Applied Data Science and Machine Learning Course

Course Instructor

Mohammad Sabik Irbaz

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Statistics

History Effect

"A blanket ad during the winter actually increased the blanket sale"

Problems with Wrong Interpretation

History Effect

"A blanket ad during the winter actually increased the blanket sale"

Third Variable Effect

"Some Muslims were involved in 9/11 attacks, thus Muslims are terrorists."

MSI

Problems with Wrong Interpretation

History Effect

"A blanket ad during the winter actually increased the blanket sale"

Third Variable Effect

"Some Muslims were involved in 9/11 attacks, thus Muslims are terrorists."
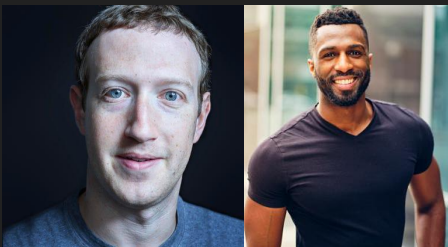

Correlation-Causation Problem

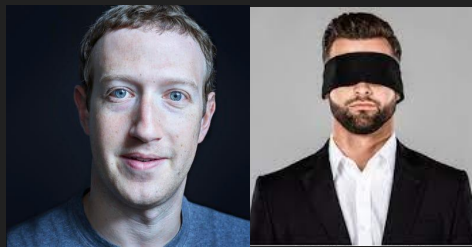"Study shows that eating more banana causes cancer."

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Design Experiments

Experiment Types

Public Experiment

Blind Experiment

Double Blind Experiment

Everybody knows
what's happening

One side
don't know

Both sides
don't know

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Two Types of Statistics

Descriptive Statistics

Summarizing the Data.

Understanding what the data can be without looking into it explicitly.

Inferential Statistics

Interpreting the Data.

Interpreting the descriptive statistics.

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Central Tendency

1	2	8	2	9

4.4

Average

2

Median

2

Mode

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Variability

Diversity Checker

1	2	8	2	9

8

Range

$$x_{max} - x_{min}$$

3.28

Mean Absolute Deviation

$$\frac{1}{n}\sum_{i=1}^{n}|x_i - \mu|$$

11.44

Variance

$$s^2 = \frac{1}{n}\sum_{i=1}^{n}(x_i - \mu)^2$$

3.38

Standard Deviation

$$s = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(x_i - \mu)^2}$$

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