

Graphical Presentation of Data

Effective visualization is a skill that can be learned. This is a common misconception and a great number of public speakers are actually being misled through a lack of understanding of the number of alternatives that are available.

Graphs to Describe Categorical Variables

- Bar charts
- Stacked bar charts
- Pie charts
- Horizontal bar charts
- Grouped bar charts
- Line graphs
- Area charts
- Waterfall charts
- Heat maps
- Dot plots
- Box plots
- Scatter plots
- Line graphs with markers
- Area charts with markers
- Waterfall charts with markers
- Heat maps with markers
- Dot plots with markers
- Box plots with markers
- Scatter plots with markers

Graphs to Describe Numerical Variables

- Bar charts
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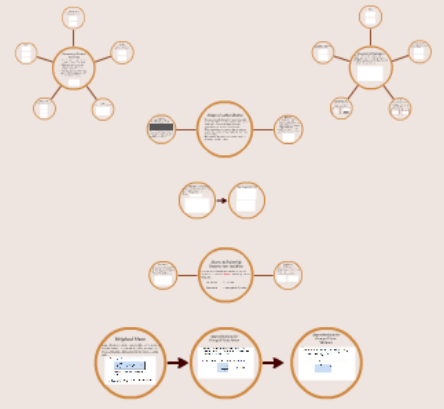
Relationships between Variables

- Scatter plots
- Line graphs
- Area charts
- Waterfall charts
- Heat maps
- Dot plots
- Box plots
- Scatter plots with markers
- Line graphs with markers
- Area charts with markers
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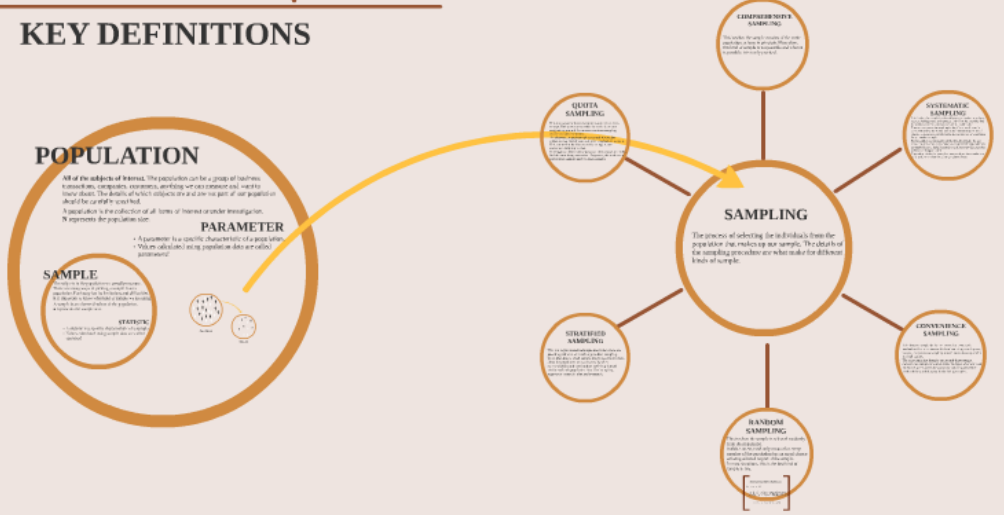
Data Presentation Errors



Describing Data Numerically

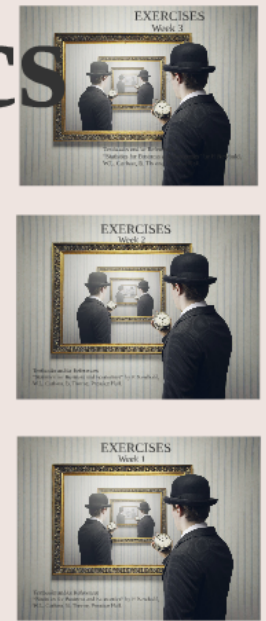


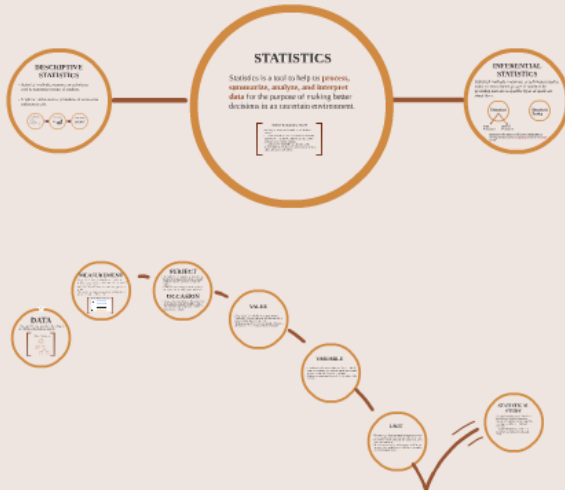
KEY DEFINITIONS



Statistics

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Graphical Presentation of Data

Effective presentation is a vital component of data. This is because it helps to present a large amount of data in a clear and concise manner. It also helps to highlight the key findings of the data.

Graphs to Describe Categorical Variables

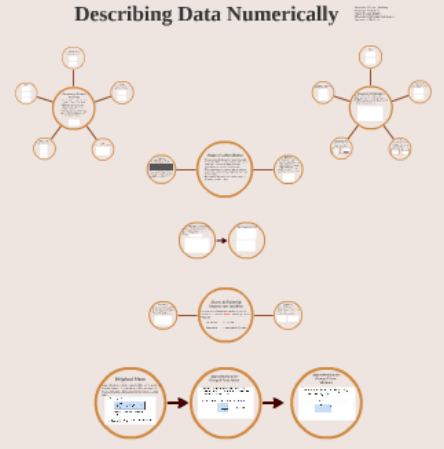
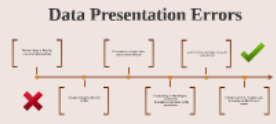
- Bar charts
- Pie charts
- Stacked bar charts
- Mosaic plots

Graphs to Describe Numerical Variables

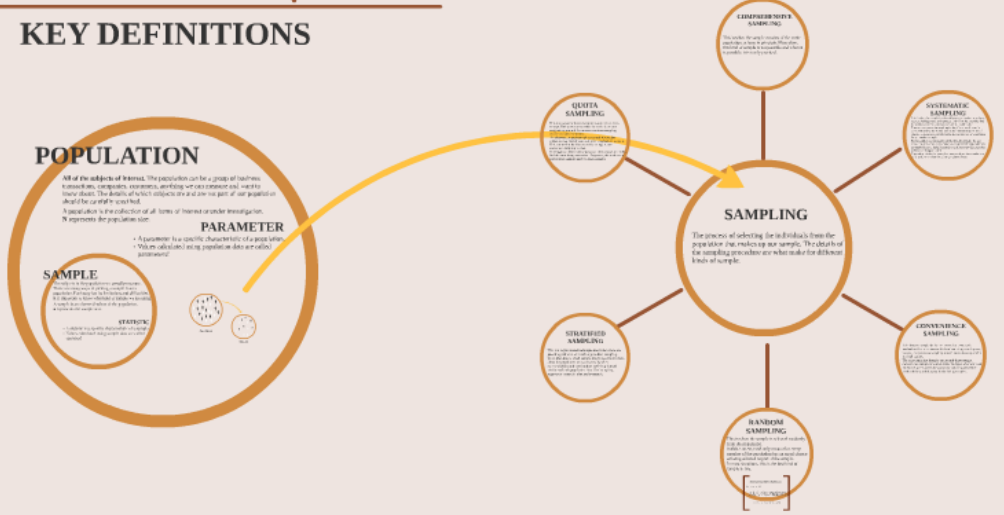
- Line graphs
- Area charts
- Scatter plots
- Box plots
- Histograms

Relationships between Variables

- Correlation
- Regression
- Contingency tables



KEY DEFINITIONS



Statistics

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STATISTICS

Statistics is a tool to help us **process, summarize, analyze, and interpret data** for the purpose of making better decisions in an uncertain environment.

Where Is Statistics Used?

- Similar past events can be used to predict future events.
- The more we know about similar decisions in the past and their results, the better we can predict the outcome of the present decision.
- The better we can predict the outcome of the present decision, the better we can choose among the alternative courses of action.

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DESCRIPTIVE STATISTICS

- Statistical methods, measures, or techniques used to summarize groups of numbers.
- Graphical and numerical procedures to summarize and process data



INFERENCE STATISTICS

Statistical methods, measures, or techniques used to make decisions based groups of numbers by providing answers to specific types of questions about them.



Inference is the process of drawing conclusions or making decisions about a population based on sample results

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MEASUREMENT

Measurement is the process by which we count in the world and end up with a description (usually a number) of some aspect of the world.

- The results of measurement are specific descriptions of the world.
- They are the first step in doing statistics, which results in general descriptions of the world.



SUBJECT

- The individual thing (object) or event being measured. Ordinarily, the subject has many attributes, some of which are measurable features.
- A subject may be a single person, object, or event, or some useful group or institution.

OCCASION

- The particular occurrence of the particular act of measurement, usually identified by the combination of the subject and the time the measurement is taken.

VALUE

- The result of the particular act of measurement. Ordinarily, values are numbers, but they can also be names in other types of identifiers.

DATA