Introduction to Data Analysis

Part 1: Data and Information

1. Data in the Real World

2. Data vs. Information

3. The Many "Vs" of Data

4. Structured Data and Unstructured Data

5. Types of Data

Part 2: Data Analysis Defined

1. Why do we analyze data?

2. Data Analysis Mindset

3. Data Analysis Steps

4. Data Analysis Defined

5. Descriptive Statistics vs Inferential Statistics

Part 3: Types of Variables

1. Categorical vs Numerical

2. Nominal Variables

3. Ordinal Variables

4. Interval Variables

5. Ratio Variables

Part 4: Central Tendency of Data

1. (Arithmetic) Mean

2. Median

3. Mode

Part 5: Basic Probability

1. Probability Uses In Business

2. Ways We Can Calculate Probability

3. Probability Terms

4. Calculating Probability

5. Calculating Probability from a Contingency Table

6. Conditional Probability

7. Frequency Distribution

Part 6: Distributions, Variance, and Standard Deviation

1. Discrete Distributions

2. Continuous Distributions

3. Range

4. Quartiles

5. Variance

6. Standard Deviation

7. Population vs. Sample

8. Application of the Standard Deviation

   o Standard Deviation and the Normal Distribution

   o Sigma (σ) Values (Standard Deviations)

9. Bimodal distribution

10. Skew and Summary

11. Other Distributions

    o Poisson Distribution

    o Exponential Distribution

    o Pareto Distribution ("80/20")

    o Log Normal Distribution

12. Distributions in Excel

Part 7: Fitting Data

1. Bivariate Data (Two Variables)

2. Covariance and Correlation

3. Simple Linear Regression

4. Linear Regression

5. Fitting Functions

   o Linear Fit

   o Polynomial Fit

   o Power-Law Fit

Part 8: Predictive Analytics Overview

1. Monte Carlo Method