1. A research team at San Jose State University is interested in determining how many hours students are spending online per week during the Fall 2021 semester. They use the University Directory and randomly select 100 freshman, 100 sophomores, 100 juniors and 100 seniors and email them the survey.

The survey asks two questions:

I. On average, how many hours do you spend online each week?

II. To what extent do you agree with the following statement:
   ‘I am comfortable learning online’ (i) Agree (ii) Neutral (iii) Disagree

(a) Describe the population of interest in this study.
(b) Describe the sample in this study.
(c) What are the two variables in this study? Identify the variables as well as the variable types.

2. Identify each of the following variables are either quantitative or qualitative:

(a) The length of time it takes to complete a game of monopoly.
(b) Number of students attending Math 10D.
(c) Presidential Favorability Rating (Do you approve or disapprove of the way that the current president is handling their job as president?)
(d) Country of birth
(e) Number of toppings on a pizza
(f) The weight of a newborn baby
(g) Highest education level (high school, undergraduate degree, Master’s Degree, PhD).

3. List the variables you identified in as quantitative in Question 2.

(a) Which are continuous?
(b) Which are discrete?
(c) Give your own example of a discrete and a continuous variable.

4. List the variables you identified in as qualitative in Question 2.

(a) Which (if any) are nominal?
(b) Which (if any) are ordinal?
(c) Which (if any) are binary?
(d) Give your own example of a nominal, ordinal and binary variable.
5. Students in a high school English class were asked “Estimate the number of times per day on average that you check your email.” A histogram of their responses is shown below.

(a) How many students replied to this survey?
(b) What is the maximum response?
(c) How many students check their email at least 5 times per day on average?
(d) What was the most popular response (this value is called the mode)?
(e) How would you answer this question?
6. Go to https://docs.google.com/spreadsheets/d/1pJm1qX1jw8-t0knNw38kESg_F8Y2c6mf2jUhAQZJMeQ/edit?usp=sharing to find the data for this problem. You will find two columns of data. This data is a subset of the fuel economy data that the EPA makes freely available at https://fueleconomy.gov and contains information about reported city and highway miles per gallon (mpg) for 211 cars released between 1999 and 2008.

(a) Make a histogram of Highway MPG. Label the x and y axis and change the bucket size to 2 mpg. Include a copy of your histogram in your solution.

(b) Describe the shape of the Highway MPG histogram. Is it unimodal? Bimodal? Skewed?

(c) Make a histogram of City Mpg. Label the x and y axis and change the bucket size to 2 mpg. Include a copy of your histogram in your solution.

(d) Describe the shape of the City MPG histogram. Is it unimodal? Bimodal? Skewed?

(e) Describe any differences between the two histograms.