

### Scenario 1:

A stock brokerage firm wants to analyze historical stock prices to detect trends. How can Data Science concepts be applied?

**Ans:**

Step 1: Collect Data related to the history stock prices and trends.

Step 2: Preprocess the Data by handling missing value, categorical to numerical conversion and feature selection if needed for better prediction.

Step 3: Calculate Mean, Median, Mode and standard deviation to understand the data and provide the descriptive summary.

Step 4: Use histogram for overall data distribution and line plot for the trend analysing.

### Scenario 2:

An educational institution has student score data. How can Data Science concepts be used to summarize the data effectively?

**Ans:**

Step 1: Collect the Data which has students score data of all subjects and terms exam scores.

Step 2: Preprocess the data by handling the missing data, categorical to numerical conversion data and feature selection to avoid unnecessary features.

Step 3: Calculate Mean, Median, Mode and Standard deviation for descriptive summary of data.

Step 4: Use histogram for overall data distribution and scatter plot for relationship between the features.

### Scenario 3:

An insurance company wants to analyze the distribution of claim amounts. How can Data Science concepts be applied?

**Ans:**

Step 1: Collect data of the customer's claim amount details, how often claims happens whether yearly or monthly etc..

Step 2: Preprocess the data to handle missing value, categorical data and feature selection.

Step 3: calculate mean, median, mode, standard deviation and IQR for descriptive summary.

Step 4: Use histogram for overall distribution and box plot for relationship between the claims.

#### **Scenario 4:**

A healthcare organization wants to understand the relationship between patients' age, BMI, and blood pressure levels. How can Data Science concepts be applied?

**Ans:**

Step 1: Collect the data related to the patient's age, BMI and BP levels.

Step 2: preprocess the data by handling the missing value, categorical data and feature selection.

Step 3: Calculate mean, median, mode, standard deviation and correlation between the features to understand the relationship between the features.

Step 4: Use scatter plot and violin plot for multiple variable distribution and relationship between the features.

#### **Scenario 5:**

A retail company has a customer database with incomplete and inconsistent data. How can Data Science concepts be used to clean and preprocess this data?

**Ans:**

Step1: Collect the data of the retail company related to the sales and products details.

Step 2: Preprocess the data by handling missing value using mean or median. Or with relevant data based on the features or by dropping the unwanted rows if it is minimum.