

Displaying Distributions - Qualitative Variables

Lecture 12

Sections 4.3.1 - 4.3.2

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Tue, Feb 7, 2012

Outline

- 1 Pie Charts
- 2 Bar Graphs
- 3 Assignment

Outline

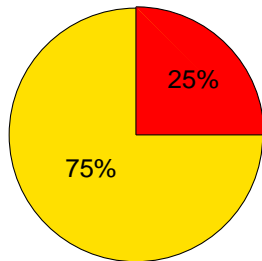
- 1 Pie Charts
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Definition (Pie chart)

A **pie chart** is a display of qualitative data in which each category is represented by a slice of a pie. The size of each pie slice is proportional to the number of observations in that category.

- Use the percentage associated with the category to compute the central angle of the pie slice.
- For example, 25% of $360^\circ = 90^\circ$.
- A pie chart facilitates the comparison of one category to the whole.

Pie Charts



Example

- How was the weather in Farmville in January 2009?
- According to the National Weather Service:

Weather Conditions	No. of Days
Sunny	14
Mostly Sunny	3
Mostly Cloudy	3
Cloudy	1
Fog	0
Rain	7
Snow	3

- Use Excel to draw a pie chart of the data.

Example

- How was the weather in Farmville in January 2010?
- According to the National Weather Service:

Weather Conditions	No. of Days
Sunny	9
Mostly Sunny	10
Mostly Cloudy	2
Cloudy	0
Fog	2
Rain	6
Snow	2

- Use Excel to draw a pie chart of the data.

Example

- How did the Farmville weather in January 2009 compare to the Farmville weather in January 2010?
- It is not a good idea to try to compare the two pie charts.
- Instead, a **bar** graph should be used.

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Bar Graphs

Definition (Bar graph)

A **bar graph** is a display of qualitative data in which each category is represented by a rectangle. The height of the rectangle is proportional to the number of observations in that category.

- The horizontal scale shows the categories.
- The vertical scale shows the counts or percentages.
- The horizontal/vertical orientation may be reversed.
- A bar graph facilitates the comparison of one category to another.

Example

- How was the weather in Farmville in January 2009?

Weather Conditions	No. of Days
Sunny	14
Mostly Sunny	3
Mostly Cloudy	3
Cloudy	1
Fog	0
Rain	7
Snow	3

- Use Excel to draw a bar graph of the data.

Example

- Now use a bar graph to compare the January 2009 weather to the January 2010 weather.

Weather Conditions	January	July
Clear	14	9
Mostly Sunny	3	10
Mostly Cloudy	3	2
Cloudy	1	0
Fog	0	2
Rain	7	6
Snow	3	2

- Use Excel to draw a bar graph of the data.

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Assignment

Homework

- Read Section 4.3.1 - 4.3.2, pages 220 - 225.
- Let's Do It! 4.3, 4.4, 4.5.
- Page 226, exercises 6 - 10.