DATA PRESENTATION

1. Two ways of presenting data
   - Tables
   - Charts

2. Tables
   - One-way table (Univariate)
     - Table 1: Number of respondents by gender

Gender	No. of respondents
Male	51
Female	49
Total	100

   - Two-way table (Bivariate)
     - Table 2: Number of respondents by gender and their educational qualification

Gender	Primary	Secondary	Higher	Total
Male	15	20	16	51
Female	14	20	12	49
Total	29	40	38	100

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Male	15 ( )	20 ( )	16 ( )	51 ( )
Female	14 ( )	20 ( )	12 ( )	49 ( )
Total	29 ( )	40 ( )	38 ( )	100 ( )

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3. Charts

- Charts is a graphically way to organize data
- Types
  - Pie chart
    - A pie chart is a graphical way to organize data
    - All pie charts compare parts of a whole
    - A lie chart uses percentages of fraction to compare data
    - A type of graph in which percentages values are represented as proportionally-sized slices of a pie
    - Pie charts are especially useful in representing proportions, percents and fractions.
  - Bar chart and Histogram
    - A histogram is a bar graph that shows that frequency data
    - The first step… collect data and sort it into categories
    - Label the data as the independent set or the dependent set
    - Data group would be the independent variable and the frequency of that set would be the dependent variable
    - The horizontal axis should be label with independent variable
    - The vertical axis should be labeled with the dependent variable

- Each mark on either axis should be equal increments, such as 2, 4, 6, 8, etc
- I think histogram as “sorting bin”
- You have one variable, and you sort data by this variable by placing them into “bins”
- Then you count how many pieces of data are in each bin
- The height of the rectangle you draw on top each bin is proportional to the number of pieces in that bin
- On the other hand, in bar graph you have several measurement of different items, and compare them
- The main question a histogram is “how many measurements are there in each of the classes of measurement?”
- The main question a bar graph answer “what is the measurement for each item?”

Situation	**Bar graph or Histogram?**
We want to compare total revenues of five different companies	Bar graph. Key question: what is the revenue for each company?
We have measured revenues of several companies. We want to compare numbers of companies that make from 0 to 10,000; from 10,000 to 20,000; from 20,000 to 30,000 and so on	Histogram. Key question: how many companies are there in each class of revenue?
We want to compare height of ten oak tree in a city park	Bar graph Key question: what is the height of each tree?
We have measured several trees in a city park. We want to compare numbers of trees that are from 0 to 5 meters high; from 5 to 10; from 10 to 15 and so on	Histogram Key question: how many trees are there in each class of height?

- Line graph
  - Are more popular than all other graphs combined because their visual characteristics reveal data trends clearly and these graphs are easy to create
  - A line graph is a visual comparison of how two variables – shown on the x- and y-axis – are related or vary with each other.
  - It shows related information by drawing a continuous line between all the points on a grid.
  - Line graphs compare two variables: one is plotted along the x-axis (horizontal) and the other along the y-axis (vertical)
  - The y-axis is a line graph usually indicates quantity (e.g. dollars, liters) or percentage, while the horizontal x-axis often measures units of time.
- Scattered plot
  - The pattern of the data points on the scatter plot reveals the relationship between the variables.
  - Scatter plots can illustrate various patterns and relationship, such as:
    - Data correlation
    - Positive or direct relationships between variables
    - Negative or inverse relationship between variables
    - Scattered data points
    - Non-linear patterns
    - Spread of data
    - outliers
- Pictograph