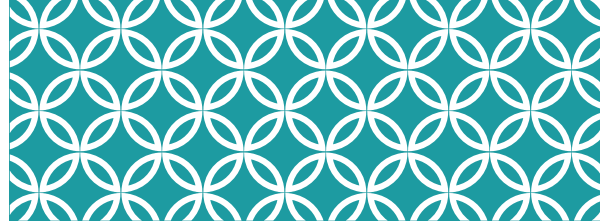


## OVERVIEW OF DATA

## Lesson 2.1



## OVERVIEW OF USING DATA: DEFINITIONS AND GOALS

### Lesson 2.1.1

## OVERVIEW OF USING DATA: DEFINITIONS AND GOALS

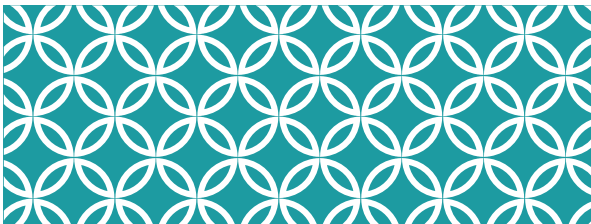
- **Date:** The facts and figures collected, analyzed, and summarized for presentation and interpretation.
- **Variable:** A characteristic or a quantity of interest that can take on different values.
- **Observation:** Set of values corresponding to a set of variables.
- **Variation:** The difference in a variable measured over observations.
- **Random variable/uncertain variable:** A quantity whose values are not known with certainty.

3

TABLE 2.1 - DATA FOR DOW JONES INDUSTRIAL INDEX COMPANIES

[illegible]

4



## TYPES OF DATA

- **Population:** All elements of interest
- **Sample:** Subset of the population
  - **Random sampling** - A sampling method to gather a representative sample of the population data.
- **Quantitative data:** Data on which numeric and arithmetic operations, such as addition, subtraction, multiplication, and division, can be performed.
- **Categorical data:** Data on which arithmetic operations cannot be performed.

## TYPES OF DATA

### Lesson 2.1.2

## TYPES OF DATA

- **Cross-sectional data:** Data collected from several entities at the same, or approximately the same, point in time.
- **Time series data:** Data collected over several time periods.
  - Graphs of time series data are frequently found in business and economic publications.
  - Help analysts understand what happened in the past, identify trends over time, and project future levels for the time series.

FIGURE 2.1 - DOW JONES INDEX VALUES SINCE 2002



## SOURCES OF DATA

- Sources of data
  - **Experimental study:** A variable of interest is first identified.
    - Then one or more other variables are identified and controlled or manipulated so that data can be obtained about how they influence the variable of interest.
  - **Nonexperimental study or observational study:** Make no attempt to control the variables of interest.
    - A survey is perhaps the most common type of observational study.

FIGURE 2.2 - CUSTOMER OPINION QUESTIONNAIRE USED BY CHOPS CITY GRILL RESTAURANT