Experiment 2

Objective: To conduct basic data exploration by calculating summary statistics, creating histograms, and generating scatterplots.

1. **Summary Statistics for a Dataset**

Dataset: Built-in mtcars dataset (Car Specifications)

- Compute summary statistics (mean, median, standard deviation, etc.).
- Understand the distribution of miles per gallon (mpg) and horsepower (hp).

2. **Create a Histogram**

- Generate a random dataset of students' test scores
- Visualize data distribution using histograms.
- Understand skewness and spread of data.

3. **Scatterplot to Explore Relationships**

Dataset: Built-in iris dataset (Flower Measurements)

The iris dataset contains sepal and petal lengths and widths of three flower species.

- Create a scatterplot to explore relationships between variables.
- Use colors to distinguish species.

4. **Boxplot for Detecting Outliers**

- Dataset: Simulated monthly sales data for a store. Generate random monthly sales data to analyze outliers.
- Create a boxplot to detect outliers.
- Understand quartiles and interquartile range (IQR).

Help:

Experiment	Concept	Dataset	R Function(s)
Summary Statistics	Central Tendency & Spread	`mtcars`	`summary()`, `mean()`, `median()`, `sd()`
Histogram	Distribution of Data	Simulated Test Scores	`hist()`, `abline()`
Scatterplot	Relationships Between Variables	`iris`	`plot()`, `legend()`
Boxplot	Outliers & Quartiles	Simulated Sales	`boxplot()`, `text()`