

# Sheth L.U.J. & Sir M.V. College

## Aim

To visualize and compare the distribution of students' exam scores across different genders using a box plot in R.

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<https://www.kaggle.com/datasets/ayeshasiddiq123/student-performance>

## Dataset Description

The dataset **StudentPerformanceFactors.csv** contains information related to students' academic performance. For this practical, the following variables are used:

- **Gender:** Categorical variable representing student gender
  - **Exam\_Score:** Numerical variable representing exam marks
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## Concept Used: Box Plot

A box plot is a statistical graph used to display the distribution of numerical data through:

- Minimum value
- First quartile (Q1)
- Median (Q2)
- Third quartile (Q3)
- Maximum value
- Outliers (if any)

Box plots are useful for comparing central tendency and variability across groups.

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## Methodology / Procedure

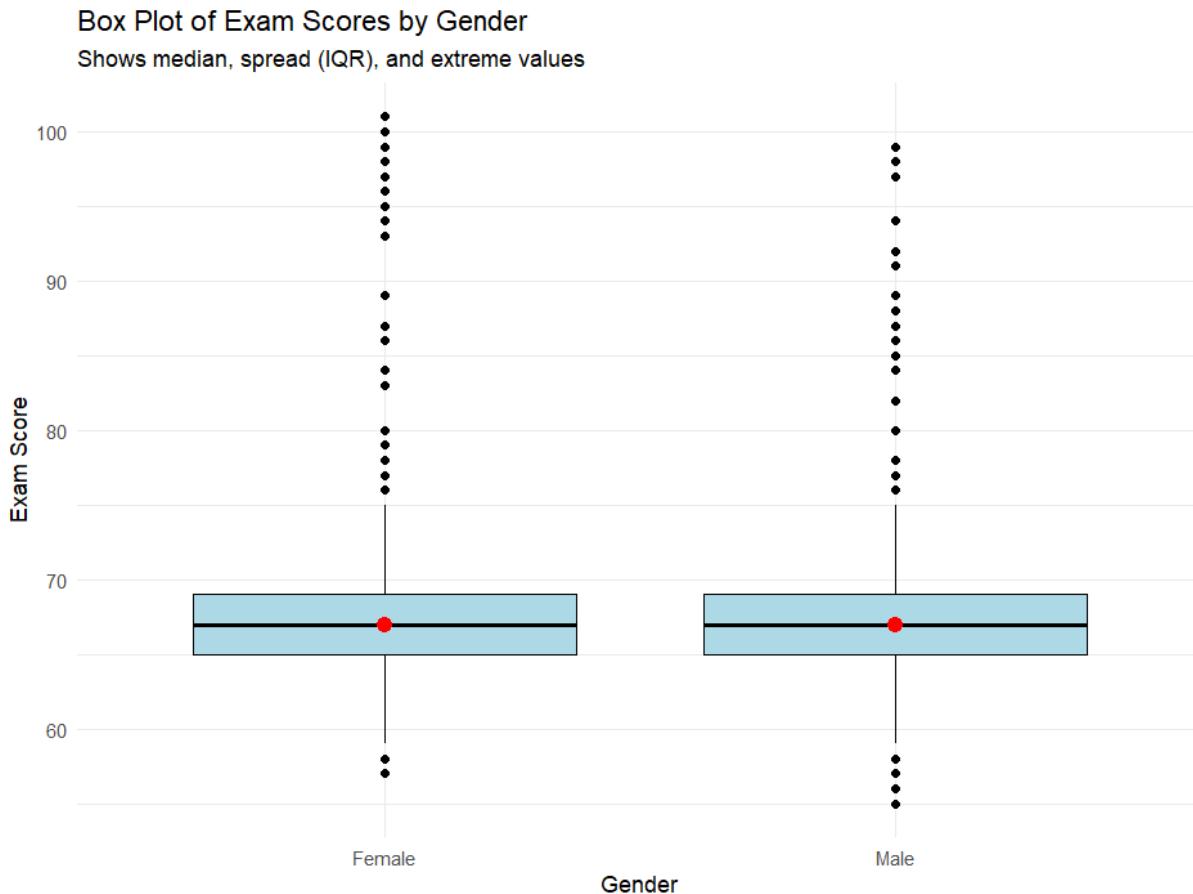
1. Load the required library (ggplot2).
2. Import the dataset into R.
3. Use ggplot() to define the plotting structure.
4. Apply geom\_boxplot() to create the box plot.
5. Add labels and minimal theme for better readability.

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## Graph



## Graph Description

The box plot visually represents the distribution of exam scores across different genders. Each box summarizes the spread and central tendency of scores for a specific gender group.

The box plot clearly compares exam score distributions between genders. Differences in median scores highlight variation in average performance, while the height of the boxes indicates score variability. The presence of outliers reflects extreme academic performances among students.

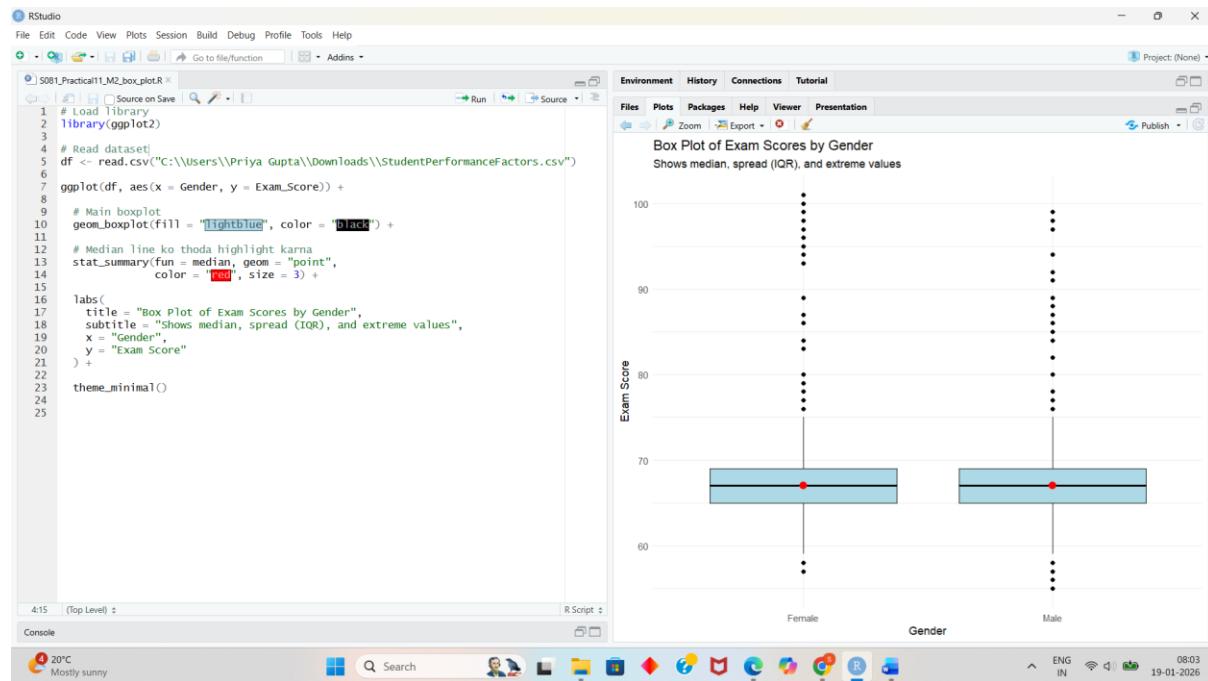
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## Conclusion

The box plot is an effective visualization tool for understanding and comparing exam score distributions. Using ggplot2 in R provides a clear and structured way to analyze central tendency, spread, and outliers across groups.

## Screenshots



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