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Unit Overview

Statistics is the branch of mathematics that works with data. It involves collecting data, organizing the data in some way, and interpreting it.

There are many different ways to organize and present data: tables, charts, graphs, etc...

Data is often presented visually in the form of graphs to make interpreting and analyzing the data easier.

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Curricular Competencies

- ✓(CF) Students will know the common types of graphs and what type of data each graph is best suited for representing.
- ✓(CR) Students will be able to construct graphs by hand as well as digitally.
- ✓(MR) Students will be able to read and interpret graphs, analyze trends, and understand how graphs can be misleading.
- ✓(A) Students will be able to use graphs to convey information and use graphs to make informed logical decisions.

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Lesson 1.1

Introduction to Data & Graphs

Data Analysis Idea

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Types of Data

There are two main types of data, which are...

Quantitative

Quantitative data deals with numbers and things you can measure objectively: dimensions such as height, width, and length; temperature, humidity; prices, area, volume, etc...

Qualitative

Qualitative data deals with characteristics and descriptors that can't be easily measured, but can be observed subjectively—such as smells, tastes, textures, attractiveness, and color.

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Types of Quantitative “Numeric” Data

There are two types of quantitative or numeric data, which are...

Discrete

Discrete data is a count that can't be made more precise. Typically it involves positive integers. For instance, the number of children (or adults, or pets) in your family is discrete data, because you are counting whole, indivisible entities: you can't have 2.5 kids, or 1.3 pets.

Continuous

Continuous data, on the other hand, could be divided and reduced to finer and finer levels. For example, you can measure the height of your kids at progressively more precise scales—meters, centimeters, millimeters, and beyond—so height is continuous data.

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Types of Quantitative “Numeric” Data

Example

- If I tally the number of individual Jujubes in a box, that number is a piece of discrete data.
- If I use a scale to measure the weight of each Jujube, or the weight of the entire box, that's continuous data.

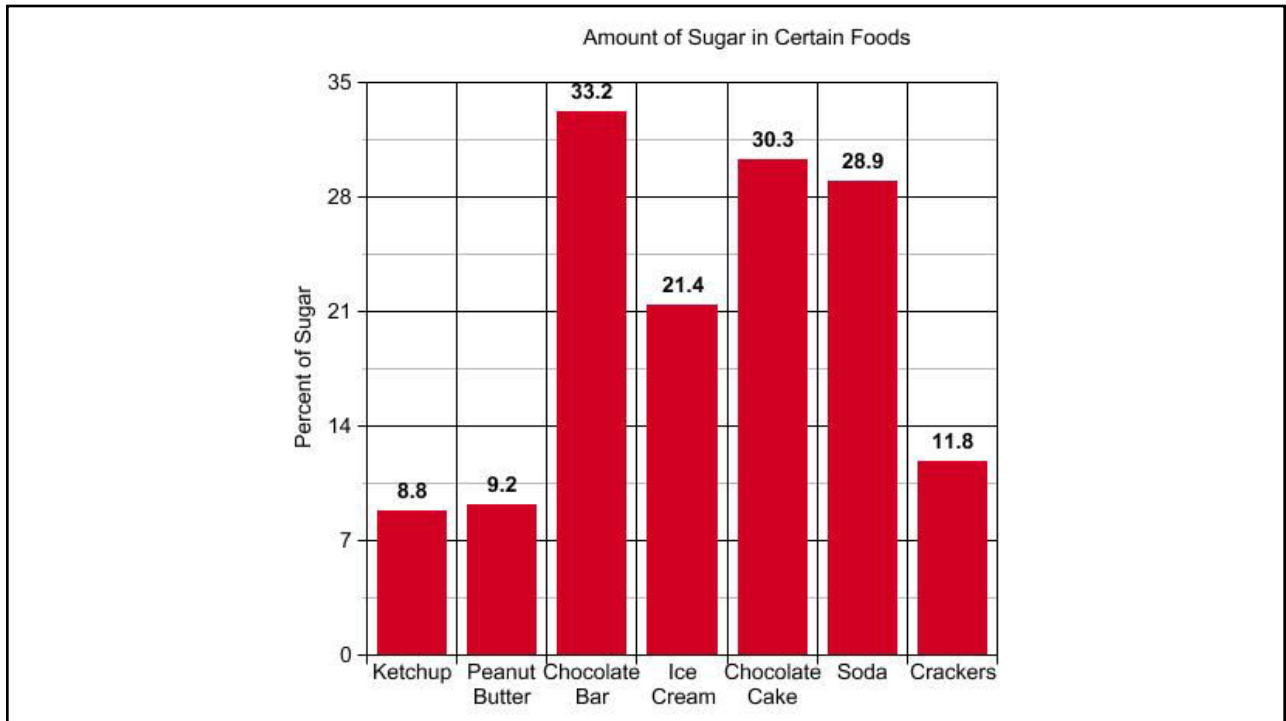


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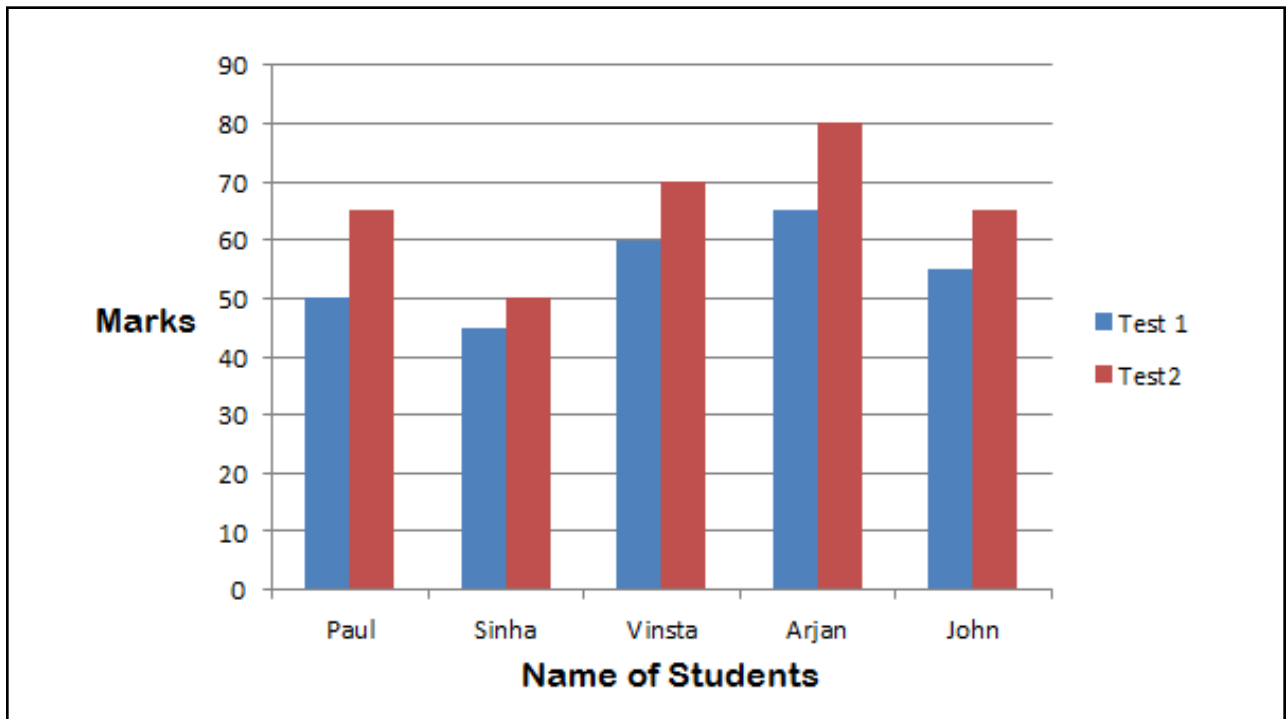
Graphing 101 – Why Do We Use Graphs?

- Graphs are a valuable tool used to organize data and to illustrate relationships in the data visually.
- The purpose of a graph is to present data in a useful and meaningful way that would otherwise be too complicated or difficult to analyze more efficiently.
- If trying to find relationships between two or more variables a graph should be used. Graphs will also allow you to see trends in the data and will allow you to be able to make logical predictions and assumptions.

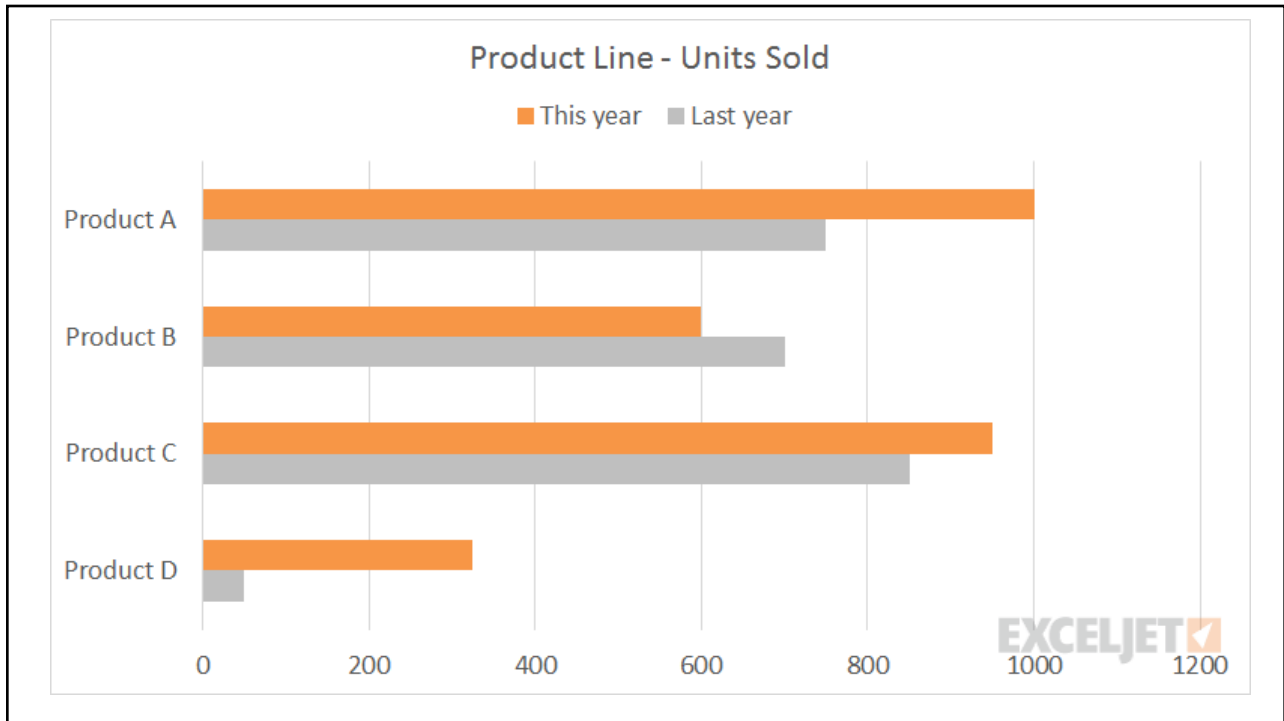
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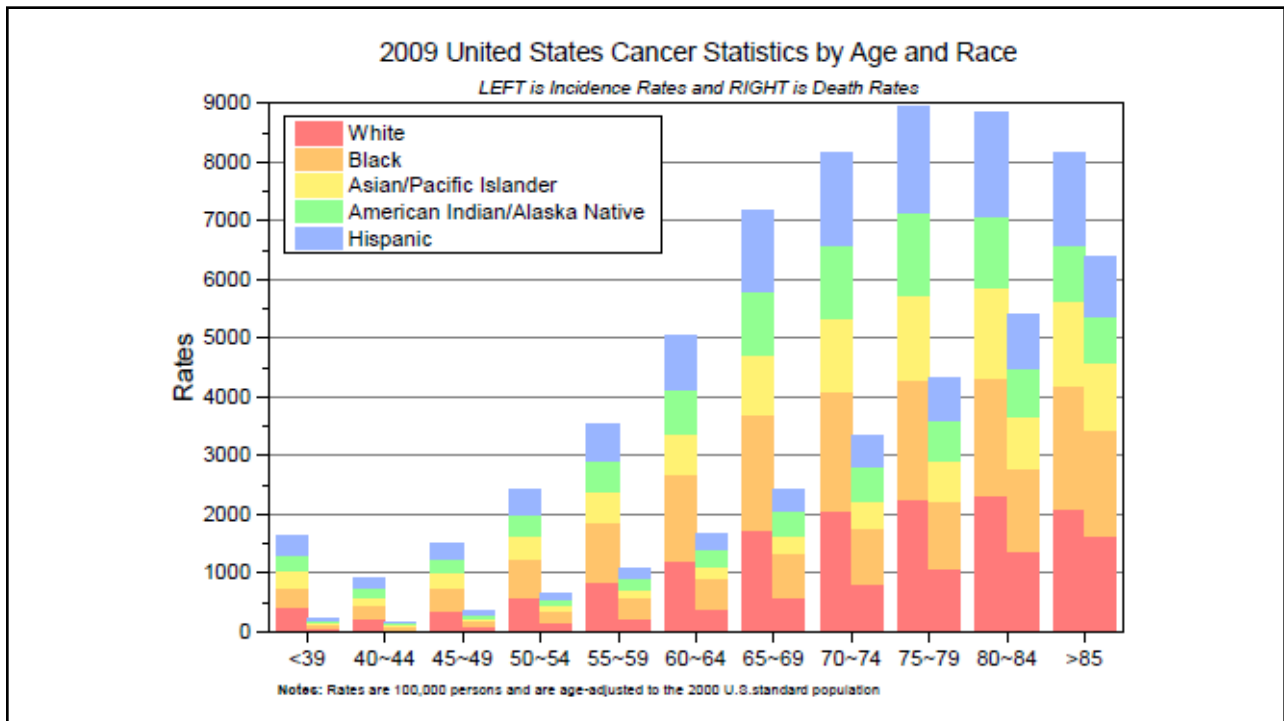
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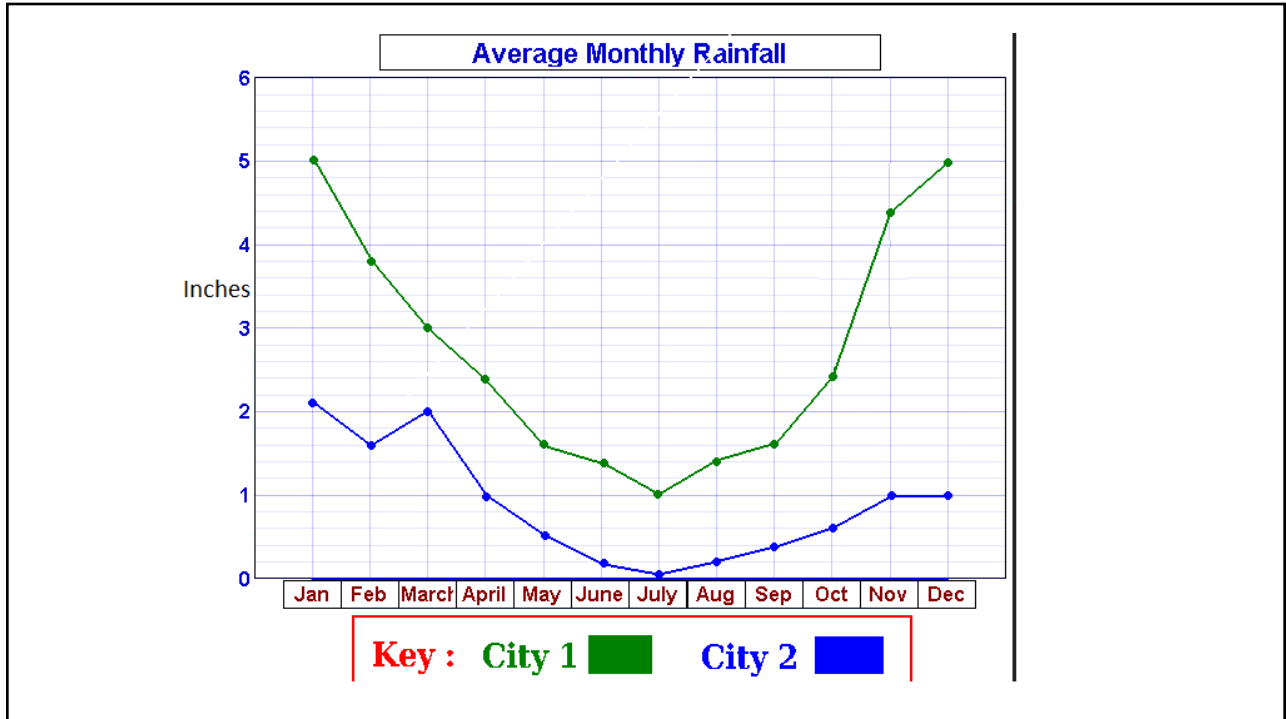
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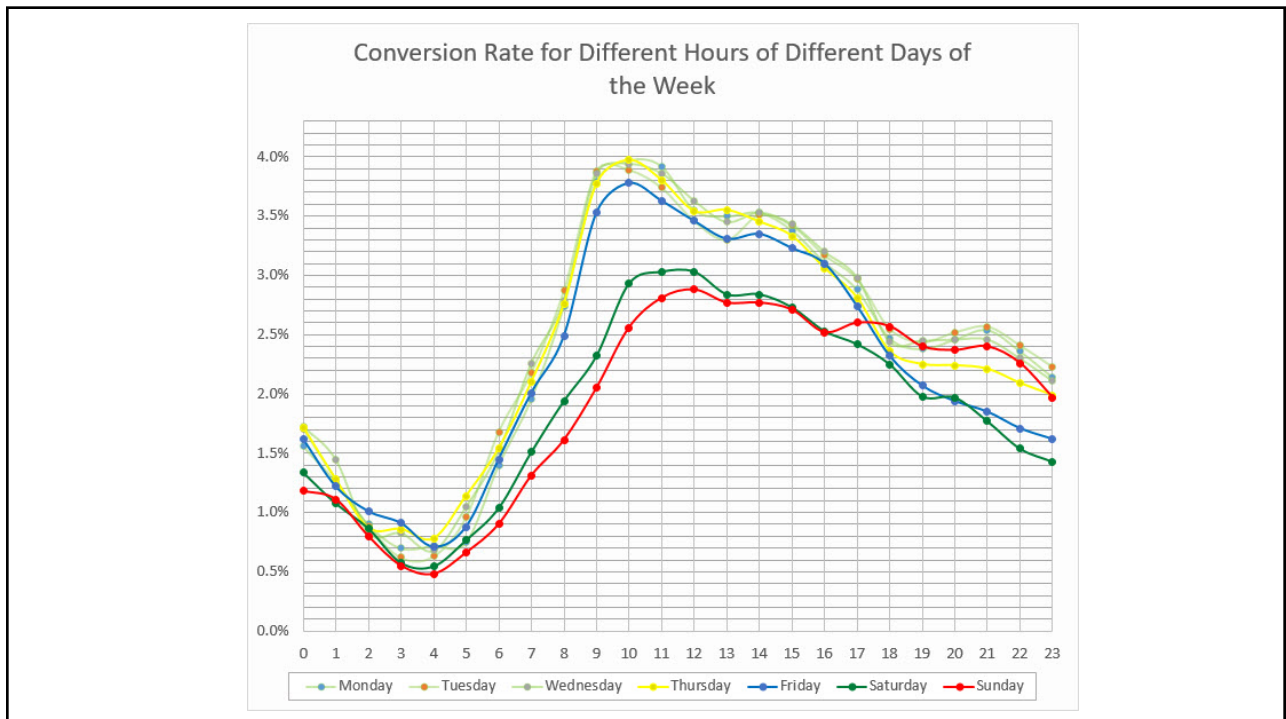
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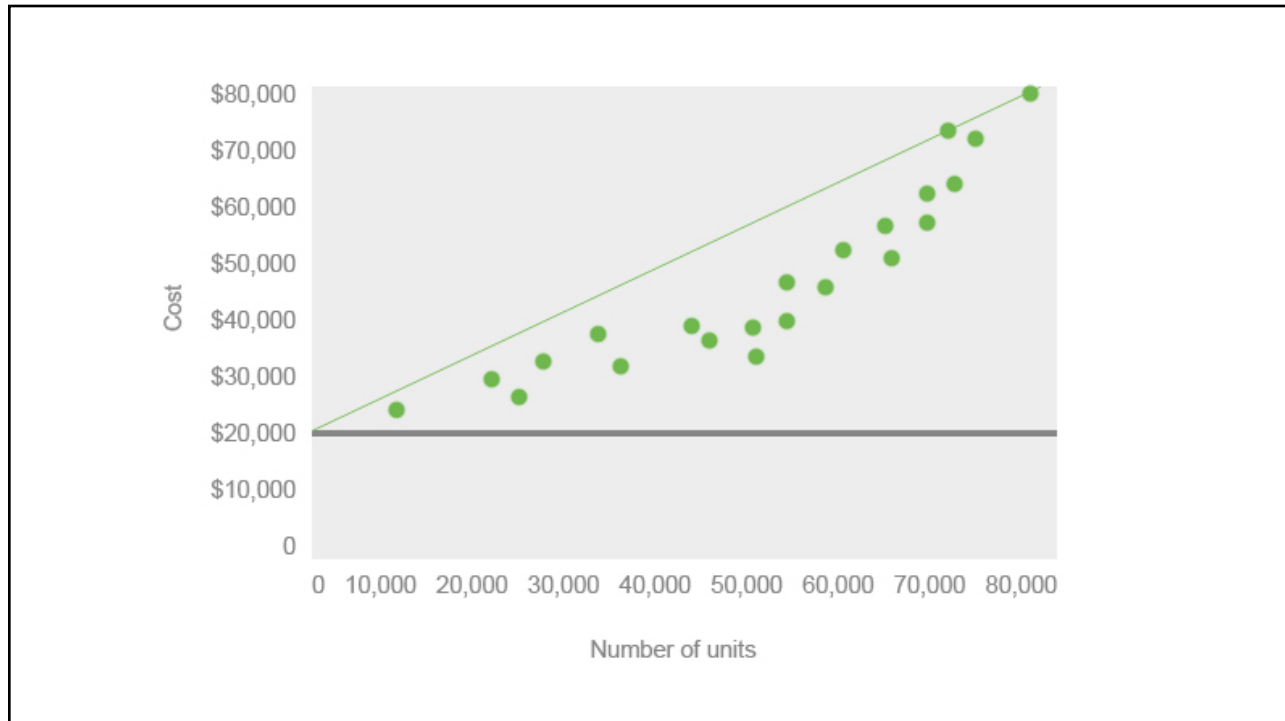
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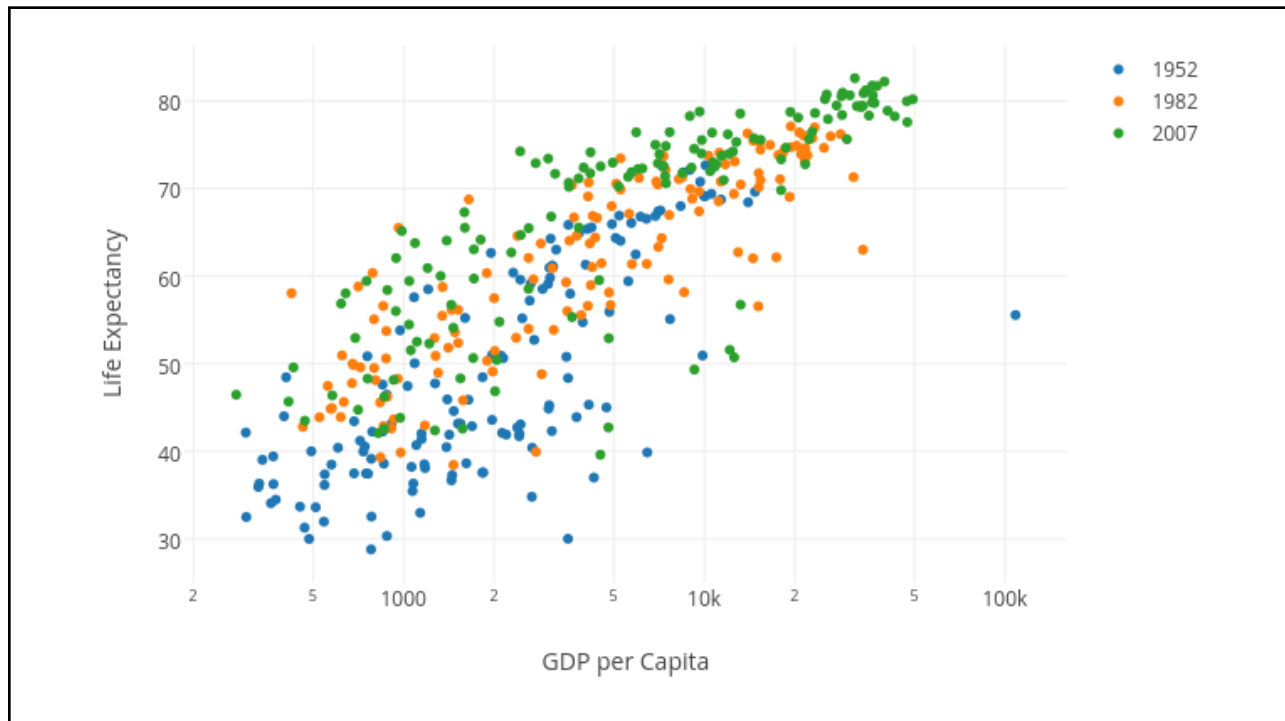
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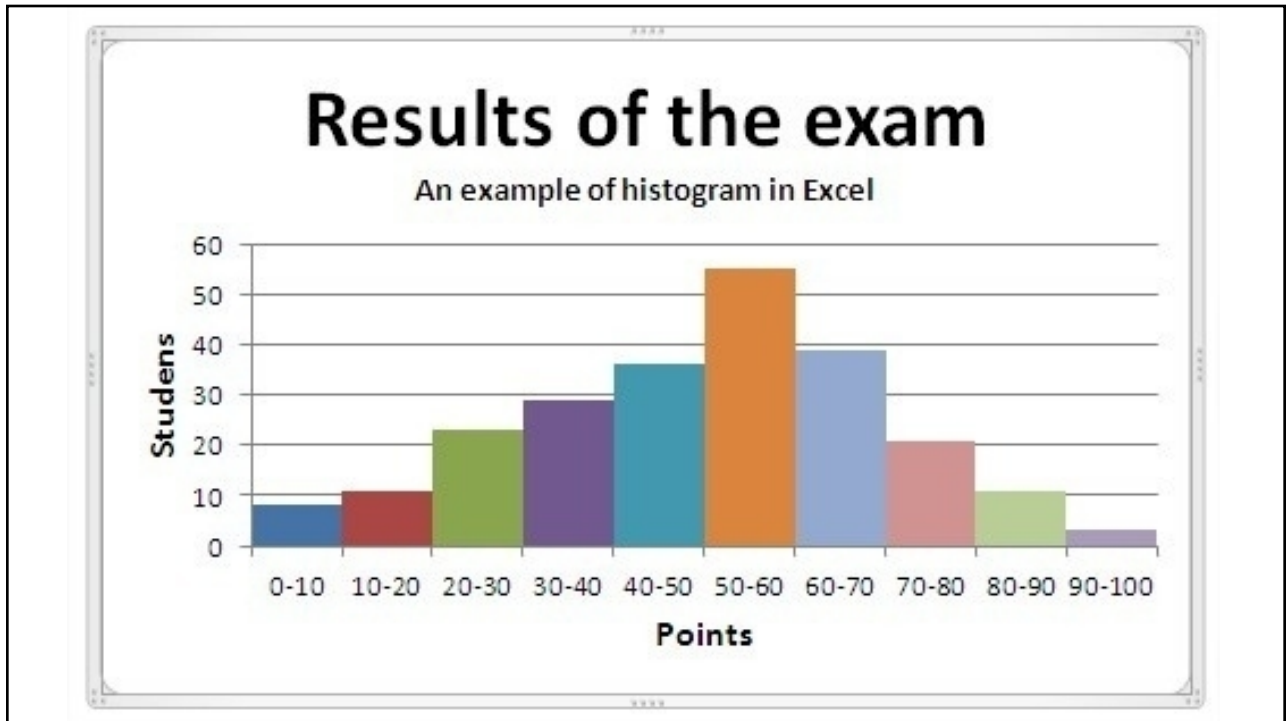
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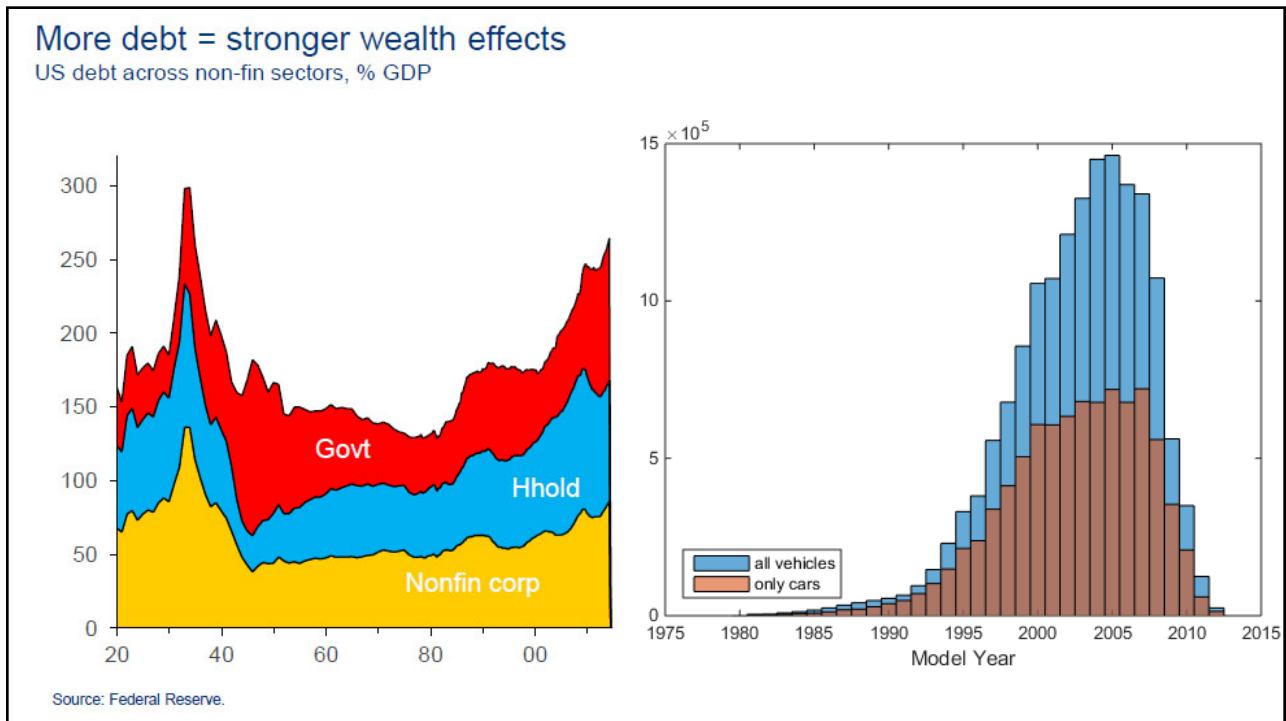
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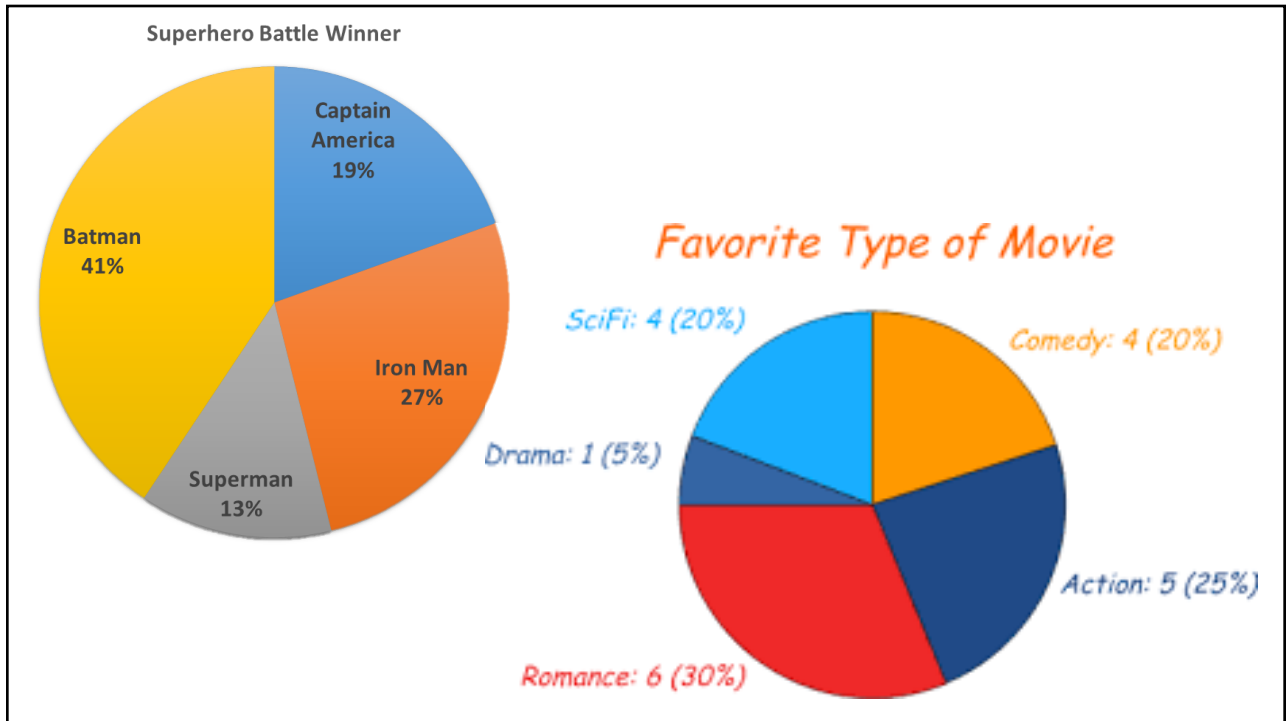
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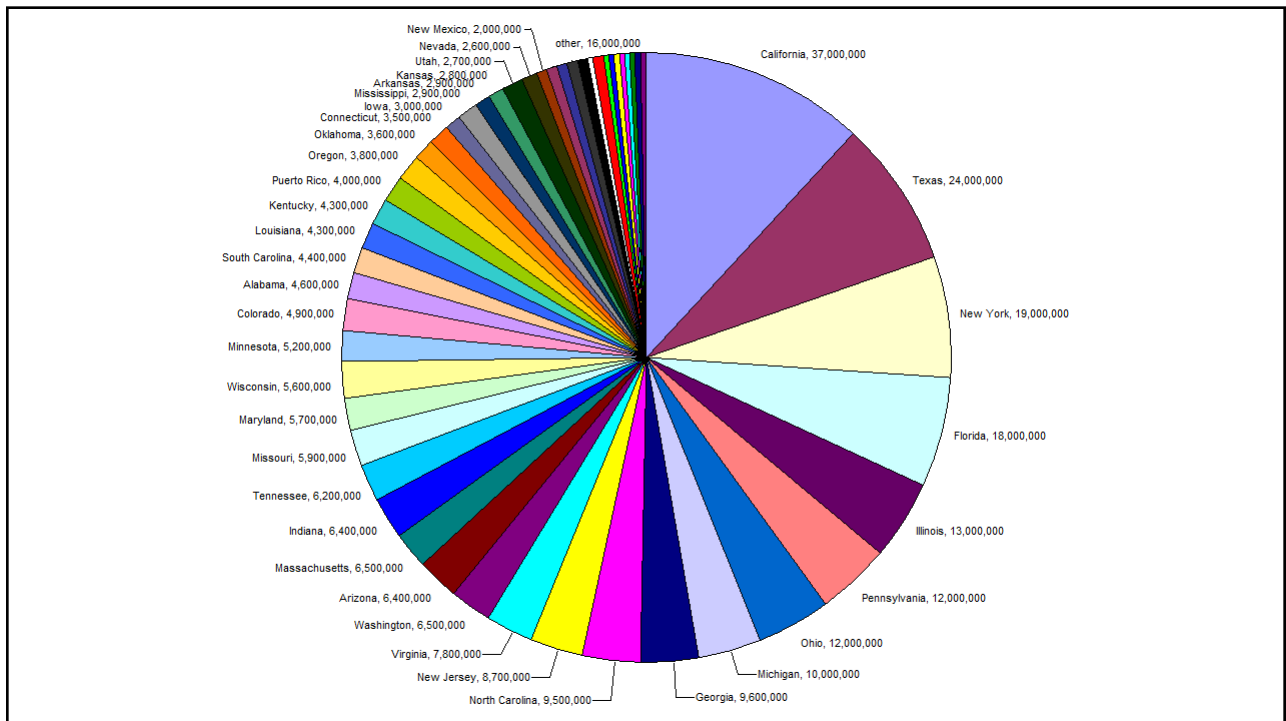
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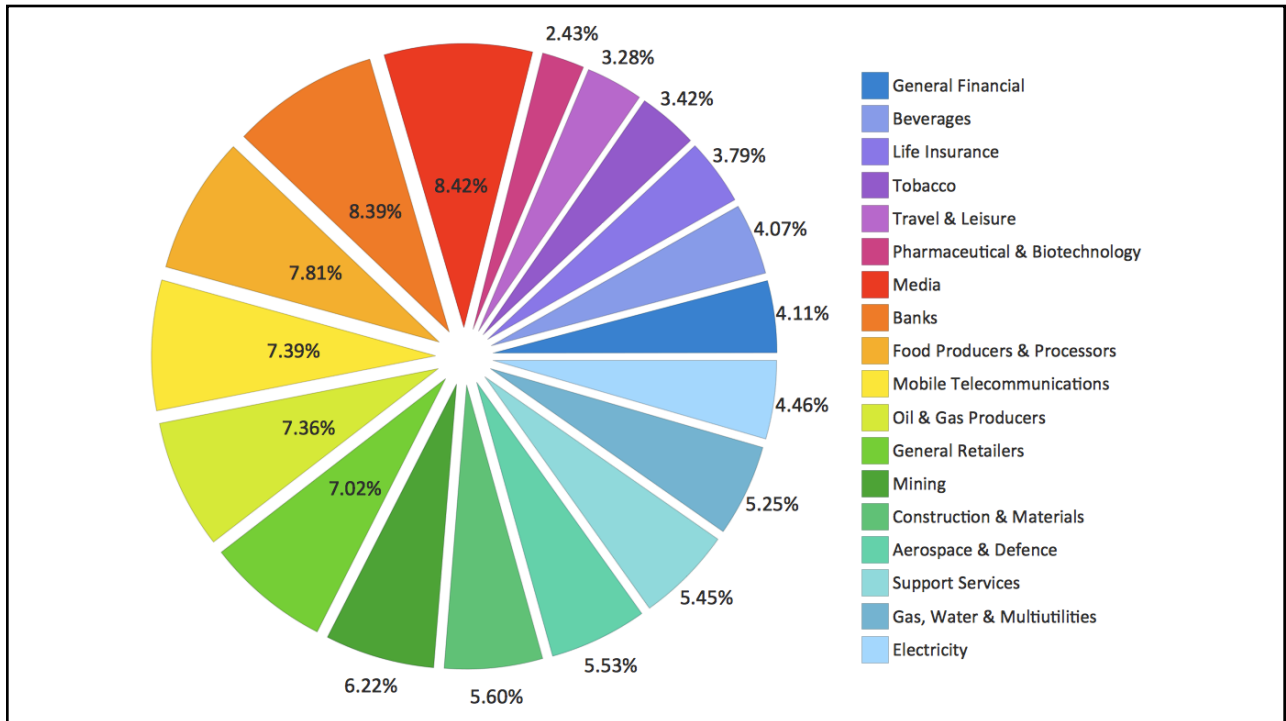
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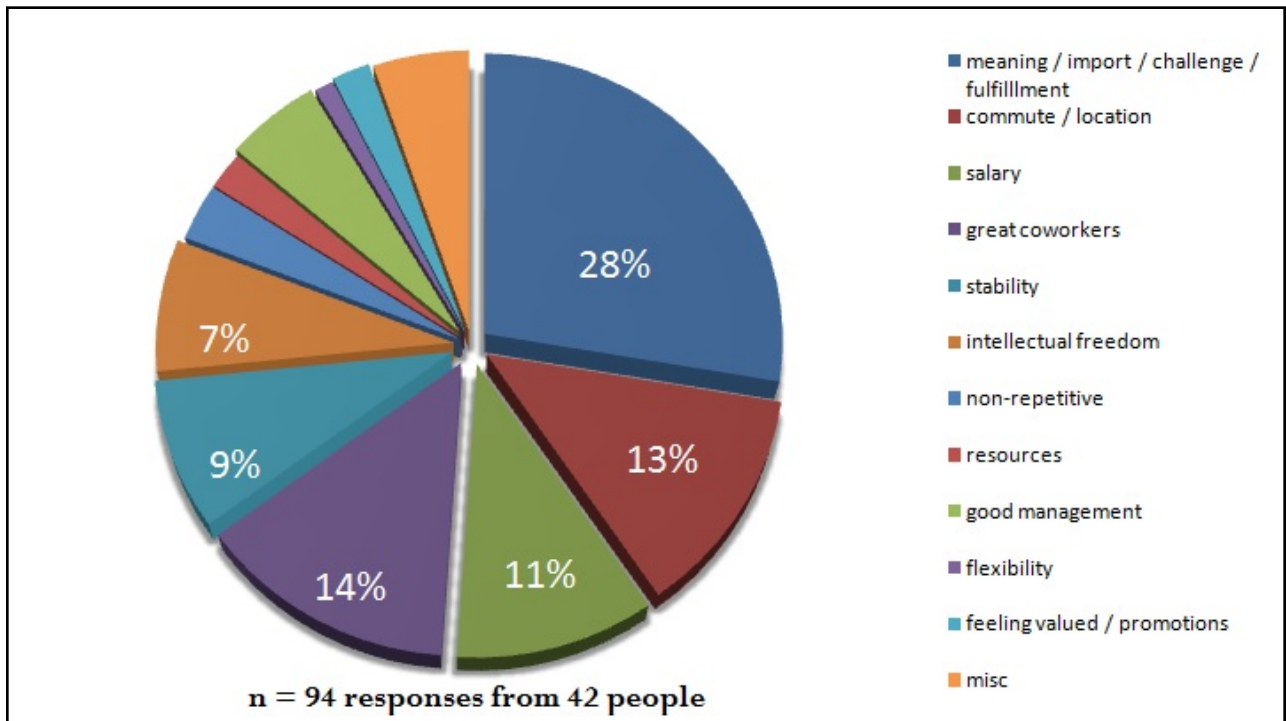
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Graphing 101 – What Makes A Good Graph

All graphs must:

- ✓ Drawn Neatly and Clearly
- ✓ Drawn as Big as Possible
- ✓ Drawn using a ruler, compass, protractor, etc...
- ✓ Graph Title / Caption
- ✓ Axes Labeled w/ Units
- ✓ Appropriate Scale w/ Consistent Spacing.
- ✓ Legend / Colour Coded

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Graphing 101 – What is a Variable?

A variable is an object, event, idea, feeling, time period, or any other type of category you are trying to measure. There are two types of variables- independent and dependent.



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Graphing 101 – What is a Variable?

Independent Variable

Is a variable that stands alone and isn't changed by the other variables you are trying to measure. In fact, when you are looking for a relationship between variables you are trying to see if the independent variable causes a change in the other variable (i.e. dependent variables).

Common Examples: Time, Months, Years, Age, Brand/Model, etc...

ALWAYS...Plotted on the X-Axis

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Graphing 101 – What is a Variable?

Dependent Variable

Is something that depends on other factors. Usually when you are looking for a relationship between two things you are trying to find out what makes the dependent variable change the way it does.

Common Example: Height, Temperature, Dollars, how many people, scores, etc...

Always...Plotted on the Y-Axis

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Graphing 101 – What is a Variable?

