

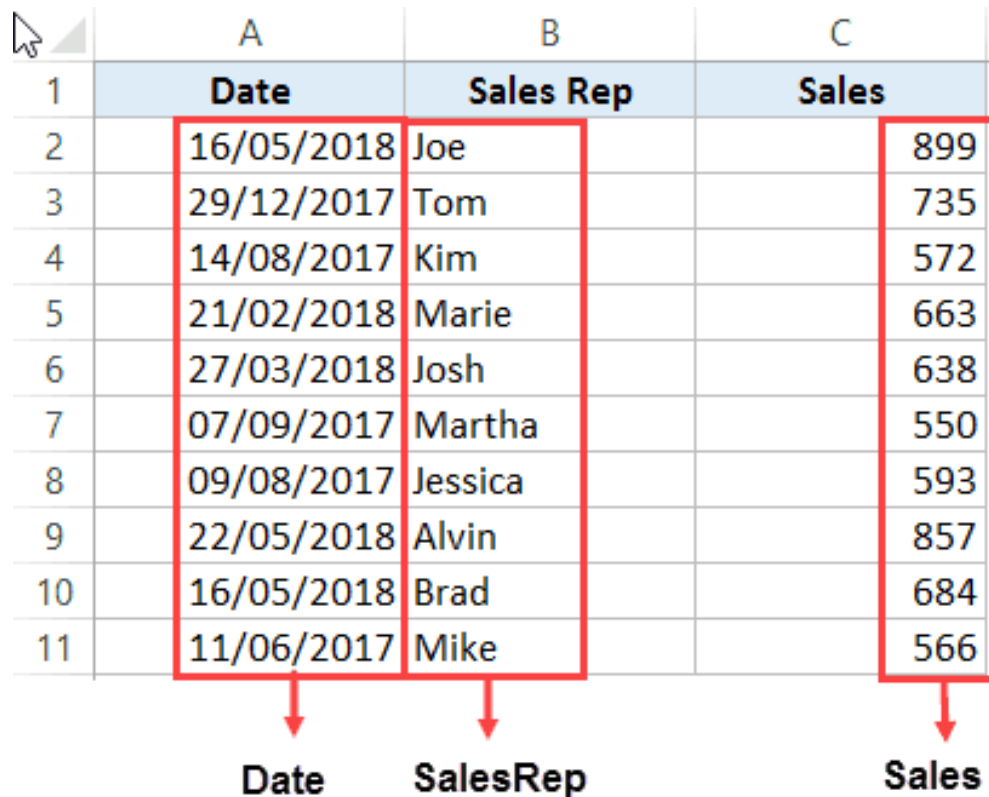
Named Ranges

3

Named Ranges

Named Ranges

By using names, you can make your formulas much **easier to understand** and maintain. You can define a name for a cell range, function, constant, or table. Once you adopt the practice of using names in your workbook, you can easily update, audit, and manage these names.



	A	B	C
1	Date	Sales Rep	Sales
2	16/05/2018	Joe	899
3	29/12/2017	Tom	735
4	14/08/2017	Kim	572
5	21/02/2018	Marie	663
6	27/03/2018	Josh	638
7	07/09/2017	Martha	550
8	09/08/2017	Jessica	593
9	22/05/2018	Alvin	857
10	16/05/2018	Brad	684
11	11/06/2017	Mike	566

Date SalesRep Sales

Named Ranges

Named Ranges

1. Select the range you want to name, including the row or column labels.
2. In the Name Box, type a name.
3. Press Enter.



The significant benefit of using Named Ranges in Excel is that you don't need to go back and select the cell ranges.

Data Cleansing

4

Data Cleaning

We need to clean our data to remove unwanted objects and put it in the right structure



Clean

=Clean(Text)

5

CLEAN function

Overview

- The CLEAN function removes all nonprintable characters from text
- The CLEAN function looks at a value in one cell, and removes nonprintable characters

Syntax

=CLEAN(Text)

=CLEAN(Value you want specific character removed from)

Uses and Applications

- Cleaning large data sets
- Removing extra characters that are unwanted in specific cells or a range of cells

Tips and Tricks

- Can be nested with other data cleansing formulas (I.e. Trim, Value)



Clean Function

=clean(text)

The **CLEAN** in Excel is used to pre-process file/text which is **imported from other applications** and contains characters that are not printable/readable with the current application.

Imported data from databases, text files or web pages usually contain such characters. These characters may lead to an error when given as input to some functions. Before analyzing such imported data, it needs to be cleaned up

D3	fx =CLEAN(C3)				
	A	B	C	D	E
1	CLEAN Function				
2					
3			Panthera&tigris	Pantheratigris	
4			Panthera&leo	Pantheraleo	
5			Panthera&pardus	Pantherapardus	
6			Panthera&lonca	Pantheraonca	
7			Panthera&uncia	Pantherauncia	
8					

Trim

=trim(Text)

5

TRIM function

Overview

- The TRIM function removes all spaces from a string (with the exception of single spaces between words)



Syntax

=TRIM(Text)
=TRIM(Value you want the spaces removed from)



Uses and Applications

- Use TRIM on text that you have received from another application that may have irregular spacing



Tips and Tricks

- Can be nested with other data cleansing formulas (i.e. Clean, Value)



Trim Function

=trim(text)

The screenshot shows the Microsoft Excel interface with the file 'exceljet_trim.xlsx'. The formula bar shows the formula `=TRIM(B4)` entered in cell C4. Below the formula bar, a table illustrates the TRIM function's behavior:

Input	Result	Notes
many spaces	many spaces	Extra spaces are replaced with one space
even more space	even more space	Leading and trailing spaces also removed
extra spaces & line breaks	extra spaces & line breaks	TRIM with CLEAN to remove line breaks and spaces at the same time

The table is located in the worksheet area, with columns A, B, and C visible. The row numbers 1 through 7 are shown on the left. The status bar at the bottom indicates 'Ready' and '100%' zoom.

Substitute

*=SUBSTITUTE (text, old_text,
new_text, [instance])*

6

SUBSTITUTE function

Overview

- The SUBSTITUTE function substitutes new_text for old_text in a text string

Syntax

=SUBSTITUTE(Text, Old_Text, New_Text, Instance_num)

=SUBSTITUTE(Text or reference to text you want to substitute characters, text you want to replace, the text you want to replace old text with, (Optional) Specifies with instance of old text you want to replace with new text)

Uses and Applications

- Use SUBSTITUTE when you want to replace specific text in a text string

Tips and Tricks

- Use quotes around text strings

Substitute

=SUBSTITUTE (text, old_text, new_text, [instance])

C6					=SUBSTITUTE(B6,"t","b")
	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					

SUBSTITUTE function
SUBSTITUTE (text, old_text,new_text, [instance_num])

Input	Output	Formula	Notes
tuttle	bubble	=SUBSTITUTE(B6,"t","b")	All instances replaced
tuttle	buttle	=SUBSTITUTE(B7,"t","b",1)	First instance only replaced
Cat, cat	Cat, dog	=SUBSTITUTE(B8,"cat","dog")	Substitute IS case sensitive
##cash##	cash	=SUBSTITUTE(B9,"#","")	Replace with nothing

Value

=value(text)

7

VALUE function

Overview

- The VALUE function converts a text string that represents a number into a number
- The text enclosed in quotation marks or a reference to a cell containing the text you want to convert

Syntax

=VALUE(Text)

=VALUE(Cell to be converted)

Uses and Applications

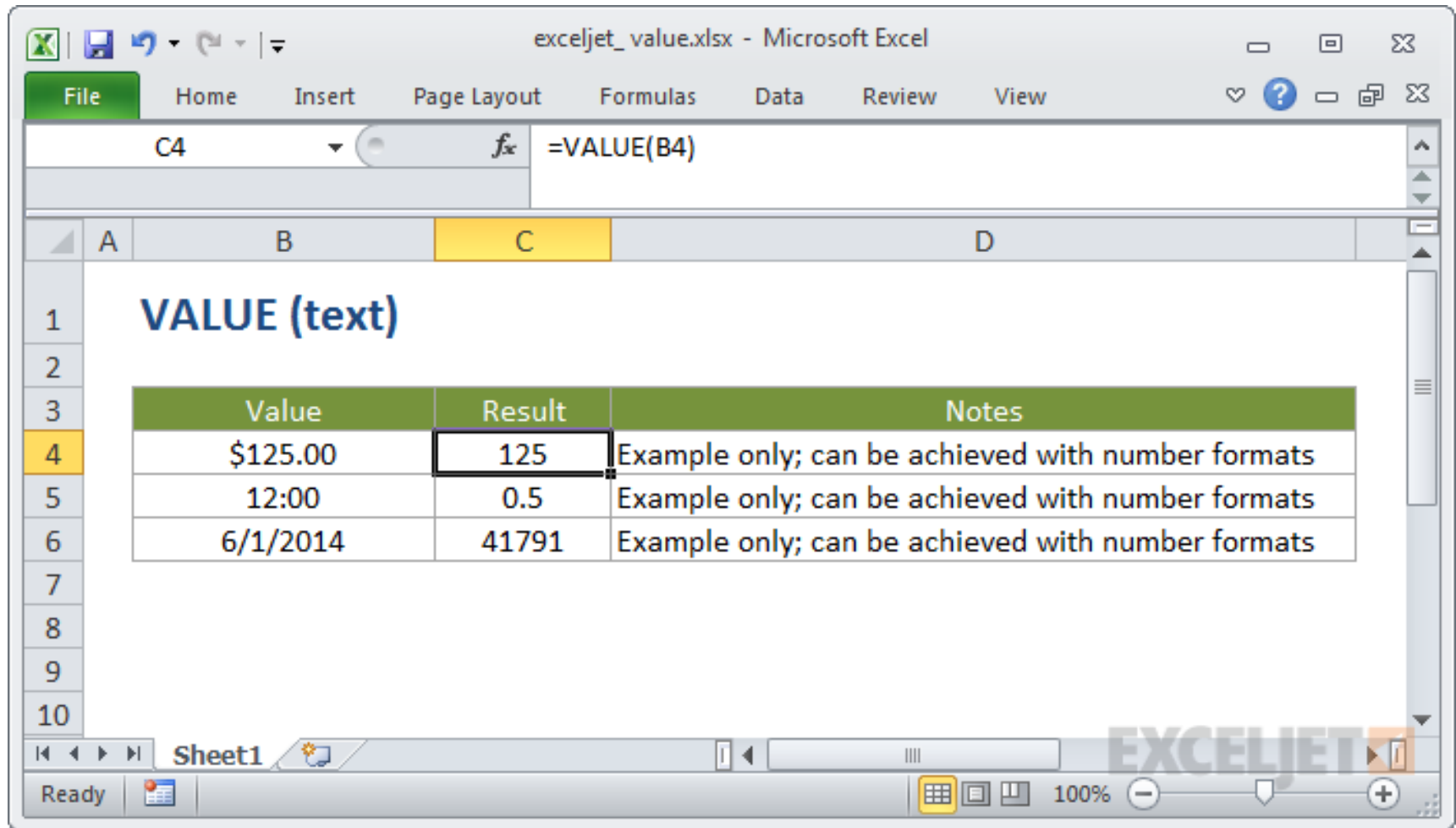
- Text can be in any of the constant number, date, or time formats recognized by Microsoft Excel

Tips and Tricks

- Generally you do not need to use the VALUE function in a formula because Excel automatically converts text to numbers as necessary

Value

The Excel **VALUE** function converts text that appears in a recognized format (i.e. a number, date, or time format) into a numeric value.



The screenshot shows the Microsoft Excel interface with the file 'exceljet_value.xlsx'. The formula bar displays the formula `=VALUE(B4)` for cell C4. Below the formula bar, a table titled 'VALUE (text)' illustrates the function's output for various inputs.

Value	Result	Notes
\$125.00	125	Example only; can be achieved with number formats
12:00	0.5	Example only; can be achieved with number formats
6/1/2014	41791	Example only; can be achieved with number formats

The status bar at the bottom indicates 'Ready' and 'Sheet1' is selected. A watermark 'EXCELJET' is visible in the bottom right corner.

De-Duplicating

8

De-Duplicating

To remove duplicate values, **click Data > Data Tools > Remove Duplicates.**

Check before removing duplicates: Before removing duplicate values, it's a good idea to first try to filter on



VLOOKUP

9

VLOOKUP



VLOOKUP

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

VLOOKUP value you want to look up more information around, table you want to look up from, column you want to return from, false

VLOOKUP

Overview

- VLOOKUP functions allow to look up a value you want to find in an Excel list or table
- VLOOKUP function looks at a value in one column and finds its corresponding value on the same row in another column.
- VLOOKUP stands for vertical, which means the data in the table must be arranged vertically, with data in rows.

Uses and Applications

- Searching among structured datasets
- Combine with other function to extract specific information

Tips and Tricks

- Table or data must be structured
- Always finds the first match
- Named ranges make VLOOKUP easier to read (and more portable)
- #N/A! error is displayed when text not found

Index-Match

10

INDEX-MATCH



VLOOKUP



INDEX-MATCH

INDEX-MATCH

INDEX & MATCH, when used in conjunction, allow you to build a more dynamic VLOOKUP. By using this methodology, you can return values, not only to the right of the lookup value, but also, to the left, above or below.

- **INDEX** function allows you to return a specified value within an array
- **MATCH** function returns the numerical position of text within an array

INDEX-MATCH

SALIENT POINTS TO NOTE

- **INDEX** returns a value in the data set when you know the row and column numbers
- **MATCH** returns a row or column number in a dataset when you have a value

INDEX-MATCH

INDEX—returns a value at the intersection of a specified row and column

=INDEX(array,row_num,[column_num])

=INDEX(array containing value you are looking for, position of value within array, [What column to start with. The default is 1])

The INDEX function returns a value at the intersection of a specified row and column of an array

INDEX-MATCH

	A	B	C
1	Agent	Sales	
2	Judi	\$ 10,521	
3	Peyton	\$ 14,147	
4	Kenneth	\$ 8,454	
5	Cheri	\$ 9,254	
6			
7	Value at specific row & column	\$ 8,454	=INDEX(A2:B5,3,2)

The **INDEX** finds the intersection of the third row and second column in the array of names and sales. In this case, cell B4 is at that intersection within the range.

INDEX-MATCH

MATCH—searches through a range for a specific value and returns the relative position

=MATCH(lookup_value,lookup_array,[match_type])

=MATCH(what text are you looking for, the array in which you want to locate your text, [Match type: -1 = greater than the closest value, 0 = exact match, 1=less than closest value. If omitted equals 0])

INDEX-MATCH

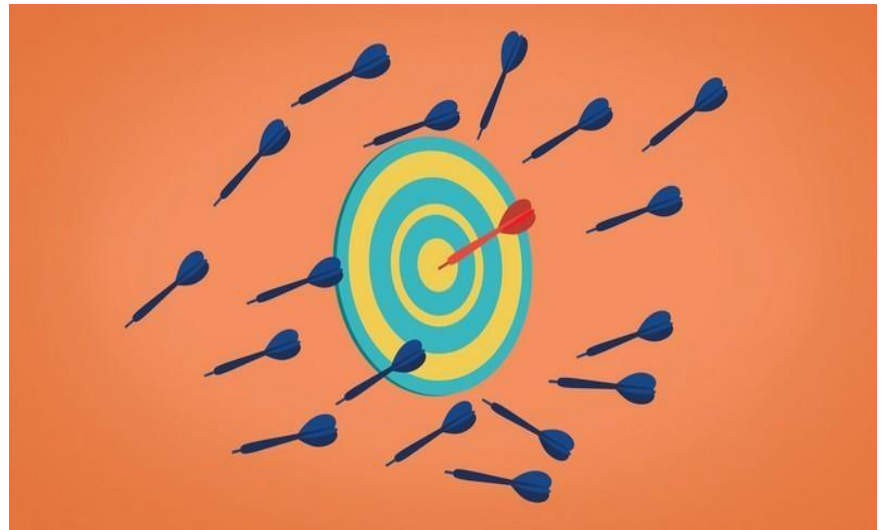
	A	B	C
1	Agent	Sales	
2	Judi	\$ 10,521	
3	Peyton	\$ 14,147	
4	Kenneth	\$ 8,454	
5	Cheri	\$ 9,254	
6			
7	Value to look up	\$ 8,454	
8	Position of particular value	3	=MATCH(B7,B2:B5,0)

The **MATCH** function in cell B8 looks up the value stored in cell B7 (\$8,454), compares it to the range B2:B5, and then finds an exact match on the third row of that range. Therefore, the MATCH function displays 3.

INDEX-MATCH

INDEX(Array with answer you're looking for, **Match** (value you want to lookup, array containing the value you want to lookup, Match type))

INDEX-MATCH



Logical Functions

11

Countifs

=COUNTIFS (*range1*, *criteria1*, [*range2*], [*criteria2*], ...)

range1 - *The first range to evaluate.*

criteria1 - *The criteria to use on range1.*

range2 - *[optional] The second range to evaluate.*

criteria2 - *[optional] The criteria to use on range2.*

sumifs

=SUMIFS (sum_range, range1, criteria1, [range2], [criteria2], ...)

sum_range - The range to be summed.

range1 - The first range to evaluate.

criteria1 - The criteria to use on range1.

range2 - [optional] The second range to evaluate.

criteria2 - [optional] The criteria to use on range2.

if

=IF (logical_test, [value_if_true], [value_if_false])

logical_test - A value or logical expression that can be evaluated as TRUE or FALSE.

value_if_true - [optional] The value to return when logical_test evaluates to TRUE.

value_if_false - [optional] The value to return when logical_test evaluates to FALSE.

If + AND

=IF(AND(logical 1, logical 2), Value if true, Value if false)

=IF(AND(First test, second test), outcome if criteria are met, outcome if criteria are not met)

IF + AND

IF + AND Statements facilitate the use of multiple logical tests in evaluating a data set, where all tests must be true. Each statement within the AND function must be structured as a unique test; you can't simply list the values being compared.

Similar to the IF Statement, the AND statement can be embedded within multiple functions to run more advanced tests.

IF + AND

if this and that.xlsx - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

D6 f_x =IF(AND(B6="red",C6="small"),"x","")

A B C D E F G H

1

2 **If this AND that**

3 Do something when two or more conditions are TRUE

4

Color	Size	Flag
red	small	x
green	large	
red	medium	
blue	large	
red	small	x
blue	medium	

Sheet1

Ready 100%

EXCELJET

If + OR

=IF(OR(logical, logical 2), Value if true, Value if false)

=IF(OR(First test, second test), Value if any test is true, Value if all tests are false)

IF + OR

IF + OR Statements facilitate the use of multiple logical tests in evaluating a data set, where any test can be true

Each statement within the OR function must be structured as a unique test; you can't simply list the values being compared

IF + OR

The screenshot shows a Microsoft Excel window titled "If cell is this or that.xlsx". The formula bar displays the formula `=IF(OR(B6="red",B6="green"),"x","")` for cell D6. The worksheet contains a table with the following data:

Color	Price	Flag	New price
red	100.00	x	115.00
green	80.00	x	92.00
red	100.00	x	115.00
blue	90.00		90.00
red	100.00	x	115.00
blue	90.00		90.00

The "Flag" column contains an 'x' for red and green items, indicating a price increase. The "New price" column shows the updated prices: 115.00 for red items and 90.00 for blue items.

EXCELJET

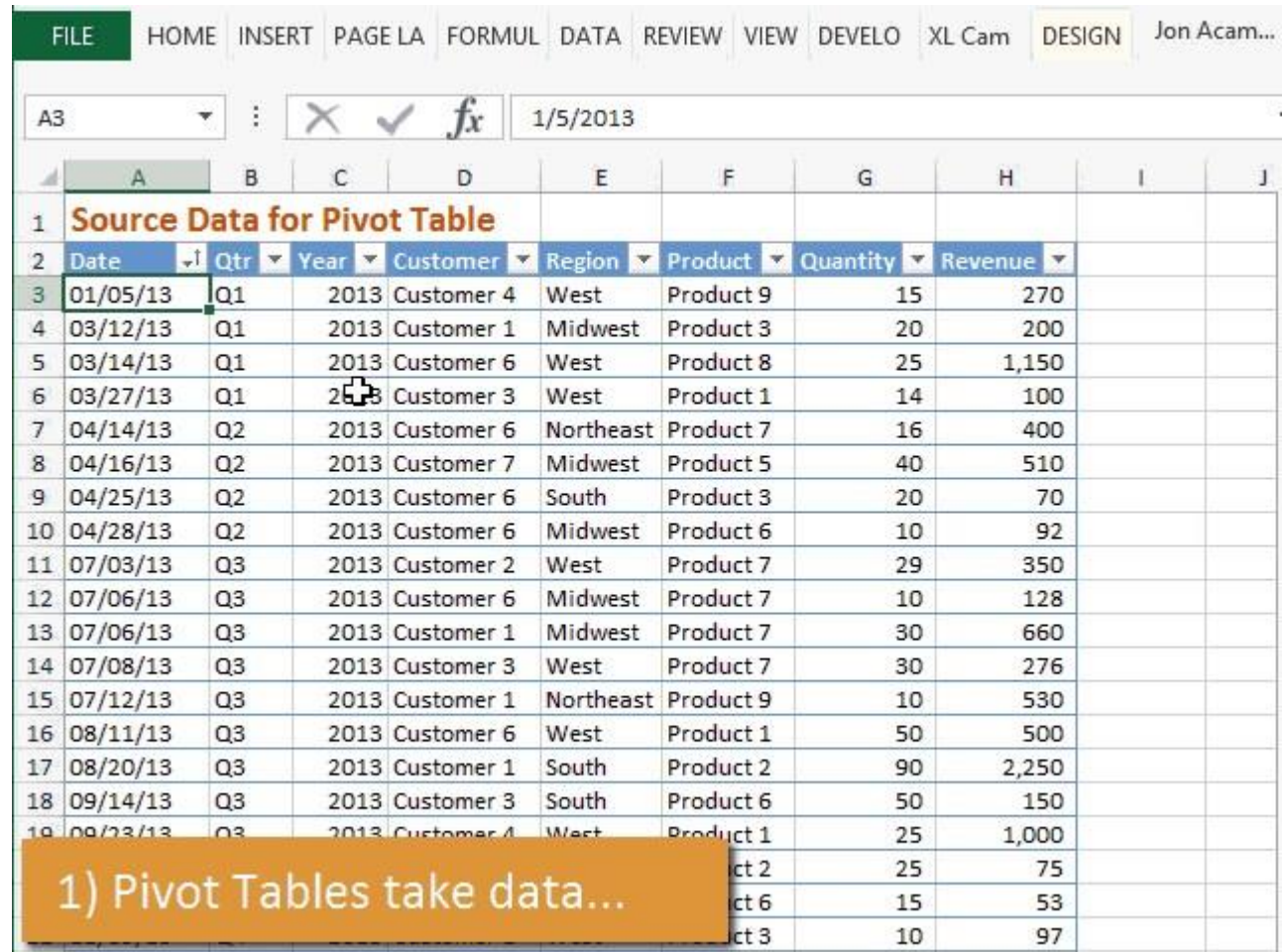
Pivot Tables & Charts

Pivot Tables

Pivot Tables are used to Summarise your data and create charts

Creating a Pivot Table

1. Select your data
2. Press **Alt + N**
+ V (this is a sequential shortcut so press Alt then N then V)



Source Data for Pivot Table									
Date	Qtr	Year	Customer	Region	Product	Quantity	Revenue		
01/05/13	Q1	2013	Customer 4	West	Product 9	15	270		
03/12/13	Q1	2013	Customer 1	Midwest	Product 3	20	200		
03/14/13	Q1	2013	Customer 6	West	Product 8	25	1,150		
03/27/13	Q1	2013	Customer 3	West	Product 1	14	100		
04/14/13	Q2	2013	Customer 6	Northeast	Product 7	16	400		
04/16/13	Q2	2013	Customer 7	Midwest	Product 5	40	510		
04/25/13	Q2	2013	Customer 6	South	Product 3	20	70		
04/28/13	Q2	2013	Customer 6	Midwest	Product 6	10	92		
07/03/13	Q3	2013	Customer 2	West	Product 7	29	350		
07/06/13	Q3	2013	Customer 6	Midwest	Product 7	10	128		
07/06/13	Q3	2013	Customer 1	Midwest	Product 7	30	660		
07/08/13	Q3	2013	Customer 3	West	Product 7	30	276		
07/12/13	Q3	2013	Customer 1	Northeast	Product 9	10	530		
08/11/13	Q3	2013	Customer 6	West	Product 1	50	500		
08/20/13	Q3	2013	Customer 1	South	Product 2	90	2,250		
09/14/13	Q3	2013	Customer 3	South	Product 6	50	150		
09/23/13	Q3	2013	Customer 4	West	Product 1	25	1,000		
					Product 2	25	75		
					Product 6	15	53		
					Product 3	10	97		

Pivot Tables

Using the Pivot Table to Summarise your data and create charts

Creating a Pivot Table

3. Note: Selected fields are added to their default areas: non-numeric fields are added to **Rows**, date and time hierarchies are added to **Columns**, and numeric fields are added to **Values**.
4. To move a field from one area to another, drag the field to the target area

