

1.0.1 Individuals and Variables

DEFINITION: Individuals and variables

Individuals are the objects described by a set of data. Individuals may be people, animals, or things.

A **variable** is any characteristic of an individual. A variable can take different values for different individuals.

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There are 2 types of **Data**:

- **Quantitative data**- consists of numerical values representing counts or measurements.

• Ex) height, weight, income, number of pencils on your desk.

- **Categorical/Qualitative data** - data separated into categorical or non-numerical characteristics.

Ex) hair color, eye color, gender, religion, marital status, zip code, social security number, or jersey number.

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Sort my characteristics

catholic Belgium 100 pounds
60 inches 3 siblings masters degree
married mother of 2 landscaper

Qualitative

Quantitative

Sort by Column

Example 1 Census at School

Data, Individuals, and variables

Province	Gender	Language spoken	Handed	Height (cm)	Wrist circum. (mm)	Preferred communication
Saskatchewan	Male	1	Right	175	180	In person
Ontario	Female	1	Right	162.5	160	In person
Alberta	Male	1	Right	178	174	Facebook
Ontario	Male	2	Right	169	160	Cell phone
Ontario	Female	2	Right	166	65	In person
Manitoba	Male	1	Right	168.5	160	Text messaging
Ontario	Female	1	Right	166	165	Cell phone
Ontario	Male	4	Left	157.5	147	Text Messaging
Ontario	Female	2	Right	150.5	187	Text Messaging
Ontario	Female	1	Right	171	180	Text Messaging

There is at least one suspicious value in the data

PROBLEM:

- (a) Who are the individuals in this data set?
 (b) What variables were measured? Identify each as categorical or quantitative.
 (c) Describe the individual in the highlighted row.

ANSWERS:

a)

b)

c)

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DEFINITION: Distribution

The **distribution** of a variable tells us what values the variable takes and how often it takes these values.

Section 1.1 begins by looking at how to describe the distribution of a single categorical variable and then examines relationships between categorical variables.



CHECK YOUR UNDERSTANDING

Jake is a car buff who wants to find out more about the vehicles that students at his school drive. He gets permission to go to the student parking lot and record some data. Later, he does some research about each model of car on the Internet. Finally, Jake makes a spreadsheet that includes each car's model, year, color, number of cylinders, gas mileage, weight, and whether it has a navigation system.

1. Who are the individuals in Jake's study? Correct Answer

Show Answer

2. What variables did Jake measure? Identify each as categorical or quantitative. Correct Answer

Show Answer

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Introduction: Summary

- A data set contains information about a number of **individuals**. Individuals may be people, animals, or things. For each individual, the data give values for one or more **variables**. A variable describes some characteristic of an individual, such as a person's height, gender, or salary.
- Some variables are **categorical** and others are **quantitative**. A categorical variable assigns a label that places each individual into one of several groups, such as male or female. A quantitative variable has numerical values that measure some characteristic of each individual, such as height in centimeters or salary in dollars.
- The **distribution** of a variable describes what values the variable takes and how often it takes them.

Take out your bell work and exchange with person in front of you.

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