

Other Graphs and Misleading Graphs

Objectives

- 1 Examine scatterplots, line graphs, and time series graphs
- 2 Examine qualities of misleading graphs

Scatterplots

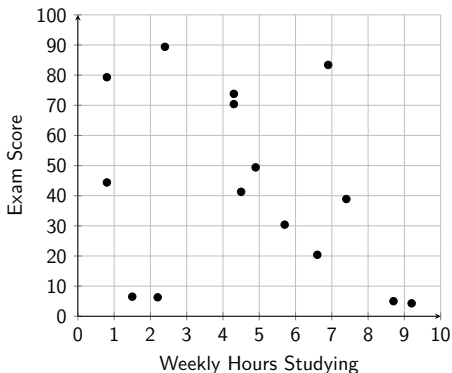
Scatterplots

A **scatterplot** is a visual display which can be used to examine an association between two variables.

Scatterplots

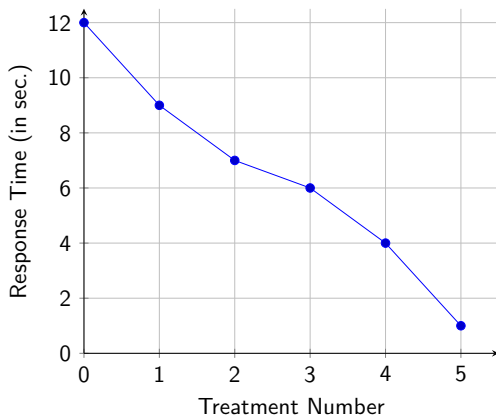
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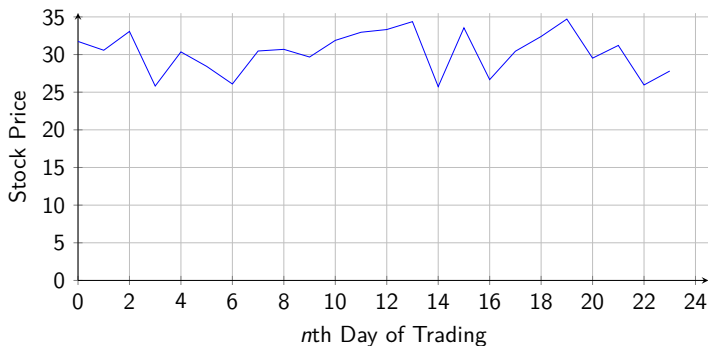
Line Graph

A line graph is similar to a scatterplot, however, the points are connected in the order they are obtained.



Time Series Graph

A time series graph is like a line graph, but shows changes over a specific period of time.



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Misleading Graphs

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Some things to watch out for are

- Vertical axis not starting at 0
- Use of 3 dimensions
- Disproportionate use of area

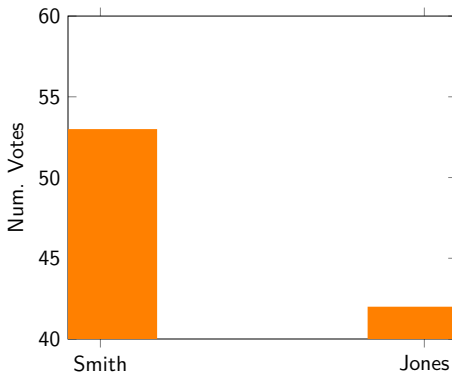
Vertical Axis and Zero

Sometimes, data can be misleading because the vertical axis can be misleading.

Vertical Axis and Zero

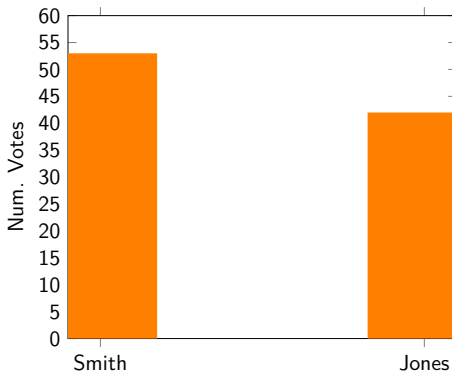
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Examine the bar graph below. Note that Smith received 53 votes and Jones received 42 votes.



Vertical Axis and Zero

Bar graph with base of 0 for vertical axis:

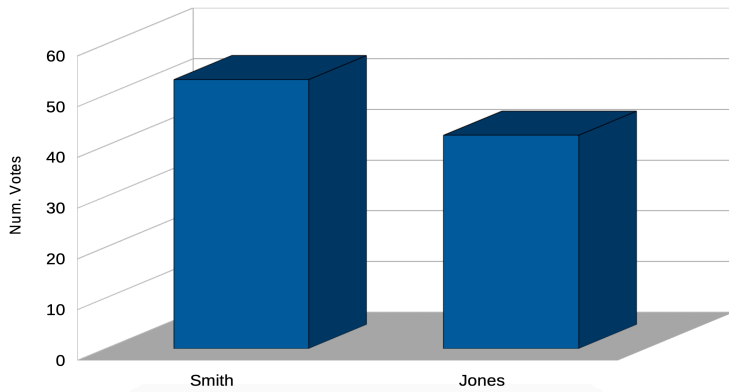


Use of 3 Dimensions

Using 3 dimensions for bar graphs or histograms can result in data appearing slightly larger in frequency or relative frequency than it should.

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Disproportionate Use of Area

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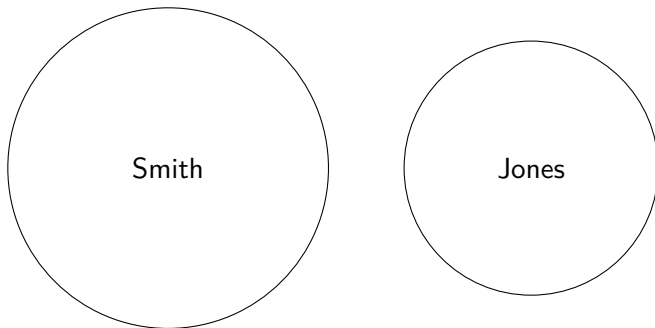
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Using bubbles to represent the number of votes each candidate received (Smith radius = 5.3 cm and Jones radius = 4.2 cm) can also be misleading:

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More Information on Visual Displays of Data

The Visual Display of Quantitative Information. Edward R. Tufte.
Graphics Press. 2nd ed. 2001

