Lab 4 – Importing Data and Basic Graphs

Often we will find data that is not in an excel format. This data could be in text format, or an alternate spreadsheet or database format, and therefore needs to be converted into an excel format. This lab will cover how to convert text files to excel files, as most data can be retrieved or converted into text form.

We will then learn how to use this data to create useful graphs.

LAB 4 QUICK VIEW

➢ Text data can be imported into Excel in two ways:
  o By opening the file through excel
  o By selecting the "From Text" option under the "Data" menu
➢ A wizard will open to guide you through importing the data
➢ To insert a chart or graph into excel, highlight the required data and select the chart or graph under the "Insert" menu
➢ When editing graphs and carts:
  o First check to see if there is a better chart or graph option for your data
  o With the chart or graph selected, the "Chart Tools" and "Design" menu will let you edit your chart or graph:
    ▪ The "Select Data" menu allows you to add data points to either the x- or y-axis
    ▪ The "Add Chart Element" menu lets you add titles, gridlines, and trend lines
  o With the chart or graph selected, the "Chart Tools" and "Format" menu will let you edit the appearance of your chart or graph
    ▪ Colours can be changed in groups using this menu
    ▪ Colours can be changed individually by clicking on what you want to change.

MAKE SURE ANY GRAPH OR CHART YOU CREATE HAS ALL AXIS CLEARLY LABELLED AND AN APPROPRIATE TITLE IS USED. THERE SHOULD BE ENOUGH INFORMATION ON YOUR GRAPH SO A PERFECT STRANGER WOULD UNDERSTAND IT.
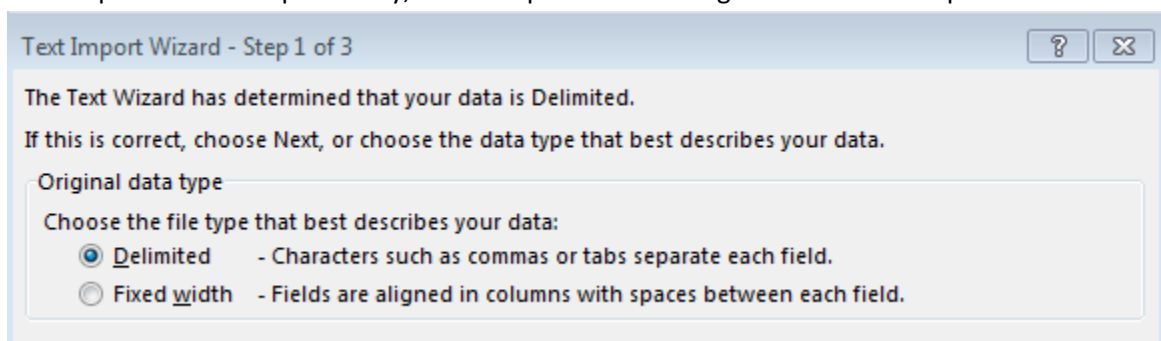
A) METHOD 1 – OPENING A TEXT DOCUMENT IN EXCEL

i)   Perhaps the easiest method of converting text to excel is to open the text document in excel and follow the prompts. When you open excel, choose "Open Other Workbooks" in the bottom left when you first open excel, or "OPEN" on the left when you select "File", then "Browse".
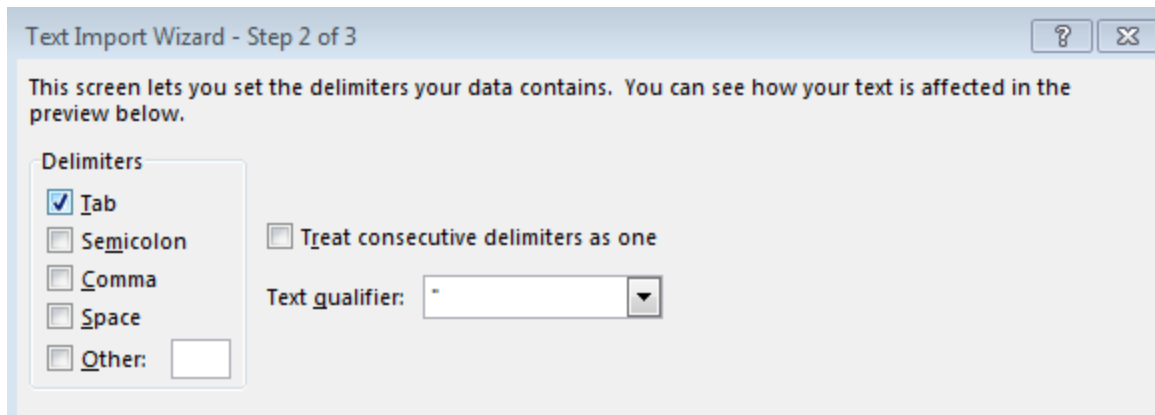
ii)   In the "OPEN" window that opens, change the drop down menu from "All Excel Files" to "All Files", then find and open the text document.

iii)   The Text Import Wizard will automatically open. By selecting options at the top, you will see how the excel file will appear at the bottom. Different text files may require you to try different options at the top. Usually, text is imported first using the "Delimited" option:

> **Text Import 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.

iv)   After clicking next, you will choose how the data entries are separated in the text file. If commas or semicolons (;) are used, select those options, then select and deselect "Tab" and "Space" until the preview below correctly splits the columns.

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
- ☑ Tab
- ☐ Semicolon   ☐ Treat consecutive delimiters as one
- ☐ Comma
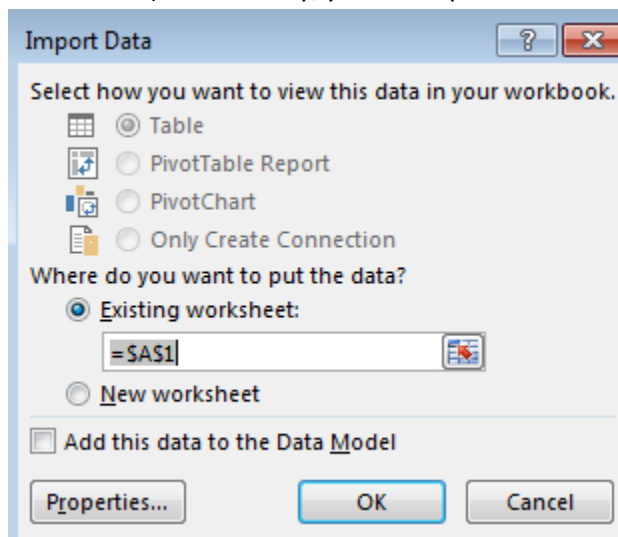- ☐ Space   Text qualifier: "
- ☐ Other: [   ]

v)   The final step of the wizard allows you to format the columns or delete columns. This is not mandatory since we can do these steps inside excel itself.

B) Method 2 – USING THE DATA MENU.

i)   If you have text data copied from another source (such as a text file or a webpage), you can choose "GET EXTERNAL DATA, FROM TEXT" UNDER THE "DATA" menu.
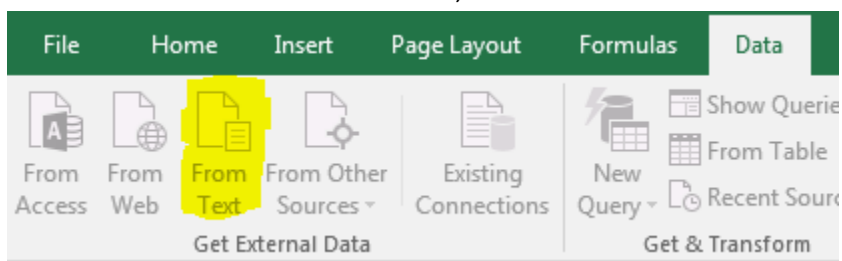

ii)   The wizard will appear as in method 1, with the additional pop-up asking you where you want the data to be pasted in the spreadsheet (you are selecting the cell that will be the top left of the data set). Alternately, you could paste the data into a new worksheet.

Import Data

Select how you want to view this data in your workbook.
- ⊙ Table
- ○ PivotTable Report
- ○ PivotChart
- ○ Only Create Connection

Where do you want to put the data?
- ⊙ Existing worksheet:
  - =A1
- ○ New worksheet

☐ Add this data to the Data Model
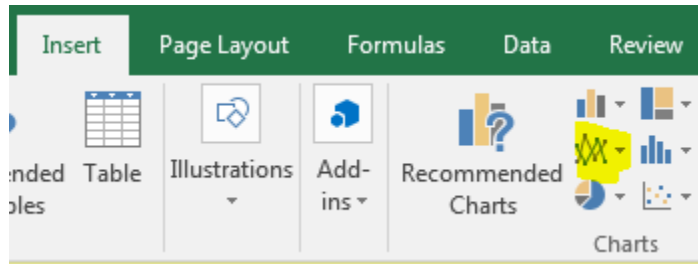
[Properties...] [OK] [Cancel]

C) BAR GRAPHS

To create a bar graph, simply highlight the columns of data you wish to use, including titles, then under the "Insert" menu, select the "Insert Bar or Column" option under charts then under "2-D Columns", select "Clustered Columns". The left column will be the default x-axis, but that can be changed later.
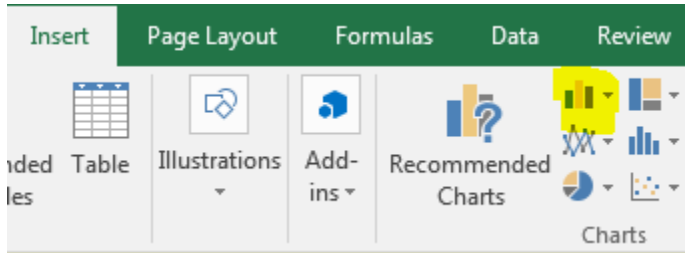
D) LINE GRAPHS

To create a line graph, simply highlight the columns of data you wish to use, including titles, then under the "Insert" menu, select the "Insert Line or Area Chart" option under charts then under "2-D Columns", select "Line With Markers". The left column will be the default x-axis, but that can be changed later.

E) PIE CHARTS

To create a pie chart graph, simply highlight the columns of data you wish to use, including titles, then under the "Insert" menu, select the "Insert Pie or Doughnut Chart" option under charts then under "2-D Pie", select "Pie". The left column will be the default pie labels and the next column will determine the area of the pie, but that can be changed later. This simple Pie chart can only be used to show one column of data.

F) EDITTING GRAPHS

i) Your first step in editing a graph could be to change the type of graph you have selected. The above graphs are suggestions only; feel free to choose another graph that may represent your data better. For example, "Scatter Graphs" may work better for your data than "Line Graphs".

ii) Once you have chosen your graph type and have the graph selected, a new menu "Chart Tools" with the submenu's "Design" and "Format" will appear at the top. You can use these to edit your graphs.
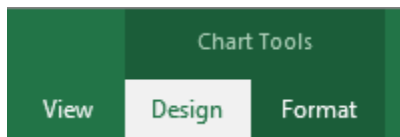

iii) If you want to change or modify what appears on the x or y axis, select "Select Data" under the "Design" menu. You can start by trying the "Switch Row/Column" button. (A preview of the new graph is shown.) Clicking the button again can undo the switch.
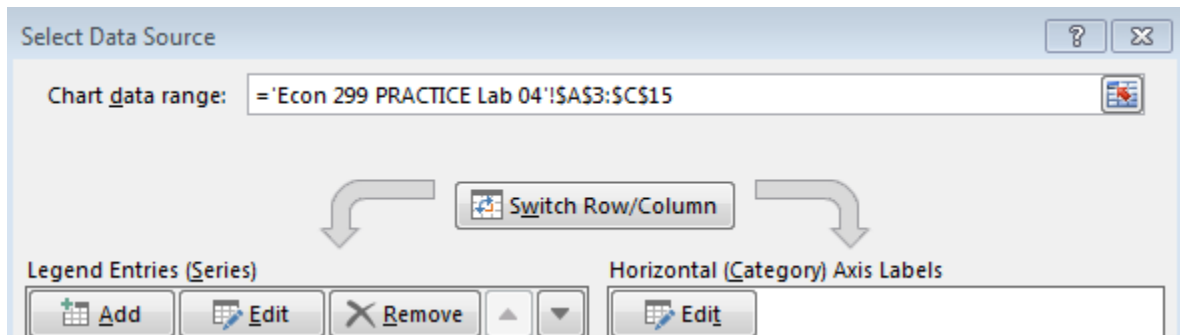
iv) In this "Select Data" menu, the "Series" refers to the points shown in the graph, and represented by the y-axis, while the "Category" refers to the labels on the x-axis. To remove a column from the graph (and all the graph points created by that column), select the column you want removed and click on the "Remove" button on the left. To add another column's data, click on "Add" and highlight the column. To change what appears on the x- axis, select "Edit" on the right and highlight what you would like as the new x-axis.

v) To add elements to the graph, use the "Add Chart Element" button under the "Design" menu. Useful options are:
   a) Inserting Axis if your data points have different units (for example, GDP and inflation)
   b) Inserting Titles for the axis or graph. Titles can be formatting and changed by clicking and typing directly on the title in the graph.
   c) Gridlines can help make the graph more visible.
   d) Trend lines can be useful to examine a relationship between variables.
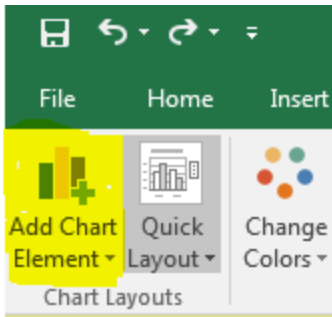
vi) To quickly change all colours in the graph, use the "Change Colors" button. To change the colour of just one element, click on that element, then under the "Format" menu, use the paint jar tool to choose a different colour.
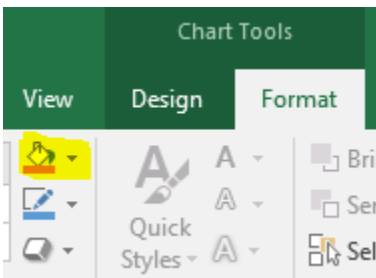
Econ 299 Practice Lab 4: Grades and Graphs

A) Download or copy the following TEXT file showing midterm and final grades for an Econ 298 class. Using any method, import this data into excel, making sure each data set/variable is a separate column.

```
Econ 298 Grades

Student          Midterm Final
Tilda Storm      77.01   64.38
Soren Kierk      65.72   71.1
Manuel Kant      61.01   57.23
Adam Smith       61.92   66.57
Zee Garcia       50.13   44.19
Sam Healey       98.28   97.97
Danny Targ       89.97   47.4
John Snow        30.6    15.49
Fred Flint       52.36   27.4
Barney Rub       34.17   17.57
Iron Man         61.31   59.96
Adam Warlock     63.73   61.69
```

B) Create a bar graph showing each student's grades. Create an appropriate title on the x- axis and y-axis, and give the graph an appropriate title. Since the final grade is very important, change the final grade bars to be red.

C) Let's assume that John Snow's grades are particularly important. Change the colours of his grades, and replace his name with capital letters. (Hint: Typing in the excel boxes that created this graph will affect the graph itself.)

D) Now create a graph that puts final grades on the y-axis and midterm grades on the x-axis (hint: you may need to use a "Scatter" graph, and use the "Select Data" button to place the right data in the right axis.). Create appropriate x, y, and graph titles, and change John Snow's data point to a different colour. Insert a trend line to examine the relationship between midterm and final marks for this class.

E) Consider the following extended grade information on John Snow, as well as how much each component is worth towards the final Econ 298 grade:

	A	B	C	D
1	John Snow's Econ 298 Grades			
2				
3	Component	Grade	Weight	Resulting Mark
4	Assignments	96	20%	
5	Labs	77	15%	
6	Midterm	30.6	25%	
7	Final	15.49	40%	
8	--			
9	Total		100%	
10				
11				

F) In column D, calculate each component's impact on John's final mark (for example, getting 50% on the final would result in 20% towards the final mark – 40% x 50%). Sum column D to find John's course mark.

G) Create two pie charts, one showing the weight distribution of the class (column C), and the other showing how John's final course mark was divided (column D). Create appropriate titles, and make sure each part of the pie is properly labelled, and percentages indicated. (Hint: right click on the pie chart and select "Add Data Labels" to add percentages to the chart.)

Econ 299 Practice Lab Answers:

(Certain title and formatting choices may be different.)

	A	B	C
1	Econ 298 Grades		
2			
3	Student	Midterm	Final
4	Tilda Storm	77.01	64.38
5	Soren Kierk	65.72	71.1
6	Manuel Kant	61.01	57.23
7	Adam Smith	61.92	66.57
8	Zee Garcia	50.13	44.19
9	Sam Healey	98.28	97.97
10	Danny Targ	89.97	47.4
11	**JOHN SNOW**	30.6	15.49
12	Fred Flint	52.36	27.4
13	Barney Rub	34.17	17.57
14	Iron Man	61.31	59.96
15	Adam Warlock	63.73	61.69

Econ 298 Midterm and Final Grades

Econ 298 Midterm and Final Grades

	A	B	C	D	E	F	G
1	John Snow's Econ 298 Grades						
2							
3	Component	Grade	Weight	Resulting Mark			
4	Assignments	96	20%	19.2			
5	Labs	77	15%	11.55			
6	Midterm	30.6	25%	7.65			
7	Final	15.49	40%	6.196			
8	--						
9	Total		100%	44.596			
10							

Econ 298 Mark Distribution

20%
15%
25%
40%

■ Assignments ■ Labs ■ Midterm ■ Final

John's Econ 298 Mark Sources

6.196
19.2
7.65
11.55

■ Assignments ■ Labs ■ Midterm ■ Final