# **Excel 2: Adventures in Data Crunching**

### Importing Data from Text or .CSV Files

#### What kinds of files can I import?

Delimited text files (.txt) and Comma Separated Values (.csv) files.

A "Delimited" file uses a special designated character to tell excel where to start a new column or row. Files can be tab delimited, space delimited, comma delimited, etc.

Text Import Wizard – Step 1 of 3

- Data Menu > Get External Data > Import Text File
- Find your file and click "get data", then...

	Text import inizard _ Step 1 or 5
Step 1: Choose what kind of file you have. "Delimited"- that there is a special character separating each field -or- "Fixed Width"- that you want to create a new column every x-number of characters or spaces. In this example we're going to choose "delimited". This screen will give you a preview of how your file will look once imported.	The Text Wizard has determined that your data is Delimited. If this is correct, choose Next, or choose the Data Type that best describes your data. Original data type Choose the file type that best describes your data: • Delimited - Characters such as commas or tabs separate each field. • Fixed width - Fields are aligned in columns with spaces between each field. Start import at row:  • File origin: Macintosh Data preview Preview of file Macintosh HD:Users:asha:Desktop:temp:training file.csv. • Dote, Vendor, Amount , Budget, Object, Category, Vendor Code 21/3/18, Govconnection, \$113.22, 31885, 63856, Computer equipment, 16894 31/7/18, bell, \$314.94, \$35956, 563616, Network equipment, 17636 61/9/18, Amazon, \$35.44, 31885, 63316, Network equipment, 18490 61/9/18, Amazon, \$35.44, 31885, 63316, Network equipment, 18490 61/9/18, Amazon, \$35.44, 31885, 633516, Network equipment, 18291
Click "Next".	Cancel       < Back       Next >       Finish         Text Import Wizard – Step 2 of 3         This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.         Delimiters
Step 2: Tell Excel how that file is delimited. Check off which delimiter your file uses. If you're not sure, check and un-check things until the columns look right in the preview window. Click "Next"	Tab       Semicolon       Comma         Tab       Space       Other:       Text qualifier:         Space       Other:       Image: Comma       Text qualifier:         Data preview         Date       Vendor       Amount       Budget       Object       Category         13/10       Govconnection       \$113.22       \$1805       63050       Computer equipment       16894         77/10       Dell       \$13.42       \$1805       63050       Computer equipment       17923         19/10       Govconnection       \$286.94       \$1882       63016       Network equipment       17923         19/10       HELLO DIRECT INC       \$35.44       \$1805       63516       Network equipment       18490         19/10       Amazon       \$35.44       \$1805       63516       Network equipment       18291       18291

# Step 3: Tell Excel what kind of data each column contains.

To do this, click a column or columns (shift-click to select multiple columns). Selected columns appear black.

Use the radio buttons to choose a data format. "General" will import text as text and numbers as numbers. "Text" will import everything as... text. You can also specify date, and specific date formatting.

Tip: If you have a field of Zip codes, make sure to set this field as "text" so you don't lose zeros off the beginning of the zip codes.

Click "next".

**Final Step:** Tell Excel if you want your data in the current spreadsheet, or if you want it to create a new one in your workbook. Have it create a new one unless you're currently on a blank sheet.

Click "OK" and you're done!

### **Using Filters**

The "Autofilter" command allows you to quickly sort your data or limit your view to just a certain criteria.

- 1. Make sure your spreadsheet has a header row with column titles.
- 2. Select your entire spreadsheet (this is so no columns get left out accidentally).
- 3. Data Menu > Filter > Autofilter. This is a check/uncheck control that you can turn on/off.
- 4. You will see small arrows in the cells of your header row. Click these for a filter menu for that column. You can:
  - "Sort Ascending" or "Descending" to sort the spreadsheet by that field (column).
  - The bottom section is a list of all the different entries in that column. Choose a criteria from the list to filter by that criteria ie show ONLY records (rows) that match that criteria.
  - Use the middle section to "Show All"- remove any filters for that field. You can also show the 10 most common, or create a custom filter of your own.

	Text In	nport Wizar	d – Step 3 of	3
This	screen lets you select each colu	umn and	Column data	format
set th	e Data Format.		💽 General	
'Gene	ral' converts numeric values to	o numbers,	🔘 Text	
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40	Sort According	17
40	Sort Ascending	17
50	Sort Descending	16
50	(Channe All)	16
50	(Show All)	17
16	(Show Top 10)	17
16	(Custom Filter)	17
01		18
01	Computer equipment	18
01	Food	16
02	Network equipment	16
40	Phone Equipment	17
01	Professional development	16
01		16
01	Software	17
01	Supplies/Misc	16
01	Travel	18
01	computer equipment	18

### **Subtotals**

Excel can automatically subtotal your data for you.

- 1. Sort your data by the field you want subtotals for.
- 2. Data Menu > Subtotals
- 3. From the first drop-down menu, tell it which field you want subtotals for.
- 4. In the next menu, tell it what kind of subtotals you want. Your main choices are:
  - Sum- adds all the entries up (this is probably what you'll use most of the time).
  - Count- counts the number of non-blank cells
  - Average- averages all the entries
  - Max- the highest # of all the entries
  - Min- the lowest
  - Product- multiplies all the entries.
- 5. Tell it which column contains the info you actually want
- to add (or count, or etc). Check off as many as you want.
- 6. Click "OK".
- 7. Click "Remove all" to get rid of existing subtotals.

Subtotal At each change in: OK + Category Cancel Use function: Remove All Sum + Add subtotal to: Date Vendor 🗹 Amount Budget Object Category Replace current subtotals Page break between groups 🗹 Summary below data

Once you have subtotals, applied, you will see an **outline view** pane to the left of your data:

The top row shows three outline levels: 1, 2, and 3.

Level 1 is the grand total. Level 2 is the subtotals. Level 3 is each individual transaction.

You can double click on these numbers to snap to a view of only the information for that outline level.

- If you want to see only the grand total, double click the "1".
- If you want to see only the subtotals, double click the "2".
- If you want to see everything again, double click the "3".

Each individual area in the outline can be expanded for viewing, or collapsed for hiding. Click the plus to expand an area, click the minus to collapse it.

When an area is collapsed the row numbers surrounding it will appear blue and bold, so you can tell something's hidden in between them.



# Formulas: Copying & Using Autofill

If you have a formula you want to copy and use again, either:

- 1. Copy & Paste the cell that contains the formula.
- 2. Use the Autofill cursor to drag the formula across the cells that you want.
  - Put the cursor in the bottom right-hand corner, exactly on the outline of the cell.
  - It will turn to a dark + sign.
  - Click, hold, and drag down to highlight as many cells as you want the formula entered into.
  - Let go.

# **Relative vs. Absolute Cell References**

Excel's default is to use "relative" cell references, meaning that when you move or copy a formula, it adjusts the formula to refer to new cells in relation to its new location. You can create an absolute reference if you don't want it to adjust automatically.

#### **Relative References:**

- In the example at left, there is a formula adding cells A1 & A2.
- When we copied that formula to cell B3, it adjusted to add cells B1 & B2 instead.

#### Absolute References

- If you DON'T want excel to do this, you can tell it to use an "absolute" reference, which always refers to the same cell(s) no matter where you move that formula.
- Typing a \$ in front of the letter or number of a cell reference it turns it into an "absolute" reference. You can type the \$ in front of the only the row number, only the column letter, or both. Whatever reference has the \$ in front of it will always stay the same no matter where you copy the formula.
- Let's say we want to copy our formula again, but time we want to keep the A1 reference "absolute"- ie ALWAYS add A1, but let the rest of the formula adjust for its new location.
- We type =SUM(\$A\$1:A2). When we copy that formula to cell B3, notice that the A1 remained but the B2 is the new, adjusted relative reference. (The result here would be "5".)

$\diamond$	A	В
1	2	3
2	2	3
3	=SUM(\$A\$1:A2)	=SUM(\$A\$1:B2)

$\diamond$	A	В
1	2	3
2	2	3
3	=SUM(A1:A2)	=SUM(B1:B2)

### **Conditional Formatting**

You can tell Excel to format certain values a certain way- thus giving you an immediate at-a-glance sense of the information and trends your data contains.

- 1. Select the cells/rows/columns you want this formatting to apply to.
- 2. Formatting Menu> Conditional Formatting
- 3. Specify which criteria you want formatted. Choose one of the options from the second drop-down menu. It can be a value between two numbers, if can be a value "equal to" (useful for text values), greater than, less than, etc.
- 4. You can add a criteria by clicking "Add>>".
- 5. Then click the "Format..." button for the criteria.
- On the next screen you can choose what font you want to use, what kind of a border you want the cells to have, and what color you want them to be ("Pattern").
- 7. Click "OK" and "OK" again to apply the formatting.
- 8. To remove formatting, click the "Delete" button and check off which format(s) you want to get rid of.

Conditional Formatting			
Condition 1	0 陆 and 500 陆		
Preview of format to use AaBbCcYyz	Format		
Condition 2 Cell Value Is 🛟 between 🛟	501 陆 and 1000 陆		
Preview of format to use AaBbCcYyz when condition is true:	Zz Format		
Add >> Delete	Cancel OK		

Font Border Patterns     Cell shading     Olor     No Color     No Color <th colspan="4">Format Cells</th>	Format Cells			
Cell shading         No Color	Font Border Patterns			
Cancel	Cell shading         No Color         No Color         Pattern:			
	Cancel			

### Functions

Functions are special commands, used in a formula, that tell Excel to calculate certain things in a certain way.

There is a drop-down menu in your standard toolbar that contains the most popular. They are:

- Sum: Adds numbers together
- Average: Averages numbers
- Count Numbers: Counts how many numbers there are
- Max: Returns the highest value
- Min: Returns the lowest value
- Click "More Functions" to go to the Formula Builder



You can also get the formula builder by going to the Insert Menu > Function

To use a function:

- 1. Select the cell you want your formula/function to be in.
- 2. Search for your function.
- 3. Double click it to get the entry boxes at the bottom. -
- 4. Click "more help on this function" to learn more about it or see examples.

#### **Useful Functions**

- **COUNTA-** This will simply count how many non-blank cells you have in your selected range. Unlike the regular "Count" function this incudes text entries.
- **COUNTIF-** Counts non-blank cells that match a certain criteria. (15 records match "Apples" in the "Fruit Type" field)
- **COUNTIFS-** Counts non-blank cells that meet multiple criteria. (12 records match "Apples" in Fruit Type AND "Atkins" in Vendor field)
- **SUMIF-** Adds values if the records match a certain criteria. (We spent \$100 on Fruit Type: "Apples")
- COUNTIF COUNT ur: 000 Description number1: number1,number2,... are 1 to 255 numbers to sum. Logical values and text are ignored in cells, included if typed as arguments. More help on this function Arguments SUM {144.95;59.£ number1 C2:C81 number2 number Result: 16493.08

Formula Builder

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A

4ô

SUM

Q- Search for a function

Most Recently Used

CONCATENATE

COUNTIFS

COUNTA

- **SUMIFS-** Adds values if the records match multiple criteria. (We spent \$80 on Fruit Type: "Apples" from Vendor: "Atkins")
- **CONCATENATE-** Takes data living in separate cells and combines it into one cell, plus any added text or punctuation you enter. Handy for combining first and last names, etc.

### **Text to Columns**

This command will take data living in one cell and separate it out to multiple cells, either by delimiter or set # of characters. This process is somewhat similar to importing data.

J	
Jill Adams	
Joe Schmoe	
Phil Smith	
Pete Jones	
Betty James	
John Flowers	
Jill Adams	
Joe Schmoe	
Phil Smith	
Betty James John Flowers Jill Adams Joe Schmoe Phil Smith	

1. Make sure you have blank columns to the right of your data for the separated-out data to live in.

- 2. Select the cells you want to split up.
- 3. Data Menu > Text to Columns

Convert Text to Columns Wizard - Step 1 of 3			
The Text Wizard has determined that your data is Delimited. If this is correct, choose Next, or choose the Data Type that best describes your data.			
Original data type Choose the file type that best describes your data:  Delimited - Characters such as commas or tabs separate each field.  Fixed width - Fields are aligned in columns with spaces between each field. Data preview.			
Preview of selected data:          2       Jill Adoms         3       Joe Schmoe         41       Phil Smith         52       Pete Jones         66       Betty James         71       John Flowers			
Cancel < Back Next > (Finish)			

4. Choose if you want your data split up by a delimiter- comma, space, etc, or if you just want to split it by a set # of spaces.

Convert Text to Columns Wizard - Step 3 of 3			
This screen lets you select each column and set the Data Format. 'General' converts numeric values to numbers, date values to dates, and all remaining values to text. Advanced	Column data format General Text Date: MDY Do not import column (Skip)		
Data preview	Destination: 5552		
GenerText General Jill Adams Jos Schmoe Phil Smith Pete Jones Betty James John Flowers	9		
Cancel	< Back Next > Finish		

6. Specify what kind of data each column contains. Select the column(s) and choose from the radio buttons.



5. If you choose delimited, choose your delimiter. Check the preview pane below to make sure it looks right.

J	K	L
	Jill	Adams
	Joe	Schmoe
	Phil	Smith
	Pete	Jones
	Betty	James
	John	Flowers
	Jill	Adams
	Joe	Schmoe
	Phil	Smith

7. The finished product.

### For More Help:

#### Microsoft's Office Help Pages-

Step-by-step instructions, videos, and courses on lots of Excel functions and features. http://www.microsoft.com/mac/help.mspx

Visit training.hampshire.edu for online tutorials & tips.

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