## Methods for Describing Sets of Data

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## **Describing Qualitative Data**

- Qualitative data are nonnumerical
  - The value of a qualitative variable can be classified only into categories called classes
  - Class frequency is the number of observations in the data set that fall into each class
  - Class relative frequency is the proportion of the total number of observations falling into each class
    - Class relative frequency = (class frequency)/n
  - Class percentage is the class relative frequency multiplied by 100
    - Class percentage = (class relative frequency)(100)
- Bar Graph: the categories (classes) of the prelitative variable are represented by bars, where the height of each parts either the class frequency, class relative frequency, or class generatinge
- Pie Chart the categories (class is of the qualitative variable are represented by the slices of a pie (circle)
  - The size of each slice is proportional to the class relative frequency
- Pareto Diagram: a bar graph with the categories (classes) of the qualitative variables (i.e. the bars) arranged by height in descending order from left to right

## Graphical Methods for Describing Quantitative Data

- Quantitative data sets consists of data that are recorded on a meaningful numerical scale
  - The main graphical methods used are dot plots, stem-and-leaf plots, and histograms
- Dot Plot: the numerical value of each quantitative measurement in the data set is represented by a dot on a horizontal scale
  - When data values repeat, the dots are placed above one another vertically
- Stem-and-Leaf Display: the numerical value of the quantitative variable is partitioned into a "stem" and a "leaf"
  - The possible stems are listed in order in a column
    - the corresponding stem row
  - Leaves for observations with the same stem value are listed in increasing order horizontally