2.2 – Characteristics of Data
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Part 1: Population vs. Sample

_____ are any collection of numbers, characters, images, or other items that provide information about something.

The entire group of individuals that we want information about is called the_____.

A_____is an attempt to gather information about every individual member of the population. Problems with census:_____;_____needed to complete; sometimes testing can _____ items.

A_____is a part of the population that we actually examine in order to gather information.

Note: It usually isn't practical to collect data from the entire population; instead you should take a representative sample and study it.

Example 1: Determine the population of each of the following questions

a) Whom will you plan to vote for in the next Ontario election

b) What is your favourite brand of hockey stick?

c) Do women prefer to wear ordinary glasses or contact lenses?

Once you have identified the population, you need to decide how you will obtain your data. If the population is_____, it may be possible to survey the entire group (census). For _____ populations, you need to use appropriate sampling technique.

We will discuss different sampling techniques next lesson.

Cross Sectional:

Longitudinal:

Example 2:

For the thesis question:

How do the opinions about the cafeteria change among students from Grade 9 to Grade 12?
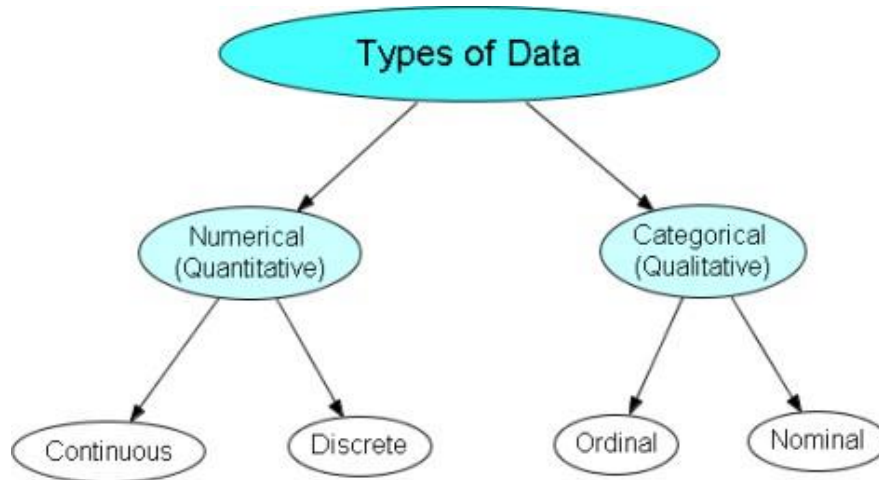
a) How could you conduct a cross-sectional study?

b) How could you conduct a longitudinal study?

c) Which study would be more time efficient?

d) Re-write the thesis question to reflect a cross-sectional study

Part 3: Types of Variables

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Types of Data
   ├── Numerical (Quantitative)
   │       ├── Continuous
   │       └── Discrete
   └── Categorical (Qualitative)
           ├── Ordinal
           └── Nominal
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Quantitative/Numeric Variable: A quantitative variable that takes_____values for which it makes sense to find an_____. These variables can be either_____or_____.

Qualitative/Categorical Variable: A variable that places an individual into one of several_____or_____ (also known as qualitative variables). Categorical variables may have categories that are naturally ordered (_____variables) or have no natural order (_____variables).

Example 3: Identify whether each of the following questions measures a qualitative or quantitative variable.

a) How tall are you?

b) What conference are the Leafs in?

c) What colour is your hair?

d) How many students are in this class?

e) What is your favourite school subject?

Part 4: Types of Quantitative Variables

Continuous Variable: A numeric variable that can have an_____number of values in a given interval. Measurable with all real numbers.

Examples:

Discrete Variable: A numeric variable that can take on only a_____ number of values within a given range. (usually measured with _____ values only)

Examples:

Example 4: Classify each quantitative variable as either continuous or discrete

a) Temperature outside

b) Number of goals scored by Crosby

c) Number of songs on your IPod

d) Speed of Zdeno Chara's slapshot (108.8 mph) https://www.youtube.com/watch?v=vZssDq7lJus