Section 2.1 Introduction

**Variable:** A characteristic that varies from one person or thing to another.

There are two types of variables
- **Categorical**-non numerically valued variables examples include: eye color, blood type, and place of birth. These variables are also known as categorical variables
  1. **Ordinal**- a ranked categorical variable. An example would be grades A-E
- **Numerical**- numerically valued variables.
  1. **Discrete variable** is a quantitative variable whose possible values can be listed (also listed indefinitely). Examples would include number of siblings, number of students in a class.
  2. **Continuous variable** is a quantitative variable whose possible values form some sort of interval of numbers. Height and time of birth are two examples.

Other terms:
- **Observational units:** is a sample of n persons or things that have categorical and numerical measurements recorded.
- **Subjects:** human observational units

**Example 1**
List numerical data (discrete and continuous) and categorical data (regular and ordinal) that could be recorded for each student in the class.
Notation for Variables and Observations
Y: denotes the variable itself
y: denotes the value or observation of the variable

Example 2
Y= Height, the actual value of a person’s height y=60 inches

Example 3
1.20 Aspirin and Cardiovascular Disease. In an article by P. Ridker et al. titled “A Randomized Trial of Low-dose Aspirin in the Primary Prevention of Cardiovascular Disease in Women” (New England Journal of Medicine, Vol. 352, pp. 1293–1304), the researchers noted that “We randomly assigned 39,876 initially healthy women 45 years of age or older to receive 100 mg of aspirin or placebo on alternate days and then monitored them for 10 years for a first major cardiovascular event (i.e., nonfatal myocardial infarction, nonfatal stroke, or death from cardiovascular causes).” Is this investigation a designed experiment or an observational study? Explain your answer.

Also determine the following
1. The variable (s) in the study
2. What is each variable type? (categorical and ordinal, discrete, continuous)
3. Identify the observational unit
4. Determine the sample size