Lab 3 – Bar and Pie Charts In Excel

In this lab we will cover how to create and label bar and pie charts in excel.

Lab 3 Quick View

- A bar chart can be created by clicking anywhere in a data set and selecting "Recommended Charts" from the "Insert" ribbon.
  - Pay attention to the preview given. Often you will select the "Clustered Column" option.
  - This chart should be edited. Elements can be added using "Add Chart Elements" under the "PivotChart Tools" and "Design" ribbon above.

- A bar chart can be converted into a pie chart by clicking on the chart and selecting "Change Chart Type" under the "PivotChart Tools" and "Design" ribbon above.
  - This chart should also be edited. Right-clicking on data labels in the chart will allow you to edit them.

- A histogram containing ranges of values is started by first creating a Pivot Table
  - Clicking anywhere in the data, select "PivotTable" from the "Insert" ribbon above.
  - Drag the variable you want to present to the "Rows" and "Values" sections, then change the values entry from "Sum" to Count".
  - To create ranges, right click on any of the row's entries and select group. Values outside the start and end point will be grouped in outlier ranges.

- To convert a Pivot Table to a histogram, click on the Pivot Table, and then choose "Recommended Charts" from the "Insert" ribbon above and choose a bar chart (often called "Clustered Column").
  - Right click and choose "Format Data Series" and reduce the "Gap Width" slider to zero (or close to zero).
  - Don't forget to format the remainder of the chart (with titles, etc).

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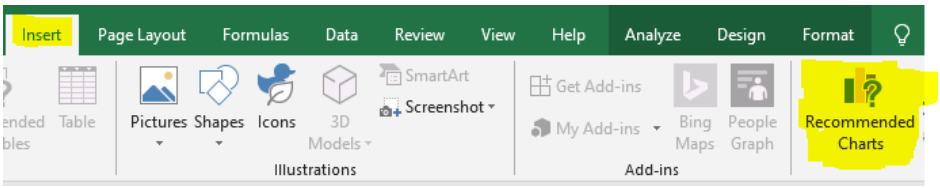
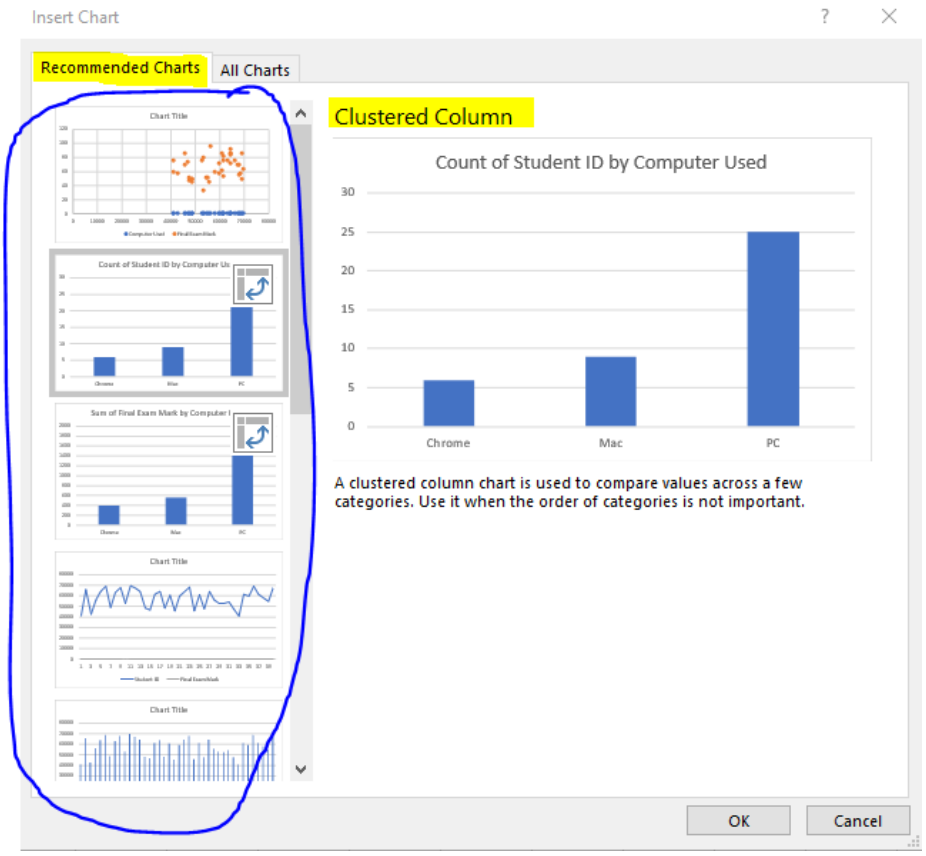
A) Creating a Bar Chart Using Categories

If the data you are analyzing is categorical (as opposed to numerical), you can simply click any cell that contains the data you want included in the Bar Chart, then in the top ribbon click “Insert”, followed by “Recommended Charts”.



Click on the “Recommended Charts” tab, and then click on the options until the preview is presenting the data you want to display in the bar chart. The option you are looking for may be listed as “Clustered Column”.



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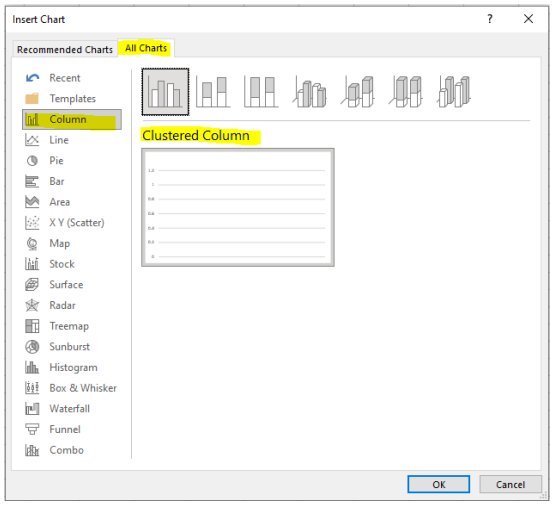
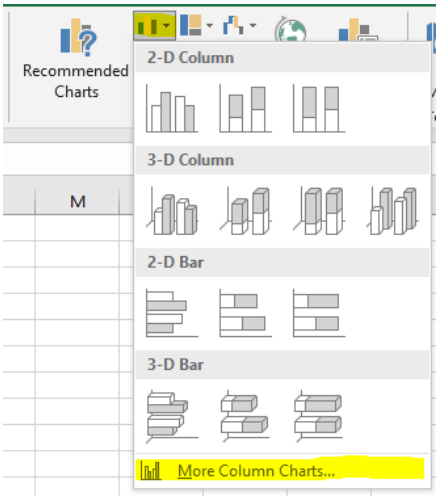
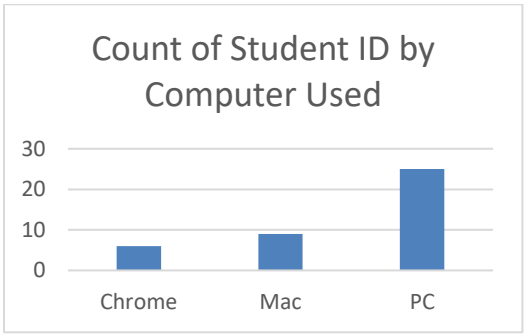
If your “Recommended Charts” button or tab do not work, you can choose a chart from the “All Charts” tab. (This can also be openned through the “More (type of chart) Charts” from the drop-down menus beside the “Recommended Charts” button.)





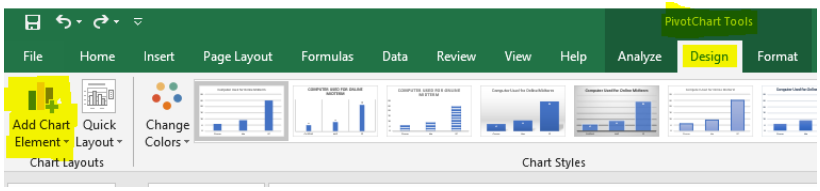
B) Labelling/Editing a Bar Chart

The initial chart that Excel creates will have default labels and be missing key information:

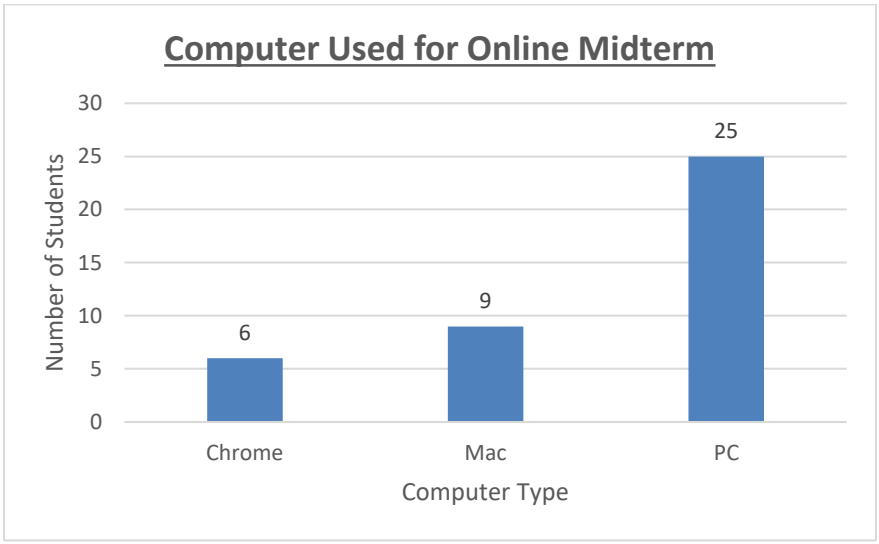


Titles and names of categories can be renamed simply by clicking on them and typing the correct title or term. Size, font and format can be changed using the “Home” ribbon option above.

New information can be added by clicking anywhere on the chart, and in the top ribbon, under “PivotChart Tools” and “Design”, using “Add Chart Element”. When you hover over an element in the list, you will get a preview of how it will look in your chart. Clicking on the element will add it to the chart. You may then need to click and rename and/or format elements.



Elements you may wish to add include “Axis Titles” and “Data labels”. An example of an edited chart would be:



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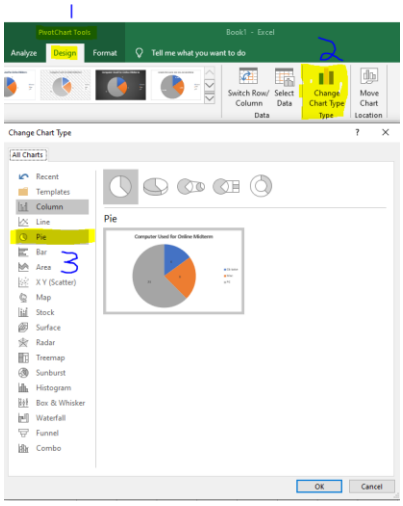
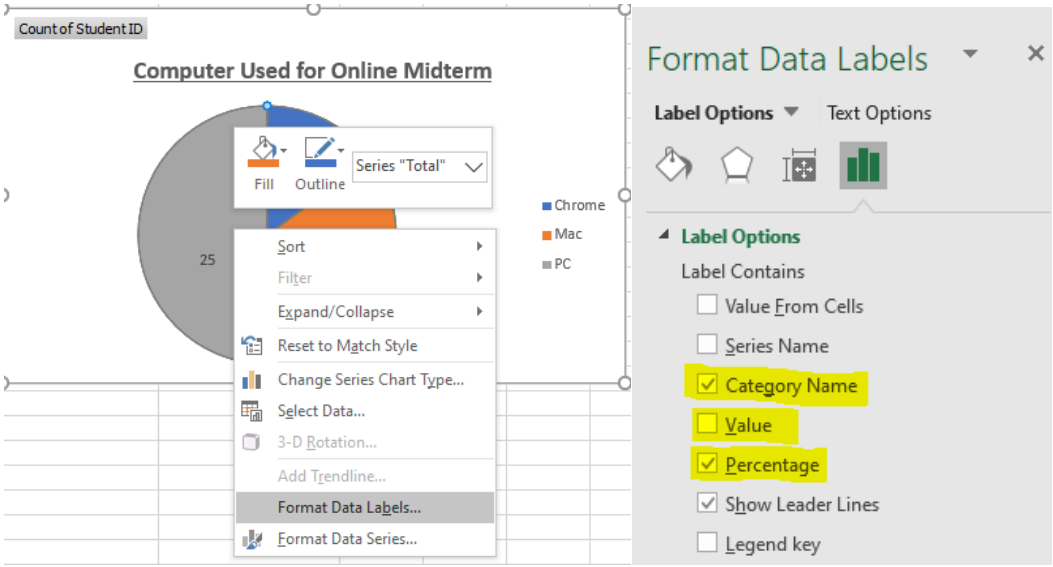
C) Converting from a Bar Chart to a Pie Chart

The easiest way to create a one-variable pie chart is to first create a bar chart. Then, after clicking on the bar chart, select “PivotChart Tools” and “Design” in the top ribbon, then choose “Change Chart” and select the “Pie” option. You can then edit and add elements, such as a legend, the same as a bar chart.



Since this is a pie chart, it is often expected to have percentages listed, as well as the categories labelled inside the pie chart, instead of in the legend (if space allows). To do this, right click in the pie portion of the chart, and select “Format Data Labels”. In the menu that appears to the side, you can select and unselect options, such as “Value”, “Percentage” and “Category Name”.



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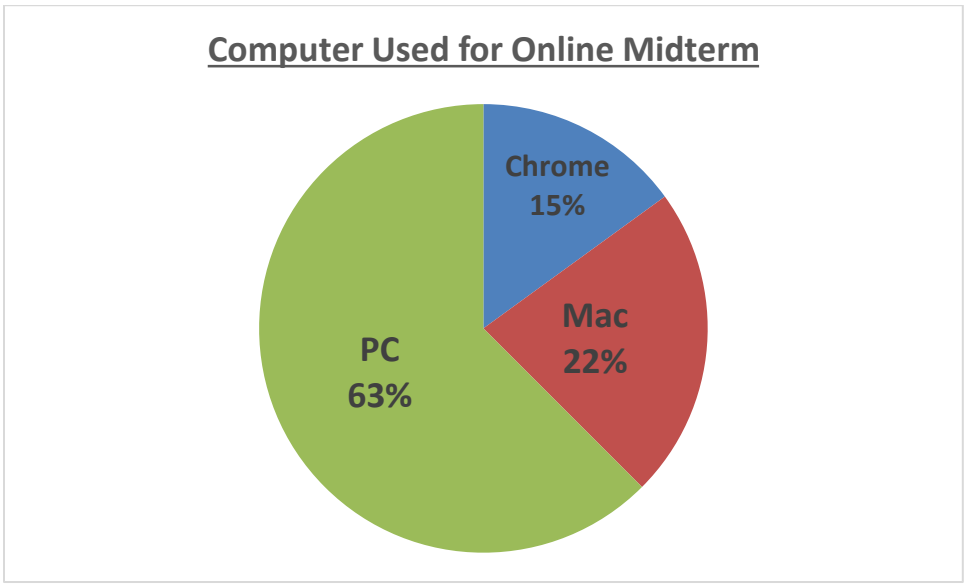
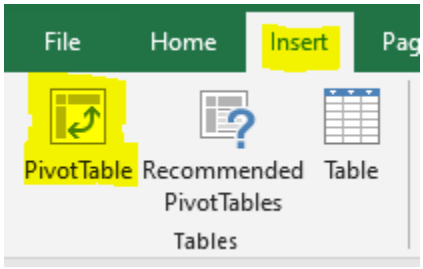
In addition, by clicking on the individual labels, you can increase the text box size and use the "Home" option in the top ribbon to increase the text size, add bold effects, etc. This can result in a much more effective pie chart:

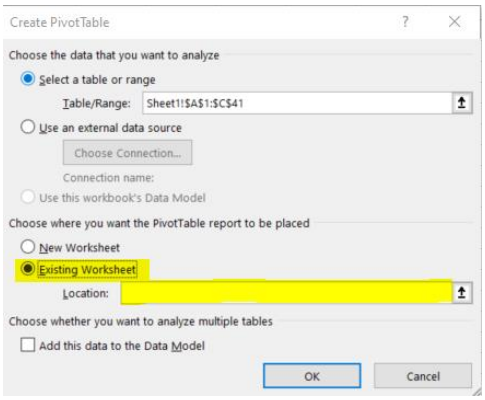


D) Creating a Histogram Pivot Table

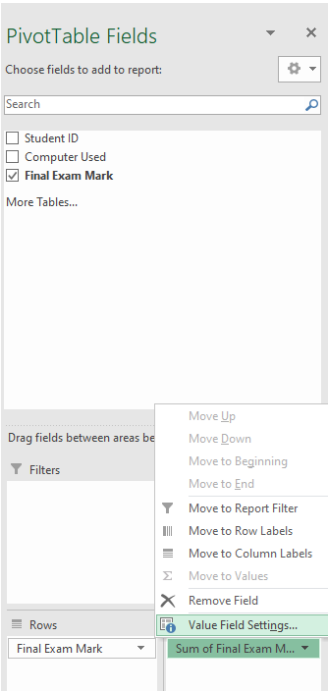
A histogram is similar to a bar chart, but each category is a range of values, and typically there aren't big gaps between the bars.

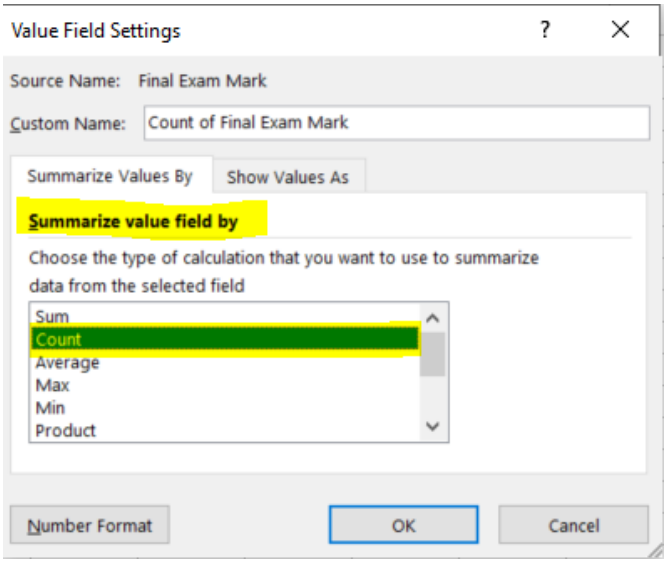
To sort a numerical data set into ranges (or classes), click anywhere in the data you want to sort and select "Insert" in the top ribbon, then choose "Pivot Table". (You can choose to have the pivot table show in your current excel tab by choosing "Existing Worksheet", clicking in the location box, then clicking on the cell that will be the top left of the table.)



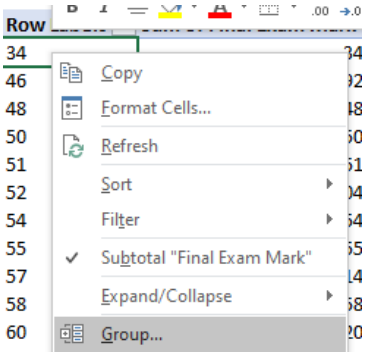


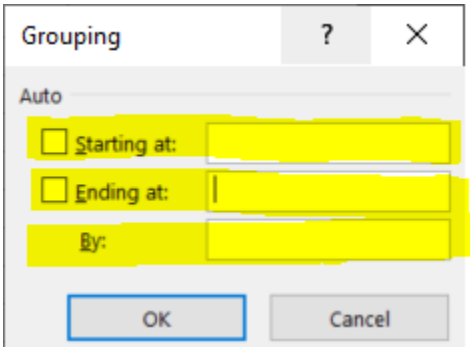
A “PivotTable Fields” menu will appear on the side. Drag the variable you want displayed on the histogram to the “Rows” and “Values” areas. Click on the “Sum of…” option under the “Values” area and select “Value Field Settings”. Change “Summarize value field by” to “Count”.





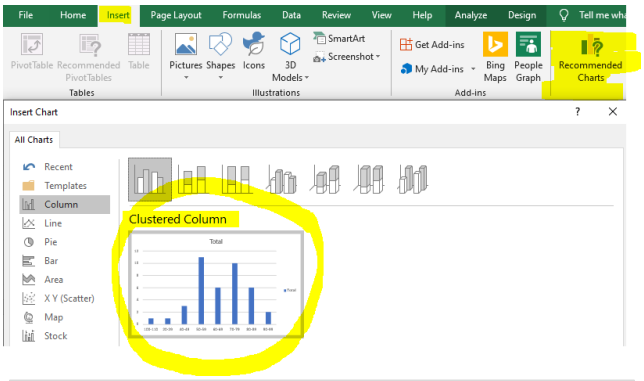
Finally, to change the count from individual values to ranges of values, right-click on any of the values under “Row Labels” and select “Group”. Select a value that the first range will start with, a value the last range will end with, and how big every range will be. If you have OUTLIERS (values that are isolated above or below the others), ignore them when you pick starting and ending points and they will be listed as outliers in the histogram. If there are ranges without values, right click again on the ranges, pick “Field Settings” and under “Layout and Print”, select “Show items with no data”.

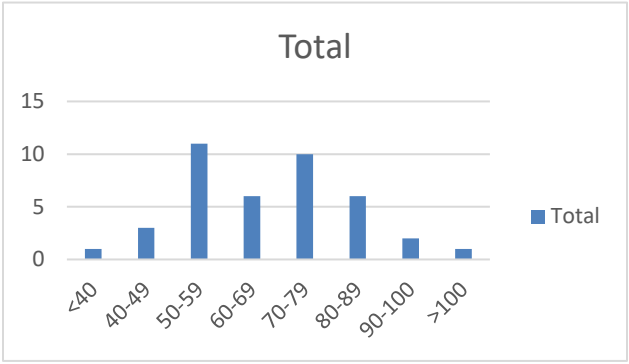




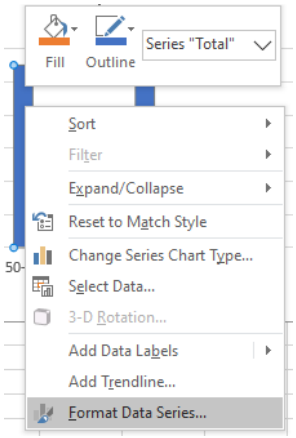
E) Creating a Histogram from a Pivot Table

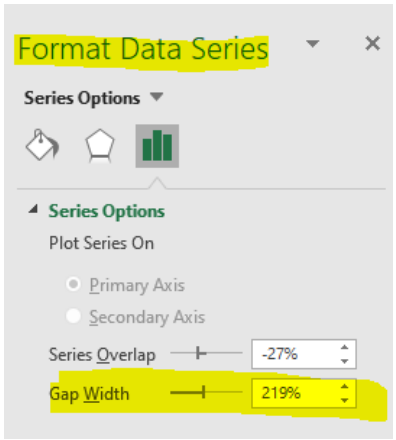
To convert from a Pivot Table to a Histogram, simply click anywhere on the pivot table, and then under “Insert” in the top ribbon, select “Recommended Charts”. Using the preview, choose the chart that most resembles a Bar Chart (it may be listed as a “Clustered Column”, as above).





As before with the bar graph, the chart should be edited with titles, etc. Ranges can also be changed to allow for outliers. To remove the area between bars, right-click on any bar and choose “Format Data Series”. When the menu appears on the side, change the “Gap Width” slider to 0 (or close to zero).





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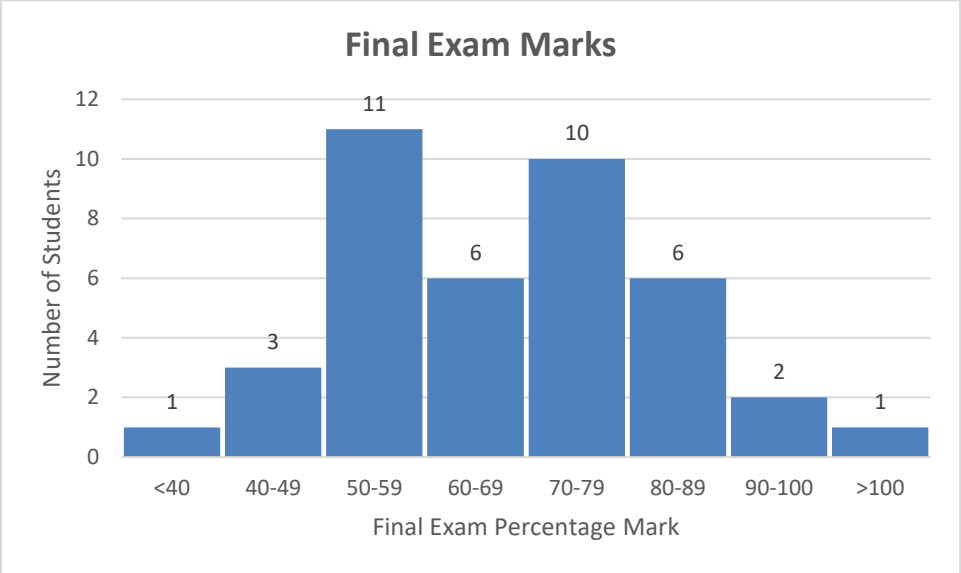
Your final Histogram should look something like this after formatting:



Lab 4 will cover importing data to create graphs, review and expand graphing options.

Written by Lorne Priemaza

Econ 299 Practice Lab 3 – Online Exams

A) The following spreadsheet depicts student data for online midterms. The full file can be downloaded online.

	A	B	C
1	Student ID	Computer Used	Midterm %
2	34029	PC	43
3	65927	Mac	69
4	42625	Chrome	37
5	56133	PC	85
6	64068	Chrome	95
7	47080	PC	76
8	48662	PC	45
9	63116	Chrome	61

B) Create a Bar Chart showing the number of students who used each type of computer. Don't forget to format the chart, adding in titles as appropriate.

C) Create a Pie Chart showing the number of students who used each type of computer. Don't forget to format the chart, adding in titles, labels, and percentages as appropriate.

D) Create a PivotTable for the midterm marks received in this course.

E) Convert the PivotTable values to ranges, starting with 40 and ending with 90 (allowing for outliers).

F) Convert the PivotTable to a histogram. Format the chart as normal, plus remove gaps between the entries.

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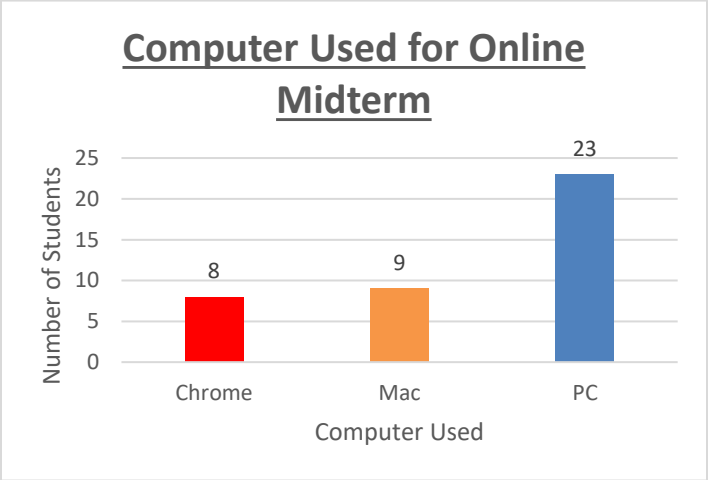
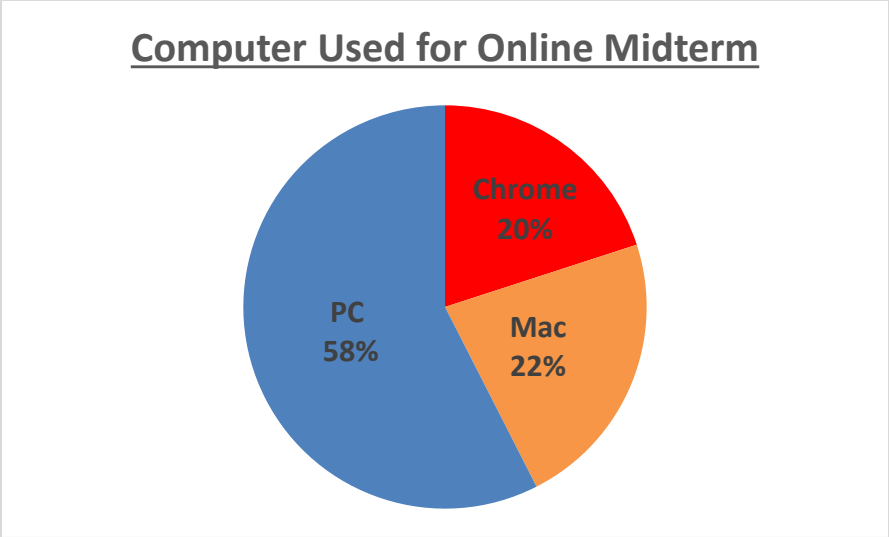
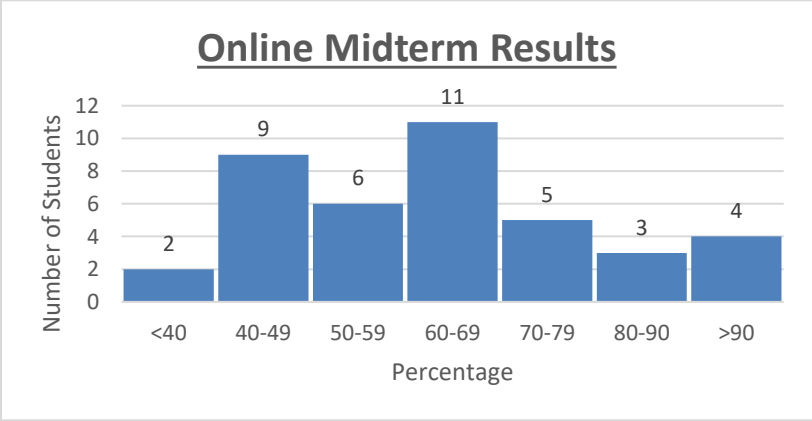
Econ 299 Practice Lab Answers:

Note: Formatting choices will vary.







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