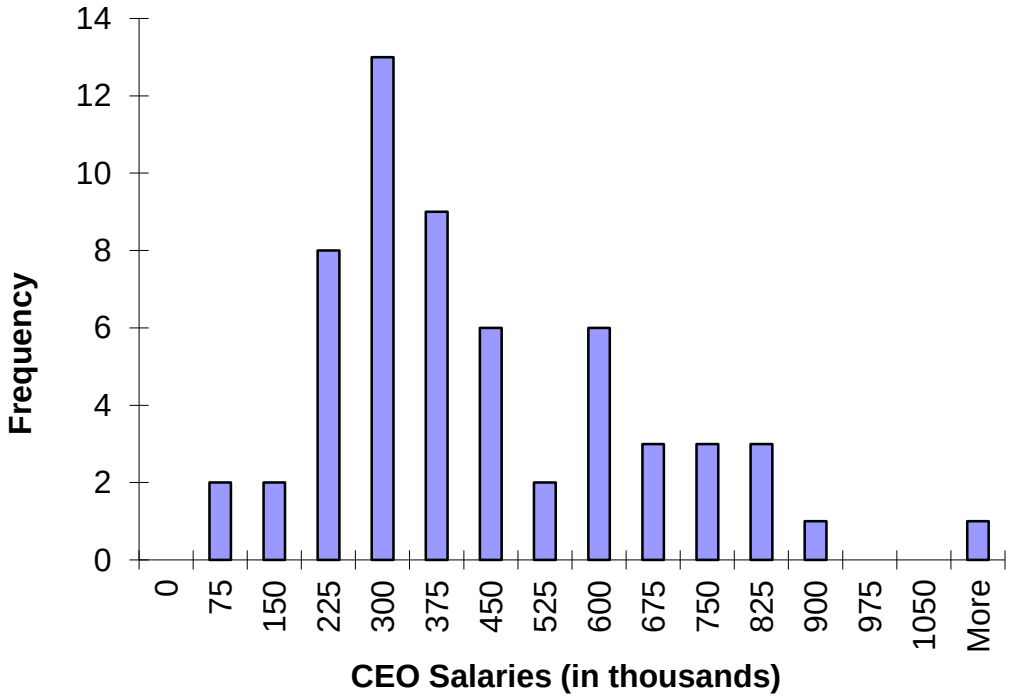
Statistical Distributions

Random Experiment

Statistical Distributions

Random Experiment → Random Variable

Statistical Distributions



Statistical Distributions

Random Experiment → Random Variable

Statistical Distributions

Random Experiment → Random Variable

Multiple possibilities of CEO Salary

Statistical Distributions

Random Experiment → Random Variable

Multiple possibilities of CEO Salary → the "**Salary**"

Statistical Distributions

Random Experiment → Random Variable

Multiple possibilities of CEO Salary → the "**Salary**"

A Statistical Distribution is a tool to help us 'characterize' or 'model' the random variable

Statistical Distributions

Beta

Binomial

Gamma

Poisson

Normal

t distribution

…

…

Statistical Distributions

- Beta
- Binomial
- Gamma
- Poisson
- Normal
- t distribution
- …
- …

Statistical Distributions

Beta

Binomial

Gamma

Poisson

Normal the Bell curve

t distribution

…

…

Statistical Distributions

Discrete distribution

Continuous distribution

Statistical Distributions

Discrete distribution

- A statistical distribution used for *Discrete* data

Continuous distribution

Statistical Distributions

Discrete distribution

- A statistical distribution used for *Discrete* data

Continuous distribution

- A statistical distribution used for *Continuous* data

Discrete versus Continuous data

Discrete versus Continuous data

- number of students in class

Discrete versus Continuous data

- number of students in class
- number of patients admitted to a hospital

Discrete versus Continuous data

- number of students in class
- number of patients admitted to a hospital
- number of companies with revenue > 1 b$

Discrete versus Continuous data

Discrete Data

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Discrete versus Continuous data

Discrete Data

- number of students in class
- number of patients admitted to a hospital
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Test of Discreteness

- The data is **Discrete** if between any two realizations a **finite** number of outcomes can occur

Discrete versus Continuous data

Discrete Data

- number of students in class
- number of patients admitted to a hospital
- number of companies with revenue > 1 b$

Test of Discreteness

- The data is **Discrete** if between any two realizations a **finite** number of outcomes can occur
- The data is **Continuous** if between any two realizations an **infinite** number of outcomes can occur

Discrete versus Continuous data

Test of Discreteness

(number of students in a class)

Discrete versus Continuous data

Test of Discreteness

(number of students in a class)

Discrete versus Continuous data

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Discrete versus Continuous data

Test of Discreteness

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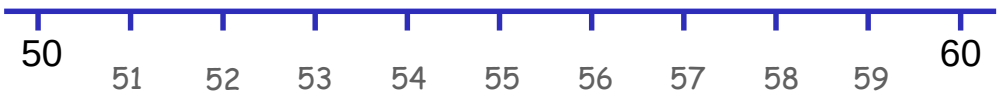

Discrete versus Continuous data

Test of Discreteness

(number of students in a class)

(heights of men and women)

Discrete versus Continuous data

Test of Discreteness

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Discrete versus Continuous data

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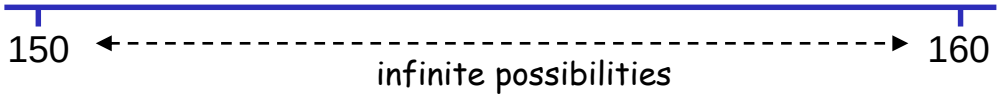

Discrete versus Continuous data

It is common in business applications to use a continuous distribution such as the Normal (the Bell curve) for discrete data

Discrete versus Continuous data

It is common in business applications to use a continuous distribution such as the Normal (the Bell curve) for discrete data

- Normal distribution
- t - distribution