Columns: Product, Country

Values: Sum of Amount, Sum of Tax

---

**PivotTable Analyze**

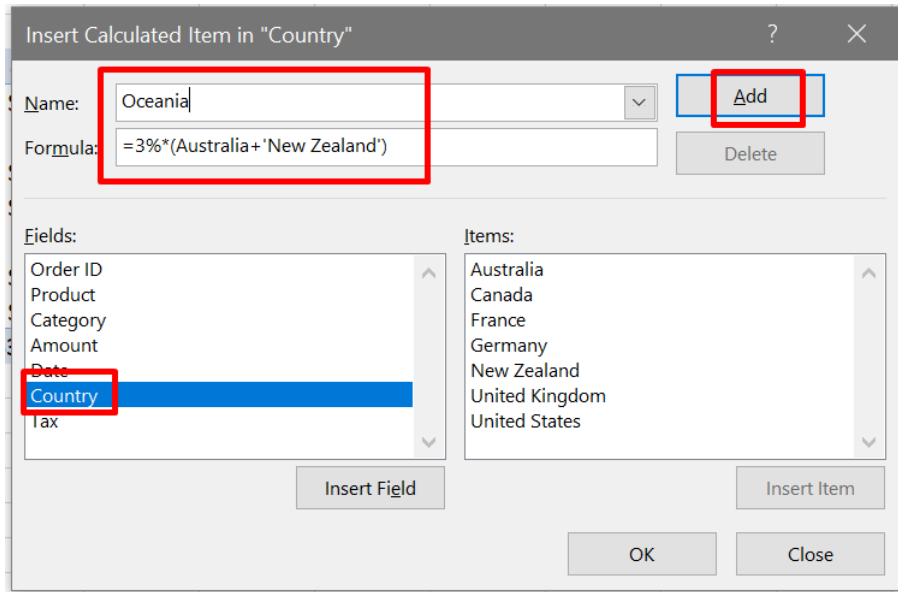
Fields, Items, & Sets

- Calculated Field...
- Calculated Item...**
- Solve Order...
- List Formulas
- Create Set Based on Row Items...
- Create Set Based on Column Items...
- Manage Sets...

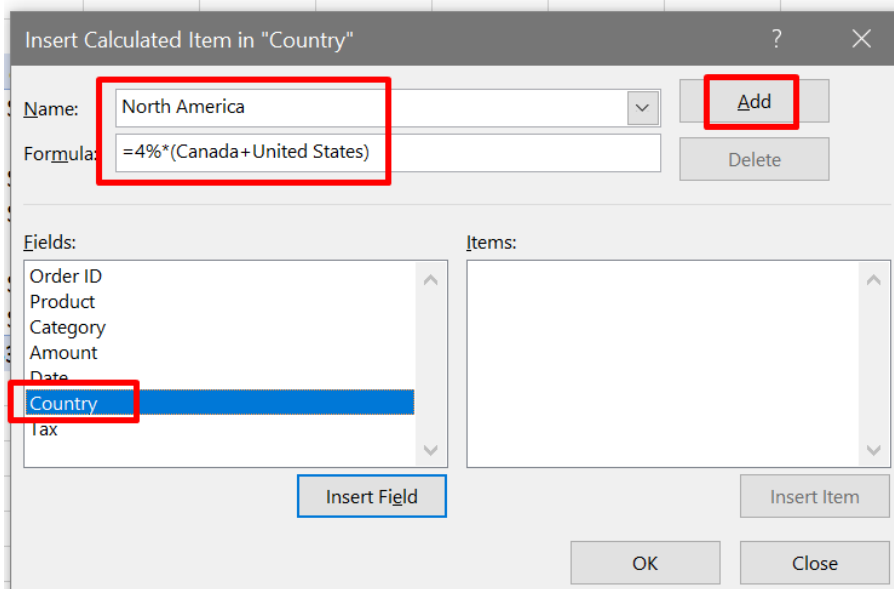
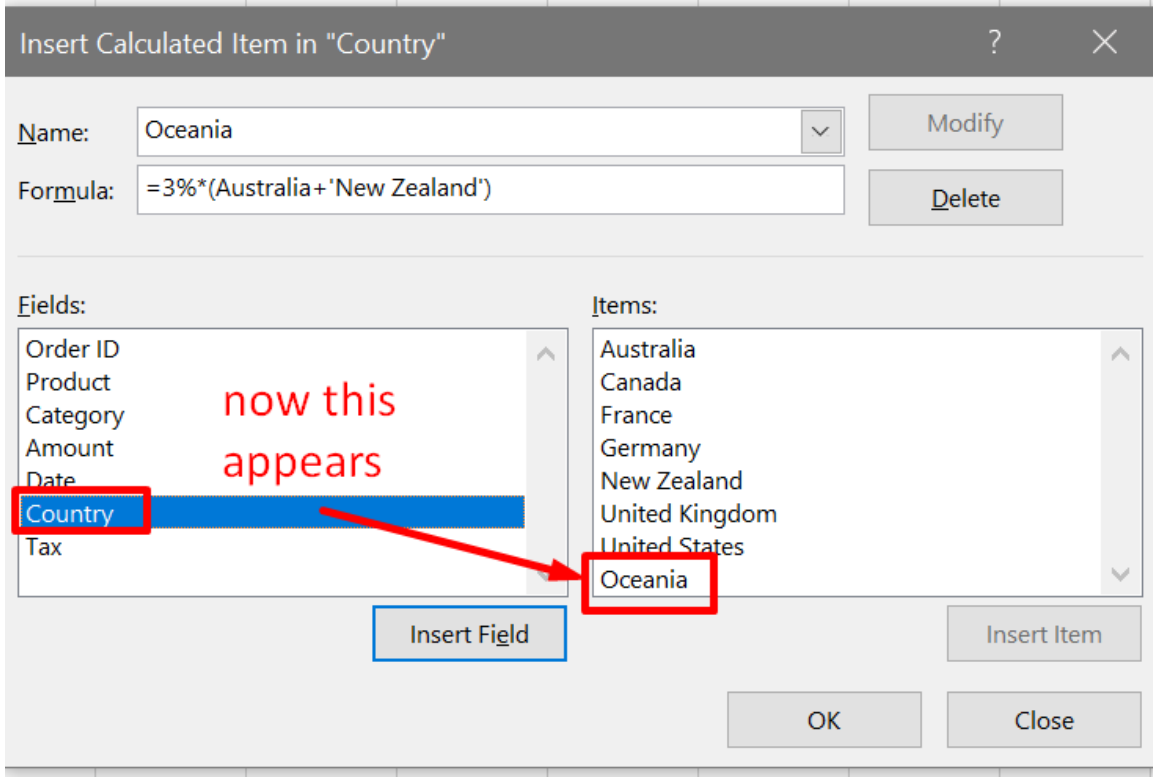
---

Row Labels	Sum of Amount	Sum of Tax
Australia	131713	\$3,951
Canada	24743	\$0
France	141056	\$4,232
Germany	155168	\$4,655
New Zealand	66782	\$0
United Kingdom	173137	\$5,194
United States	267133	\$8,014
<b>Grand Total</b>	<b>1029734</b>	<b>\$30,892</b>

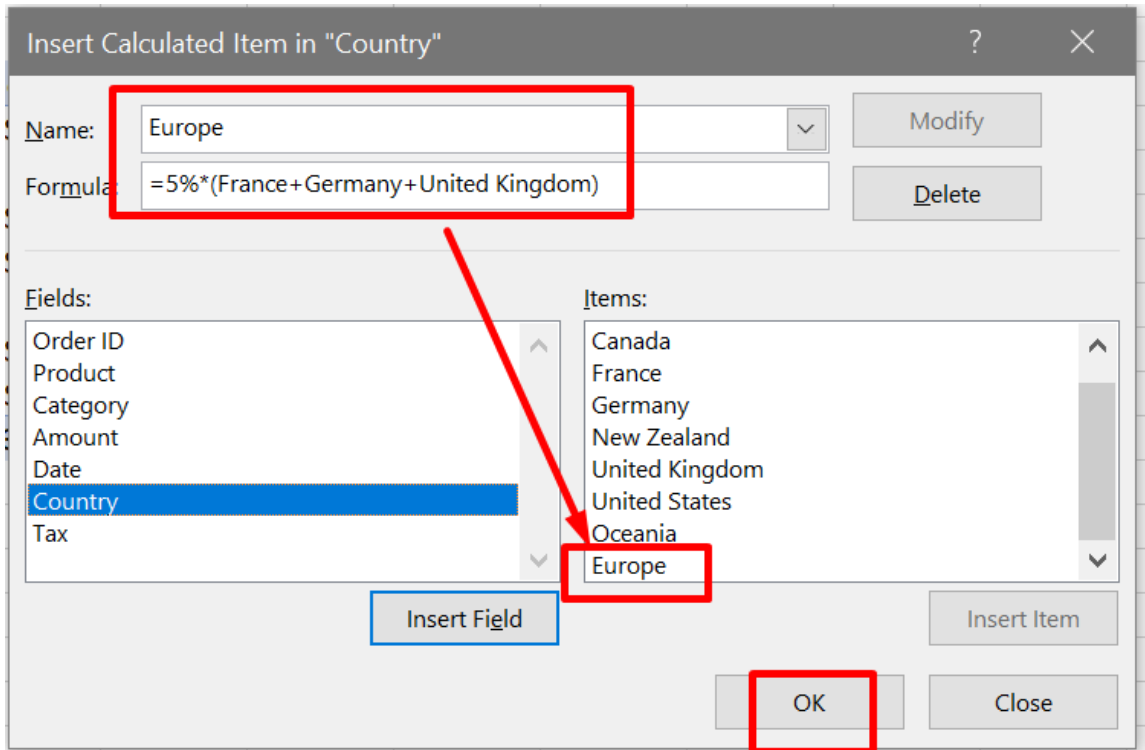
click any country inside here



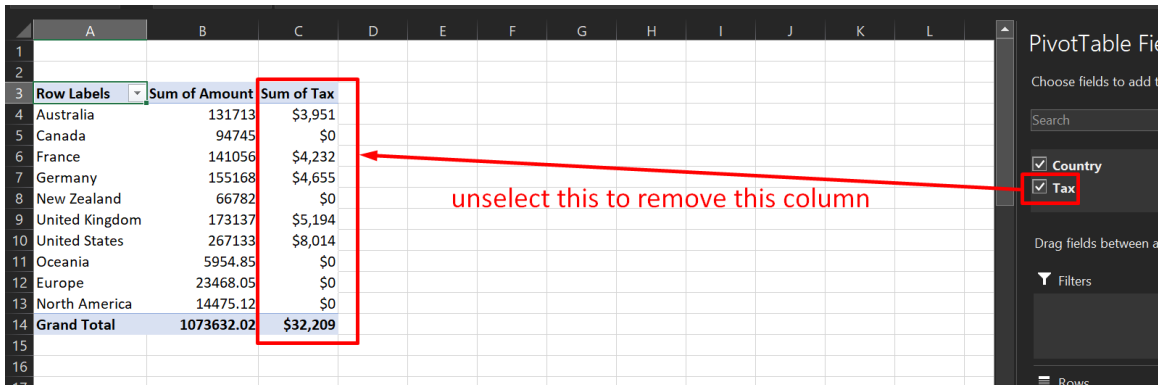
=3%\*(Australia+'New Zealand')

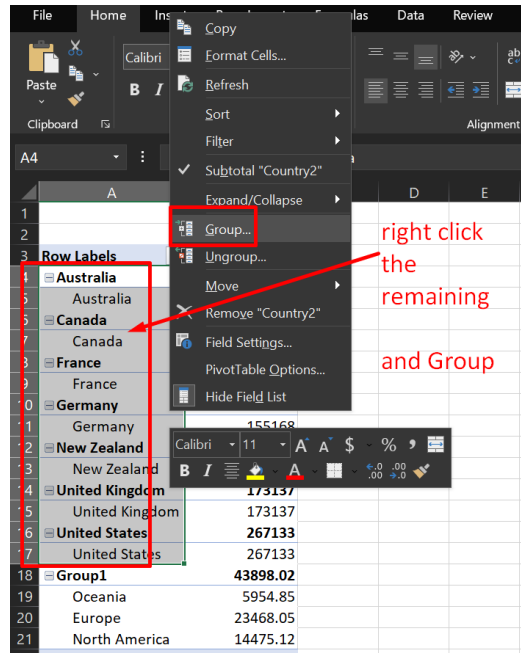
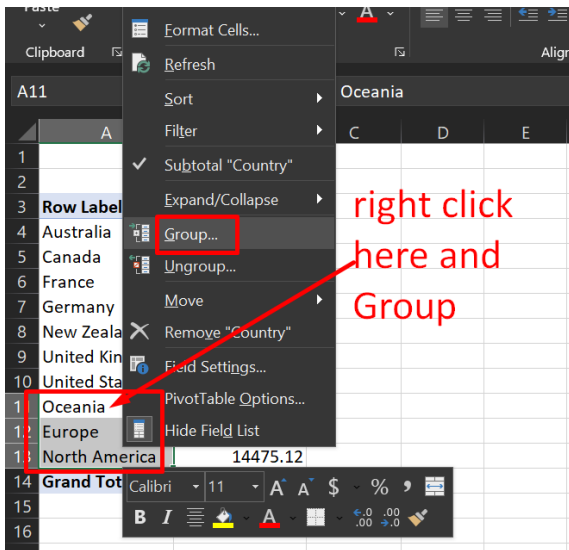


=4%\*(Canada+United States)



=5%\*(France+Germany+United Kingdom)





Active Field	Group
A4	Sales
Row Labels	Sum of Amount
Sales	1029734
Australia	131713
Canada	94745
France	141056
Germany	155168
New Zealand	66782
United Kingdom	173137
United States	267133
Group1	43898.02
Oceania	5954.85
Europe	23468.05
North America	14475.12
Grand Total	1073632.02

rename

Active Field: Taxes

Row Labels	Sum of Amount
<b>Sales</b>	<b>1029734</b>
Australia	131713
Canada	94745
France	141056
Germany	155168
New Zealand	66782
United Kingdom	173137
United States	267133
<b>Taxes</b>	<b>43898.02</b>
Oceania	5954.85
Europe	23468.05
North America	14475.12
<b>Grand Total</b>	<b>1073632.02</b>



## I. GROUP PIVOT TABLE DATES

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

select anywhere inside the data....

the data automatically gets selected....

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$2,320	1/27/2016	United Kingdom
17	Banana	Fruit	\$2,116	1/28/2016	United States
18	Banana	Fruit	\$1,135	1/30/2016	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$2,256	2/4/2016	France

PivotTable Fields

Choose fields to add to report:

- Amount
- Date
- Country

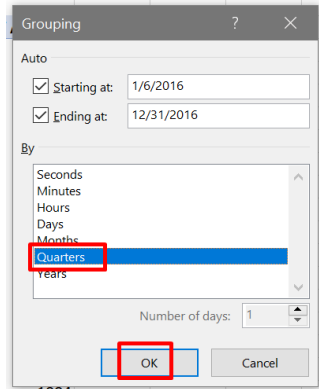
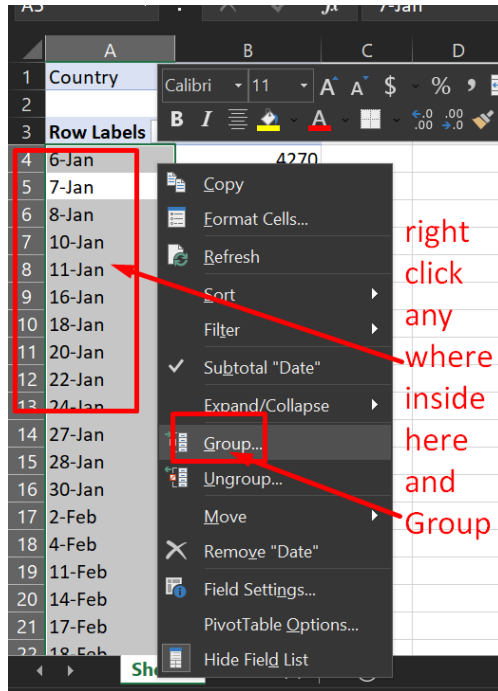
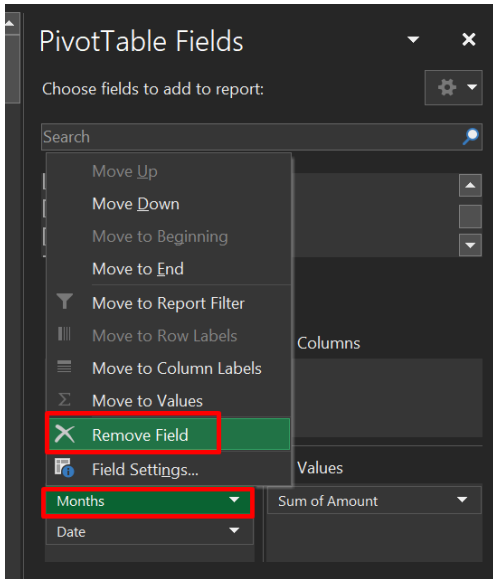
Drag field between areas below:

Filter: Country

Rows: Months

Columns: Sum of Amount

Country	Sum of Amount
Jan	89663
Feb	62762
Mar	104566
Apr	49474
May	203339
Jun	51600
Jul	80735
Aug	68994
Sep	102433
Oct	52615
Nov	73740
Dec	89813
Grand Total	1029734



	A	B
1	Country	(All) ▾
2		
3	Row Labels ▾	Sum of Amount
4	Qtr1	256991
5	Qtr2	304413
6	Qtr3	252162
7	Qtr4	216168
8	<b>Grand Total</b>	<b>1029734</b>
9		
10		

## J. MULTI LEVEL PIVOT TABLE

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

### 1. MULTIPLE ROW FIELDS

select anywhere inside the data....

the data automatically gets selected....

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$2,320	1/27/2016	United Kingdom
17	Banana	Fruit	\$2,116	1/28/2016	United States
18	Banana	Fruit	\$1,135	1/30/2016	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$3,256	2/4/2016	France

Row Labels

Row Labels	Sum of Amount
<b>Fruit</b>	<b>693069</b>
Australia	91221
Canada	82338
France	125931
Germany	66430
New Zealand	62392
United Kingdom	87786
United States	176971
<b>Vegetables</b>	<b>336665</b>
Australia	40492
Canada	12407
France	15125
Germany	88738
New Zealand	4390
United Kingdom	85351
United States	90162
<b>Grand Total</b>	<b>1029734</b>

PivotTable Fields

Choose fields to add to report:

- Category
- Amount
- Date
- Country

Drag fields between areas below:

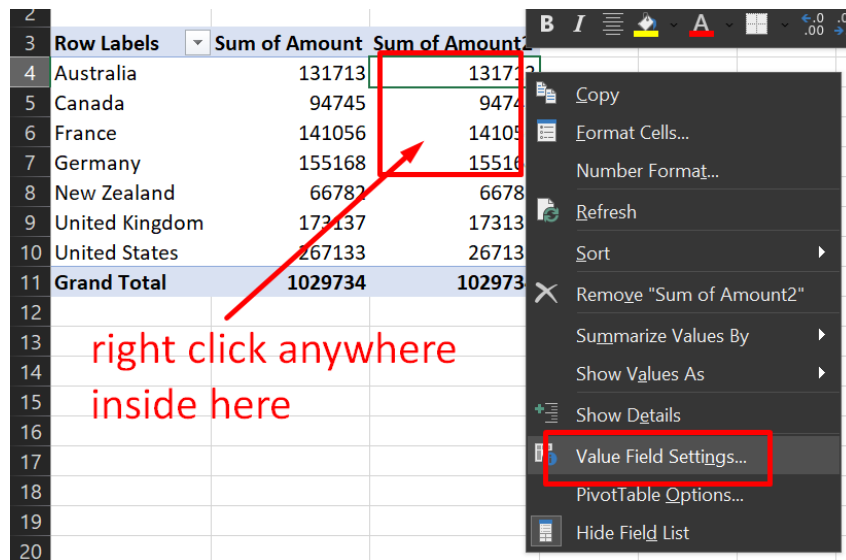
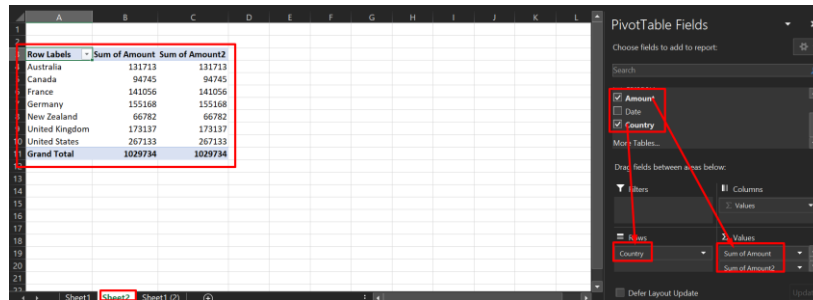
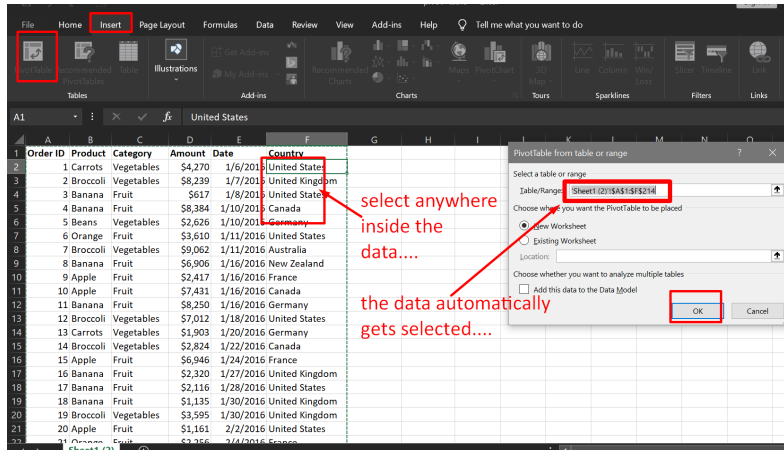
Filters: [Empty]

Columns: [Empty]

Rows: Category, Country

Values: Sum of Amount

## 2. MULTIPLE VALUE FIELDS



Value Field Settings

Source Name: Amount

Custom Name: Percentage

Summarize Values By: Show Values As

Show values as

- No Calculation
- % of Grand Total**
- % of Column Total
- % of Row Total
- % Of
- % of Parent Row Total

Date: Country

Number Format

OK

Cancel

3	Row Labels	Sum of Amount	Percentage
4	Australia	131713	12.79%
5	Canada	94745	9.20%
6	France	141056	13.70%
7	Germany	155168	15.07%
8	New Zealand	66782	6.49%
9	United Kingdom	173137	16.81%
10	United States	267133	25.94%
11	<b>Grand Total</b>	<b>1029734</b>	<b>100.00%</b>

### 3. MULTIPLE REPORT FILTER FIELDS

select anywhere inside the data....

the data automatically gets selected....

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$2,320	1/27/2016	United Kingdom
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18	Banana	Fruit	\$1,135	1/30/2016	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$3,256	2/4/2016	France

PivotTable Fields

Choose fields to add to report:

Search

- Order ID
- Product
- Category
- Amount
- Date
- Country

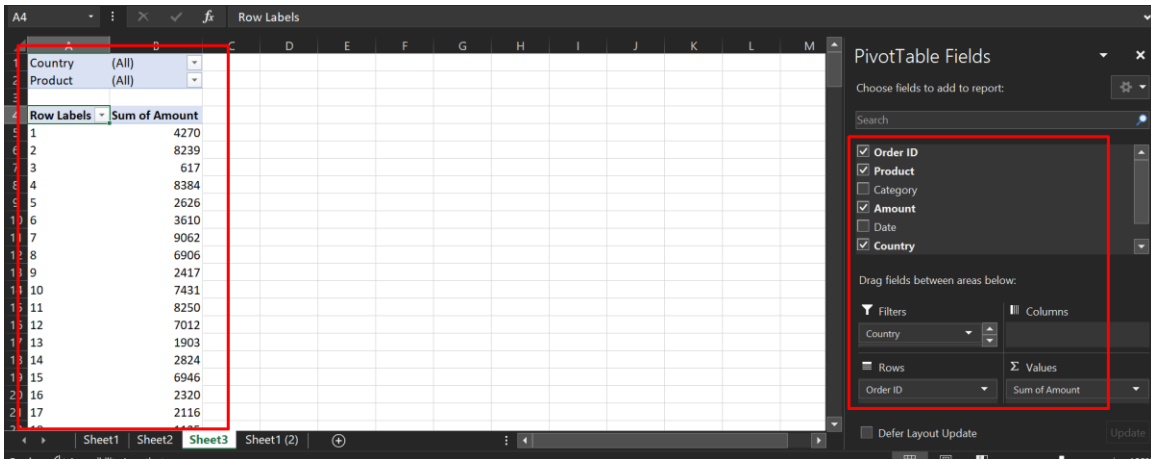
Drag fields between areas below:

Filters: Country, Product

Rows: Order ID

Values: Sum of Amou...

Defer Layout Update Update



	A	B
1	Country	United Kingdom
2	Product	Broccoli
3		
4	Row Labels	Sum of Amount
5	2	8239
6	19	3595
7	86	2054
8	92	2011
9	112	7231
10	121	6343
11	126	3027
12	163	5936
13	<b>Grand Total</b>	<b>38436</b>
14		



## K. FREQUENCY DISTRIBUTION

File: <https://www.alvinang.sg/s/pivot-table.xlsx>

select anywhere inside the data....

the data automatically gets selected....

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2016	United States
2	Broccoli	Vegetables	\$8,239	1/7/2016	United Kingdom
3	Banana	Fruit	\$617	1/8/2016	United States
4	Banana	Fruit	\$8,384	1/10/2016	Canada
5	Beans	Vegetables	\$2,626	1/10/2016	Germany
6	Orange	Fruit	\$3,610	1/11/2016	United States
7	Broccoli	Vegetables	\$9,062	1/11/2016	Australia
8	Banana	Fruit	\$6,906	1/16/2016	New Zealand
9	Apple	Fruit	\$2,417	1/16/2016	France
10	Apple	Fruit	\$7,431	1/16/2016	Canada
11	Banana	Fruit	\$8,250	1/16/2016	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2016	United States
13	Carrots	Vegetables	\$1,903	1/20/2016	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2016	Canada
15	Apple	Fruit	\$6,946	1/24/2016	France
16	Banana	Fruit	\$2,320	1/27/2016	United Kingdom
17	Banana	Fruit	\$2,116	1/28/2016	United States
18	Banana	Fruit	\$1,135	1/30/2016	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2016	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2016	United States
21	Orange	Fruit	\$2,256	2/4/2016	France

Row Labels

Row Labels	Sum of Amount
\$107	107
\$135	135
\$136	136
\$220	220
\$235	235
\$277	277
\$284	284
\$330	330
\$339	339
\$352	352
\$424	424
\$474	474
\$521	521
\$592	592
\$607	607
\$617	617
\$680	680
\$682	682
\$707	707

PivotTable Fields

Choose fields to add to report:

- Category
- Amount
- Date
- Country

More Tables...

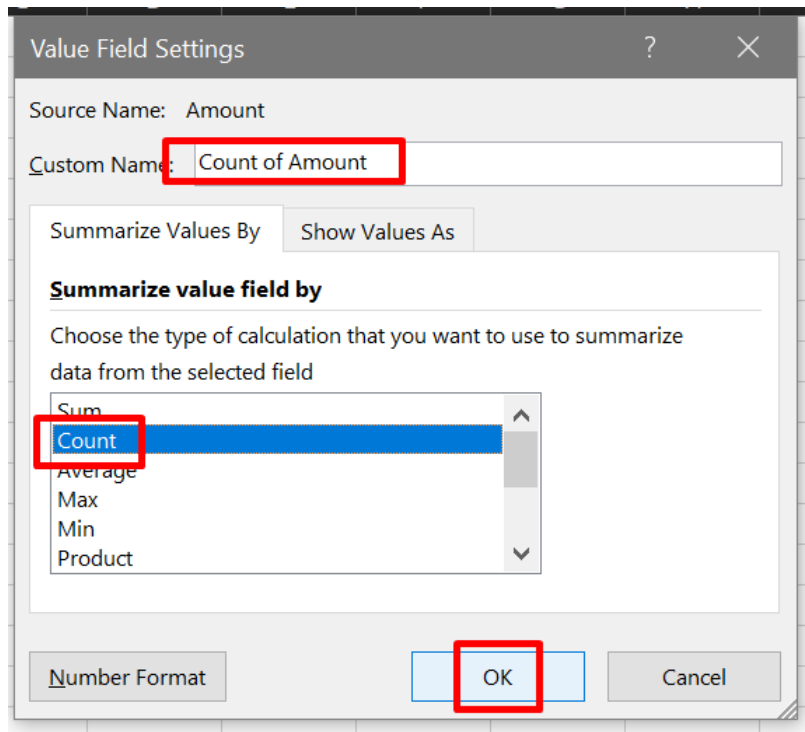
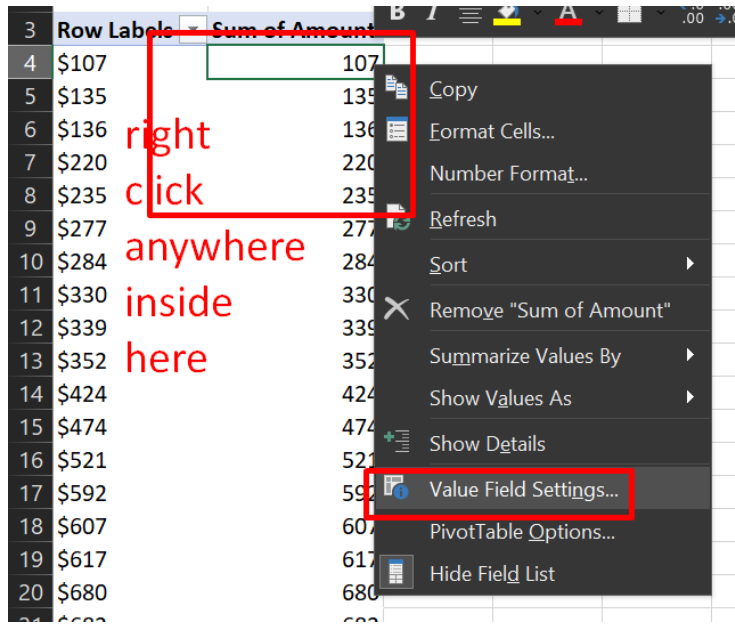
Drag fields between areas below:

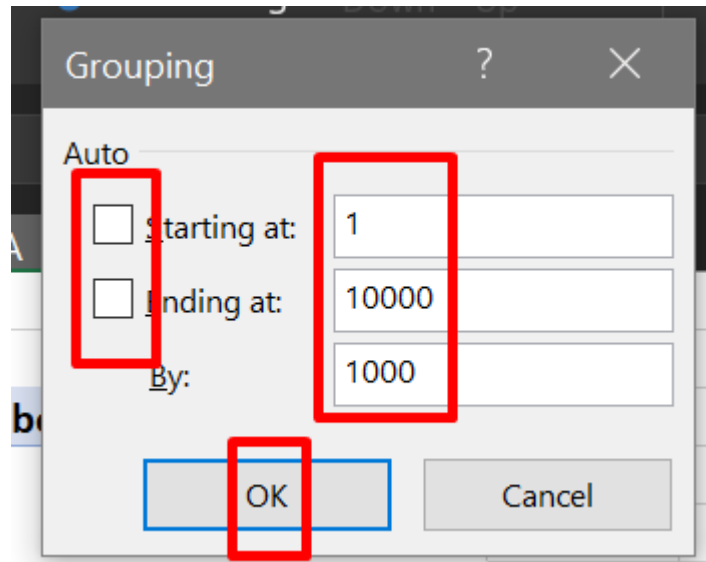
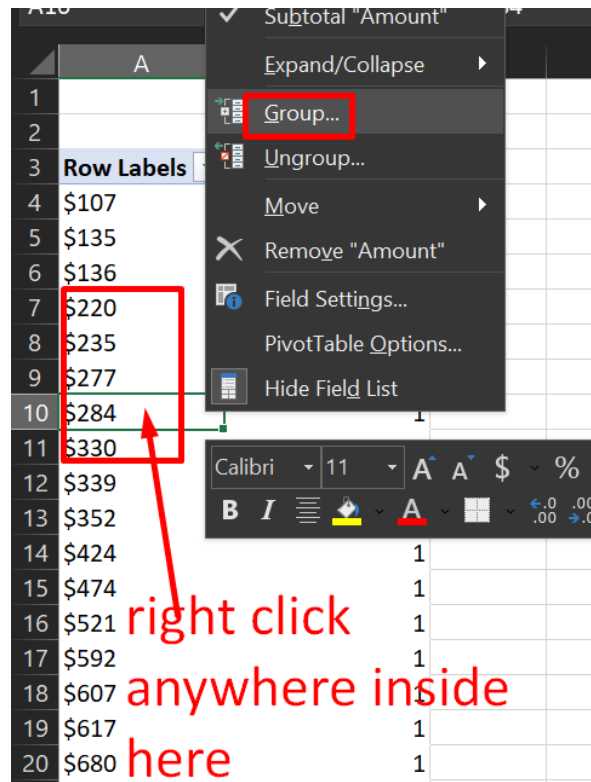
Filters: [Empty]

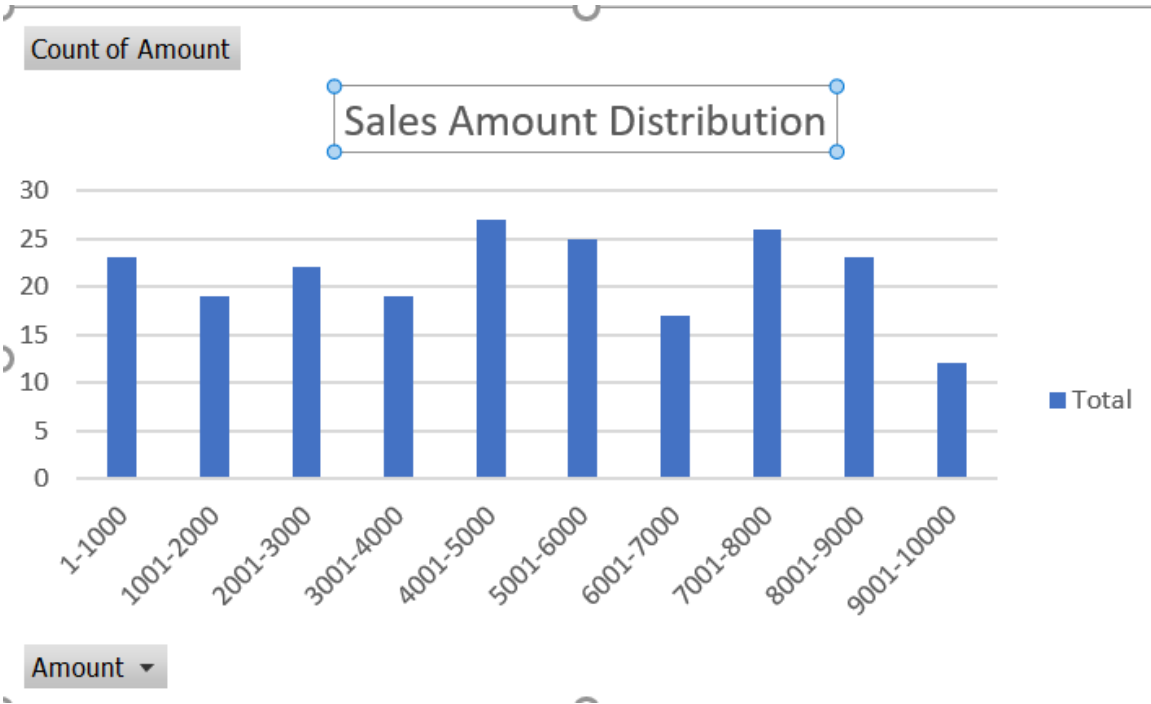
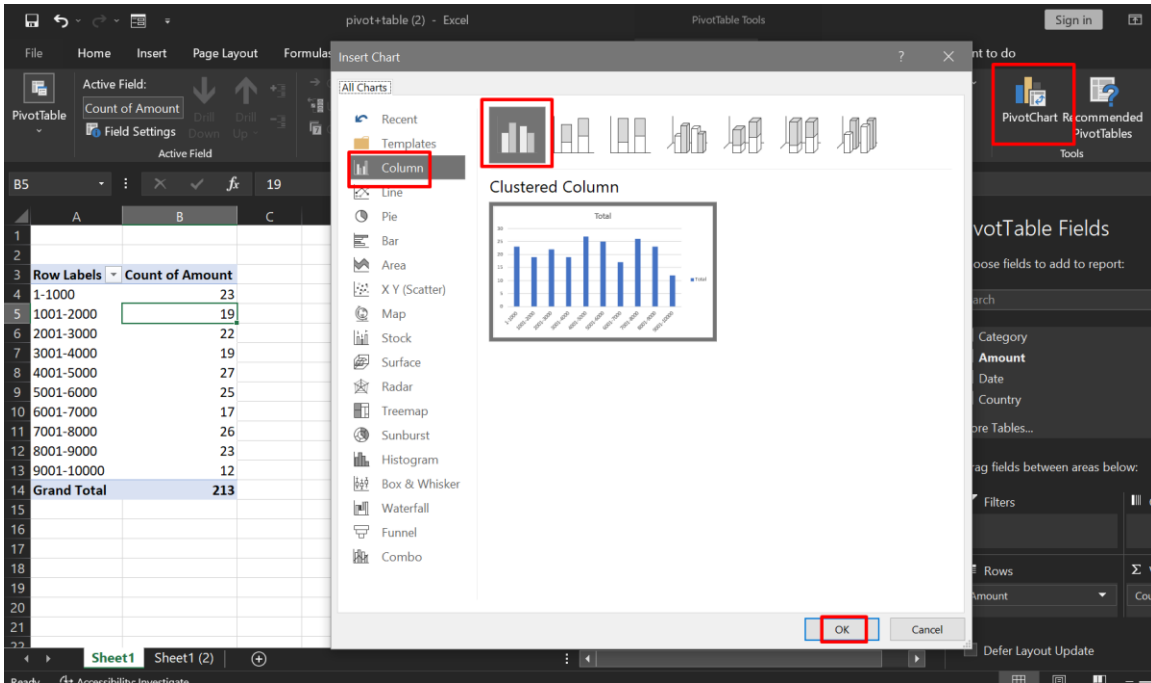
Columns: [Empty]

Rows: Amount

Values: Sum of Amount







---

### III. OFFSET / INDEX

---

#### A. OFFSET

offset from A2  
3 rows, 2 columns  
height of cell = 1, width of cell = 1

offset from A2, 12 rows down  
0 column shifted

E11    fx    =SUM(OFFSET(B2:C2,4,0))

	A	B	C	D	E	F	G
1		Sales					
2	Month	East	West				
3	Jan	510	1010				
4	Feb	605	1467				
5	Mar	648	1034				
6	Apr	155	1030				
7	May	691	588				
8	Jun	861	694		1034		
9	Jul	379	1219				
10	Aug	317	610		Dec		
11	Sep	928	1159		1185		
12	Oct	340	746		155	1030	
13	Nov	443	1213				
14	Dec	934	1209				

offset from B2 and C2  
4 rows down, 0 column shifted  
SUM those 2 values

Sheet1

E12    fx    {=OFFSET(B2:C2,4,0)}

	A	B	C	D	E	F	G
1		Sales					
2	Month	East	West				
3	Jan	510	1010				
4	Feb	605	1467				
5	Mar	648	1034				
6	Apr	155	1030				
7	May	691	588				
8	Jun	861	694		1034		
9	Jul	379	1219				
10	Aug	317	610		Dec		
11	Sep	928	1159		1185		
12	Oct	340	746		155	1030	
13	Nov	443	1213				
14	Dec	934	1209				

offset from B2 and C2  
4 rows down, 0 columns  
show BOTH values

Sheet1

Ready    Accessibility: Good to go

1. ACTIVITY: OFFSET

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: OFFSET

- Open topic2.xlsx
- Select OFFSET worksheet
- Use OFFSET to compute the following
  - Latest Reporting date
  - Latest Closing date
  - Average of the last 3 days
  - Average of the last 5 days

	A	B	C	D	E	F	G
1	Reporting Date	Closing Rate		Latest Reporting Date	Latest Closing Rate	Average of last 3 days	Average of last 5 days
2	4/2/19	234.20		13/2/19	256.00	251.43	248.60
3	5/2/19	238.00					
4	6/2/19	244.50					
5	7/2/19	246.70					
6	8/2/19	242.00					
7	11/2/19	244.50					
8	12/2/19	253.80					

## 2. ANSWER TO OFFSET ACTIVITY

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1	Reporting Date	Closing Rate		Latest Reporting Date	Latest Closing Rate	Average of last 3 days	Average of last 5 days
2	4/2/2019	234.20		13/2/2019	256.00	251.43	248.60
3	5/2/2019	238.00					
4	6/2/2019	244.50					
5	7/2/2019	246.70					
6	8/2/2019	242.00					
7	11/2/2019	244.50					
8	12/2/2019	253.80					
9	13/2/2019	256.00					
10							
11							

offset from A1, the number of rows that equal total number of data rows

0 columns shifted

The screenshot shows the same Excel spreadsheet as above, but with the following data:

	A	B	C	D	E	F	G
1	Reporting Date	Closing Rate		Latest Reporting Date	Latest Closing Rate	Average of last 3 days	Average of last 5 days
2	4/2/2019	234.20		13/2/2019	256.00	251.43	248.60
3	5/2/2019	238.00					
4	6/2/2019	244.50					
5	7/2/2019	246.70					
6	8/2/2019	242.00					
7	11/2/2019	244.50					
8	12/2/2019	253.80					
9	13/2/2019	256.00					
10							
11							

offset from B1, the number of rows that equal total number of data rows

0 columns shifted



F2    fx    =AVERAGE(OFFSET(\$B\$1,COUNT(\$B:\$B)-2,0,3,1))

	A	B	C	D	E	F	G
	Reporting Date	Closing Rate		Latest Reporting Date	Latest Closing Rate	Average of last 3 days	Average of last 5 days
1							
2	4/2/2019	234.20		13/2/2019	256.00	251.43	248.60
3	5/2/2019	238.00					
4	6/2/2019	244.50					
5	7/2/2019	246.70					
6	8/2/2019	242.00					
7	11/2/2019	244.50					
8	12/2/2019	253.80					
9	13/2/2019	256.00					
10							
11							

offset from B1, the number of rows that equal total number of data rows (but exclude last 2 rows)....then don't shift the column

then select the cells that are 3 rows in height x 1 column in width

Subsequently, AVERAGE that 3 rows x 1 column to obtain the "Average of the last 3 rows"

OFFSET    Pivot Chart    Timeline Filter    Slicer    Calculated Field (Data)    Create Pivot Table (Data) ...

G2    fx    =AVERAGE(OFFSET(\$B\$1,COUNT(\$B:\$B)-4,0,5,1))

	A	B	C	D	E	F	G
	Reporting Date	Closing Rate		Latest Reporting Date	Latest Closing Rate	Average of last 3 days	Average of last 5 days
1							
2	4/2/2019	234.20		13/2/2019	256.00	251.43	248.60
3	5/2/2019	238.00					
4	6/2/2019	244.50					
5	7/2/2019	246.70					
6	8/2/2019	242.00					
7	11/2/2019	244.50					
8	12/2/2019	253.80					
9	13/2/2019	256.00					
10							
11							

offset from B1, the number of rows that equal to the total number of data rows (but exclude the last 4 rows).... then don't shift the column

but select the cells that are 5 rows in height x 1 column in width

then AVERAGE the 5 rows x 1 column to obtain the "Average of the Last 5 rows"

OFFSET    Pivot Chart    Timeline Filter    Slicer    Calculated Field (Data)    Create Pivot Table (Data) ...

## B. INDEX

<https://www.alvinang.sg/s/lookup-reference-functions.xlsx>

Excel screenshot showing the INDEX function formula bar and a data table. The formula bar shows `{=INDEX(E4:F7,A2,B2)}`. The data table has columns A-G and rows 1-7. Cell C2 contains 92. Red arrows point from the formula bar to cell A2 (3) and B2 (2). The 'Index' button in the bottom ribbon is highlighted.

	A	B	C	D	E	F	G
1							
2	3	2	92				
3	ROW 3	COLUMN 2	97		1	2	
4				1	43	77	
5				2	77	35	
6				3	97	92	
7				4	21	54	

Excel screenshot showing the INDEX function formula bar and a data table. The formula bar shows `{=INDEX(E4:E7,A2)}`. The data table has columns A-G and rows 1-7. Cell C3 contains 97. Red arrows point from the formula bar to cell A2 (3) and E4 (43). The 'Index' button in the bottom ribbon is highlighted.

	A	B	C	D	E	F	G
1							
2	3	2	92				
3	row 3		97		1	2	
4	of			1	43	77	
5	of			2	77	35	
6	column E			3	97	92	
7	only			4	21	54	

1. ACTIVITY: INDEX

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

# Activity: INDEX

- Open topic2.xlsx
- Select INDEX worksheet
- Compute the Shipping Cost using the INDEX

	Shipping Zone								Item#	Size	Shipping Zone	Shipping Cost	
	1	2	3	4	5	6	7	8					
Size	1	10.80	12.92	15.44	18.47	22.11	26.55	31.80	38.17	631B22	2	4	21.3
2	12.41	14.84	17.77	21.30	25.54	30.59	36.65	43.92	791H29	1	7		
3	14.33	17.16	20.59	24.73	29.68	35.64	42.71	51.20	402R30	3	6		
4	17.06	20.49	24.53	29.38	35.24	42.31	50.79	60.89	203J26	1	8		
5	18.47	22.11	26.55	31.80	38.17	45.74	54.83	65.74	849K37	1	6		
									368H70	2	3		
									391R45	2	7		
									502R74	2	1		
									571H52	5	3		
									113C44	4	7		

2. ANSWER TO INDEX ACTIVITY

index C3 to J7, taking reference values from M2 and N2... 2nd row, 4th column value = 21.3

---

## IV. VLOOKUP / HLOOKUP

---

### A. OVERVIEW

File: <https://www.alvinang.sg/s/lookup-reference-functions.xlsx>

#### 1. VLOOKUP

The screenshot shows an Excel spreadsheet with a VLOOKUP formula in cell B2: `=VLOOKUP(A2,$E$4:$G$7,3,FALSE)`. The formula bar highlights the arguments: A2 (lookup value), \$E\$4:\$G\$7 (table array), 3 (column index number), and FALSE (match type). The table array is a 4x3 table with columns labeled ID, Brand, and Product. Red arrows point from the formula arguments to the corresponding parts of the table. The result in cell B2 is 'Printer'. A red box highlights the table array, and red text to the right explains the match type: 'return exact match or else return NA if not found'. The numbers 1, 2, and 3 are placed below the columns to indicate the column index number.

ID	Brand	Product
101	Dell	Computer
102	Logitech	Keyboard
103	Logitech	Mouse
104	HP	Printer

#### 2. HLOOKUP

The screenshot shows an Excel spreadsheet with an HLOOKUP formula in cell B2: `=HLOOKUP(A2,$E$4:$H$6,3,FALSE)`. The formula bar highlights the arguments: A2 (lookup value), \$E\$4:\$H\$6 (table array), 3 (row index number), and FALSE (match type). The table array is a 3x4 table with rows labeled row1, row2, and row3, and columns labeled ID, Brand, Product, and Product. Red arrows point from the formula arguments to the corresponding parts of the table. The result in cell B2 is 'Printer'. A red box highlights the table array, and a red box highlights the 'HLookup' option in the formula dropdown menu.

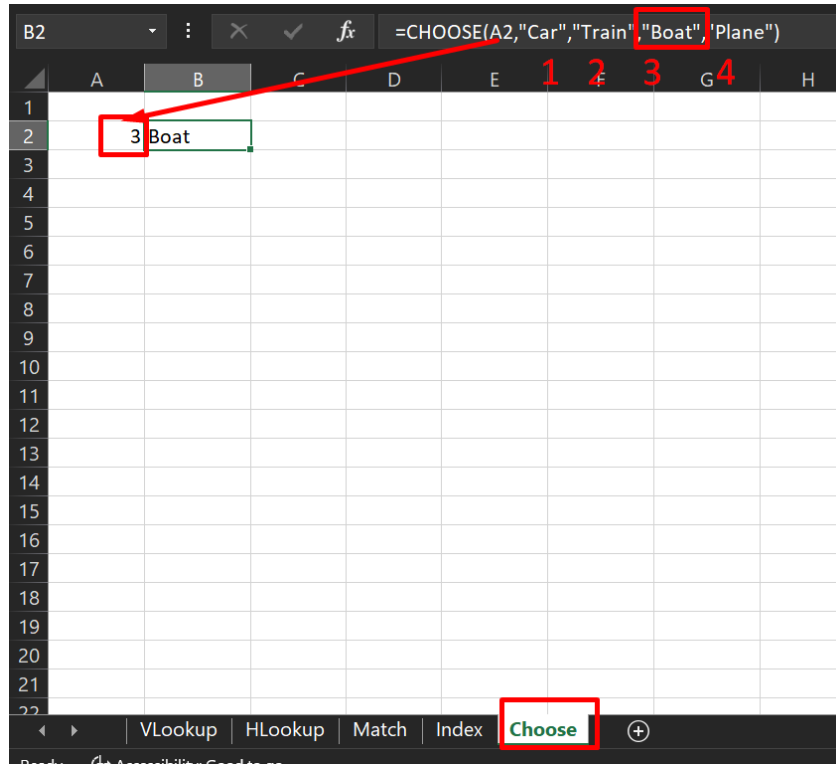
row1	ID	101	102	103	104
row2	Brand	Dell	Logitech	Logitech	HP
row3	Product	Computer	Keyboard	Mouse	Printer

### 3. MATCH

The screenshot illustrates the MATCH function in Excel. The formula bar shows `=MATCH(A2,E4:E7)`. Cell A2 contains "Yellow", and cell B3 displays the result "3". A red box highlights a list of colors in column E: Green (1), Blue (2), Yellow (3), and White (4). The "Match" button in the ribbon is also highlighted.

Color	Index
Green	1
Blue	2
Yellow	3
White	4

4. CHOOSE



## B. SPECIFICS

File: <https://www.alvinang.sg/s/vlookup.xlsx>

### 1. EXACT MATCH

**FALSE means EXACT match**  
**if can't find exact, it will return**  
**NA**

ID	First Name	Last Name	Salary	ID
72	Emily	Smith	\$64,901	Salary
66	James	Anderson	\$70,855	
14	Mia	Clark	\$188,657	
30	John	Lewis	\$97,566	
53	Jessica	Walker	\$58,339	
56	Mark	Reed	\$125,180	
79	Richard	Lopez	\$91,632	

**Exact Match** | Approximate Match | Vlookup Looks Right | First M

2. APPROXIMATE MATCH

The screenshot shows an Excel spreadsheet with the following data table:

Score	Grade
0	F
60	D
70	C
80	B
90	A

The formula bar shows: `=VLOOKUP(F3,B3:C7,2,TRUE)`. Red arrows point from the formula to the 'Score' column header and the value '85' in cell F3. The result 'B' is shown in cell F4. The status bar at the bottom indicates 'Approximate Match' is selected.

TRUE means to return an approximate match.



### 3. VLOOKUP LOOKS RIGHT

The screenshot shows an Excel spreadsheet with the following data:

ID	First Name	Last Name	Salary	First Name	John
72	Emily	Smith	\$64,801	Last Name	Lewis
66	James	Anderson	\$70,855		
14	Mia	Clark	\$188,657		
30	John	Lewis	\$97,566		
53	Jessica	Walker	\$58,339		
56	Mark	Reed	\$125,180		
79	Richard	Lopez	\$91,632		

The formula bar shows: `=VLOOKUP(H2,C3:E9,2,FALSE)`

Red arrows indicate the lookup process: one arrow points from the formula bar to the 'Last Name' header in row 3, and another points from the formula bar to the 'Lewis' value in row 3, column H.

Red numbers 1, 2, and 3 are placed under columns C, D, and E respectively, corresponding to the first three columns of the data range C3:E9.

The status bar at the bottom shows 'Vlookup Looks Right' highlighted in a red box.

#### 4. FIRST MATCH

Clipboard Font Alignment

G3  $\times$   $\checkmark$   $f_x$  =VLOOKUP(G2,B3:D9,3,FALSE)

	A	B	C	D	E	F	G	H
1								
2		<b>First Name</b>	<b>Last Name</b>	<b>Salary</b>		<b>First Name</b>	Mia	
3		Emily	Smith	\$64,991		<b>Salary</b>	\$188,657	
4		James	Anderson	\$70,855				
5		Mia	Clark	\$188,657				
6		John	Lewis	\$97,566				
7		Jessica	Walker	\$58,339				
8		Mia	Reed	\$125,180				
9		Richard	Lopez	\$91,632				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								

there are 2 Mia's!  
but it will take the first one....

Exact Match Approximate Match Vlookup Looks Right **First Match** Vlo

5. CASE INSENSITIVE

even though MIA is supposed to match MIA exactly  
it still takes on the First Match, ignoring the  
capital letters

Exact Match | Approximate Match | Vlookup Looks Right | First Match | **Vlookup is Case-insensitive** | Mu

## 6. MULTIPLE CRITERIA

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K
1											
2		<b>First Name</b>	<b>Last Name</b>	<b>Salary</b>		<b>First Name</b>	James				
3		James	Smith	\$64,901		<b>Last Name</b>	Clark				
4		James	Anderson	\$70,855		<b>Salary</b>	\$188,657				
5		James	Clark	\$188,657							
6		John	Lewis	\$97,566							
7		John	Walker	\$58,339							
8		Mark	Reed	\$125,180							
9		Richard	Lopez	\$91,632							
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											

The formula bar shows: `{=INDEX(D3:D9,MATCH(G2&G3,B3:B9&C3:C9,0))}`

Red annotations include:

- A red box around the formula bar.
- Red arrows pointing from the formula bar to the 'Multiple Criteria' status bar.
- A red box around the 'Multiple Criteria' status bar.
- Red text: "can ignore the 0" with an arrow pointing to the '0' in the formula.

The status bar at the bottom right shows: **Multiple Criteria**

7. NA ERROR

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2		<b>ID</b>	<b>First Name</b>	<b>Last Name</b>	<b>Salary</b>		<b>ID</b>	28				
3		72	Emily	Smith	\$64,901		<b>Salary</b>	Not Found				
4		66	James	Anderson	\$70,855							
5		14	Mia	Clark	\$188,657							
6		30	John	Lewis	\$97,566							
7		53	Jessica	Walker	\$58,339							
8		56	Mark	Reed	\$125,180							
9		79	Richard	Lopez	\$91,632							
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												

The formula bar at the top shows the formula: `=IFNA(VLOOKUP(H2,B3:E9,4,FALSE),"Not Found")`. The status bar at the bottom right shows the error message: `#NA error`.

### C. ACTIVITY: VLOOKUP / HLOOKUP

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

## Activity: VLOOKUP and HLOOKUP

- Open topic2.xlsx
- Select VLOOKUP and HLOOKUP worksheet
- Find the tax rate using the VLOOKUP and HLOOKUP methods

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Employee Name	SS#	Salary	Tax Rate (VLOOKUP)	Tax Rate (HLOOKUP)		0	0						
2	Page, Lisa	247-00-3062	63,981	3%	3%		5,000	1.0%		0	5,000	25,000	35,000	45,000
3	Taylor, Hector	760-00-1779	60,915				25,000	1.5%		0	1.0%	1.5%	2.0%	2.5%
4	Dawson, John	801-00-2360	97,071				35,000	2.0%						
5	Duran, Brian	749-00-7626	115,421				45,000	2.5%						
6	Weber, Larry	350-00-7898	115,547				55,000	3.0%						
7	Pratt, Erik	122-00-9650	69,212				65,000	3.5%						
8	O'Connor, Kent	681-00-5012	120,198				75,000	4.0%						
9	Spencer, Boyd	959-00-4354	107,635				85,000	4.5%						
10	Wiggins, Frank	950-00-0069	113,020				95,000	5.0%						
11	Tanner, Timothy	525-00-8270	82,341				105,000	5.5%						
12	Strickland, Rajeen	810-00-6566	98,598				115,000	6.0%						
13	Chase, Troy	564-00-2529	46,350				125,000	6.5%						
14	Brewer, Kent	432-00-5963	61,076				135,000	7.0%						

1. ANSWER FOR VLOOKUP ACTIVITY

The screenshot shows an Excel spreadsheet with the following data:

Salary	Tax Rate (VLOOKUP)	Tax Rate (HLOOKUP)
63,981	3%	3%
60,915	3%	3%
97,071	5%	5%
115,421	6%	6%
115,547	6%	6%
69,212	4%	4%
120,198	6%	6%
107,635	6%	6%
113,020	6%	6%
82,341	4%	4%
98,598	5%	5%
46,350	3%	3%
61,076	3%	3%
107,968	6%	6%
102,146	5%	5%
46,009	3%	3%
53,399	3%	3%
45,419	3%	3%
69,038	4%	4%
46,163	3%	3%
70,990	4%	4%
45,315	3%	3%

The formula bar shows: `=VLOOKUP(A2,$E$1:$F$15,2)`

2. ANSWER FOR HLOOKUP ACTIVITY

The screenshot shows an Excel spreadsheet with the same data as above. The formula bar shows: `=HLOOKUP(A2,$H$2:$V$3,2)`

---

## V. XLOOKUP

---

XLOOKUP only appears in Excel 365 or Excel 2021.

### A. EXACT MATCH I

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1								
2		<b>ID</b>	<b>First Name</b>	<b>Last Name</b>	<b>Salary</b>		<b>ID</b>	<b>53</b>
3		72	Emily	Smith	\$64,901		<b>Salary</b>	\$58,339
4		66	James	Anderson	\$70,855			
5		14	Mia	Clark	\$188,657			
6		30	John	Lewis	\$97,566			
7		53	Jessica	Walker	\$58,339			
8		56	Mark	Reed	\$125,180			
9		79	Richard	Lopez	\$91,632			
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								

The formula bar shows: `=XLOOKUP(H2,B3:B9,E3:E9)`

The status bar at the bottom shows: **Exact Match** | Exact Match (2) | Not Found | Approximate Match



B. EXACT MATCH II

The screenshot shows an Excel spreadsheet with the following data table:

ID	First Name	Last Name	Salary	ID	Salary
72	Emily	Smith	\$64,901	53	Walker
66	James	Anderson	\$70,855		
14	Mia	Clark	\$188,657		
30	John	Lewis	\$97,566		
53	Jessica	Walker	\$58,339		
56	Mark	Reed	\$125,180		
79	Richard	Lopez	\$91,632		

The formula bar at the top shows the formula: `=XLOOKUP(H2:B3:B9:D3:D9)`. The status bar at the bottom indicates the result: **Exact Match (2)**.

### C. APPROXIMATE MATCH

**"-1 finds the next smaller value."  
use 1 instead of -1 for the fifth argument to find the next larger value.**

Score	Grade
0	F
60	D
70	C
80	B
90	A

Score 85  
Grade B

there is no 85.....  
-1 will search for the next smaller value  
1 will find the next larger value

Exact Match | Exact Match (2) | **Approximate Match** | Left Lookup | Multip

D. MULTIPLE VALUES

Formula Bar: `=XLOOKUP(B3, B6:B12, C6:E12)`

ID	First Name	Last Name	Salary
66	James	Anderson	\$70,855
72	Emily	Smith	\$64,901
66	James	Anderson	\$70,855
14	Mia	Clark	\$188,657
30	John	Lewis	\$97,566
53	Jessica	Walker	\$58,339
56	Mark	Reed	\$125,180
79	Richard	Lopez	\$91,632

these 2 are spillover effect from C3

Multiple Values

### E. HORIZONTAL LOOKUP

The screenshot shows an Excel spreadsheet with the following data:

ID	Product
104	Printer
103	Mouse
104	Printer
101	Computer
102	Keyboard
103	Mouse
101	Computer
104	Printer
101	Computer
102	Keyboard

ID	101	102	103	104
Brand	Dell	Logitech	Logitech	HP
Product	Computer	Keyboard	Mouse	Printer

The formula bar shows: `=XLOOKUP(A2:A11,E4:H4,E6:H6)`

The status bar at the bottom indicates: **Horizontal Lookup**

## F. ACTIVITY: XLOOKUP

<https://www.alvinang.sg/s/Excel-Activities-1.xlsx>

### Activity: XLOOKUP

- Open topic2.xlsx
- Select XLOOKUP worksheet
- Use XLOOKUP to check the status of a given state in Cell I1

First	Last	Phone	Address	State	Status
Cally	Reynolds	(901) 166-8355	556 Lakewood Park	Alabama	Active
Sydney	Bartlett	(982) 231-7357	4829 Badeau Parkway	Alaska	Inactive
Hunter	Newton	(831) 996-1240	2 Rockefeller Avenue	Arizona	Inactive
Brooke	Perkins	(340) 732-9367	87 Brentwood Park	Arkansas	Active

First	Last	Phone	Address	State	Status
Cally	Reynolds	(901) 166-8355	556 Lakewood Park	Alabama	Active
Sydney	Bartlett	(982) 231-7357	4829 Badeau Parkway	Alaska	Inactive
Hunter	Newton	(831) 996-1240	2 Rockefeller Avenue	Arizona	Inactive
Brooke	Perkins	(340) 732-9367	87 Brentwood Park	Arkansas	Active
Nolan	Slater	(540) 487-5928	99 Sage Street	California	Active
Germaine	Green	(466) 455-4160	6 Jana Park	Colorado	Inactive
Medge	Ratliff	(358) 751-8227	75 Erie Terrace	Connecticut	Active
Nash	Vasquez	(989) 937-6199	39464 Debra Lane	Delaware	Active
Michael	Rutledge	(366) 822-4574	8231 Crowley Crossing	Florida	Inactive
Guy	Ochoa	(720) 242-4596	92483 Doe Crossing Drive	Georgia	Inactive
Coby	Lucas	(177) 816-3420	7316 Dryden Road	Hawaii	Active
Merrill	Freeman	(838) 734-1768	7746 Mitchell Point	Idaho	Active
Rae	Hawkins	(484) 158-4493	181 Packers Way	Illinois	Inactive
Sade	Santiago	(497) 492-4618	2 Farragut Crossing	Indiana	Inactive
Judith	Leonard	(549) 439-1744	2 Namekagon Trail	Iowa	Active
Malik	Faulkner	(186) 520-2519	8 Gerald Point	Kansas	Active
Benjamin	Miranda	(602) 320-4025	10000 Lake Bay Circle	Kentucky	Inactive

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## ABOUT DR ALVIN ANG

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Dr. Alvin Ang earned his Ph.D., Masters and Bachelor degrees from NTU, Singapore. He is a scientist, entrepreneur, as well as a personal/business advisor. More about him at [www.AlvinAng.sg](http://www.AlvinAng.sg).