R Programming

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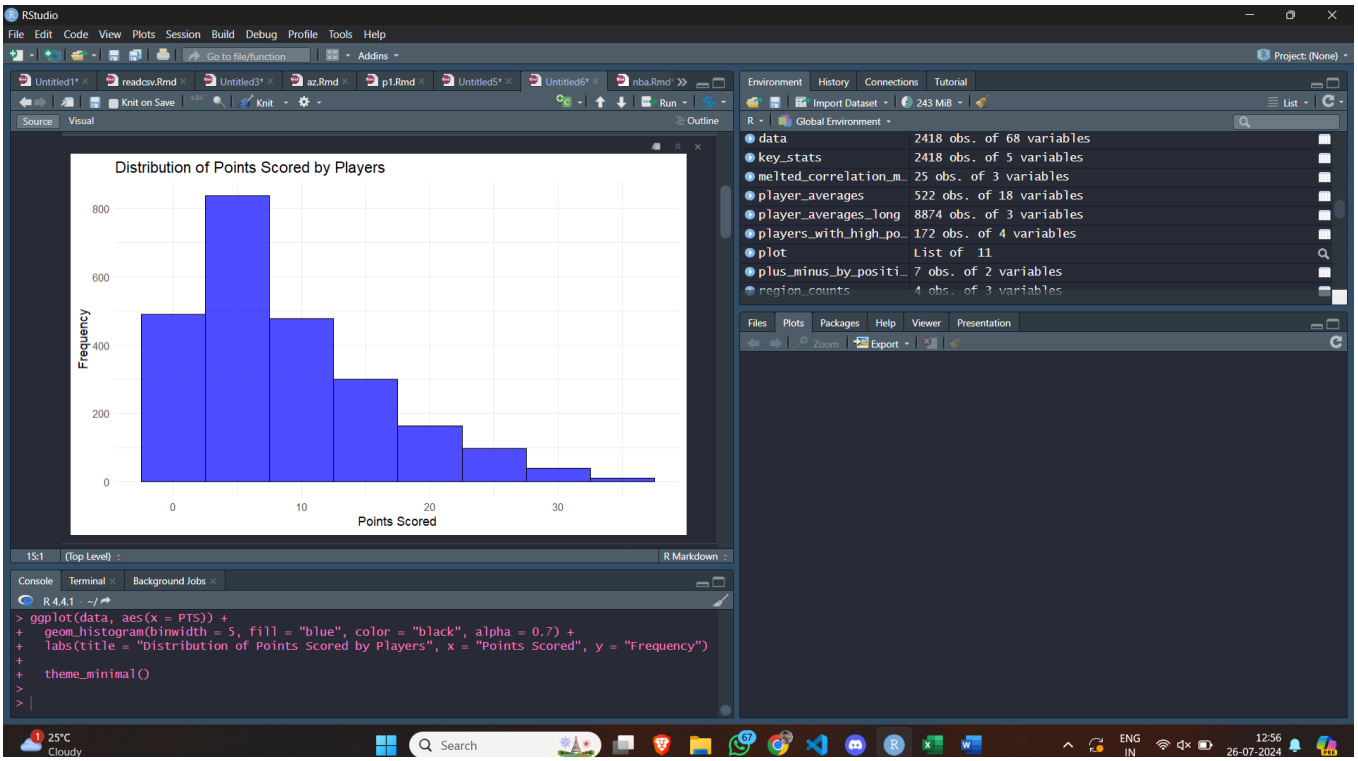
NBA 2023-24 Dataset

This dataset contains detailed statistics for NBA games, focusing on player performance and team metrics. It includes various features such as shooting percentages, rebounds, assists, and defensive stats. The dataset is designed to help predict the outcome of NBA games and analyze player efficiency based on their in-game performance.

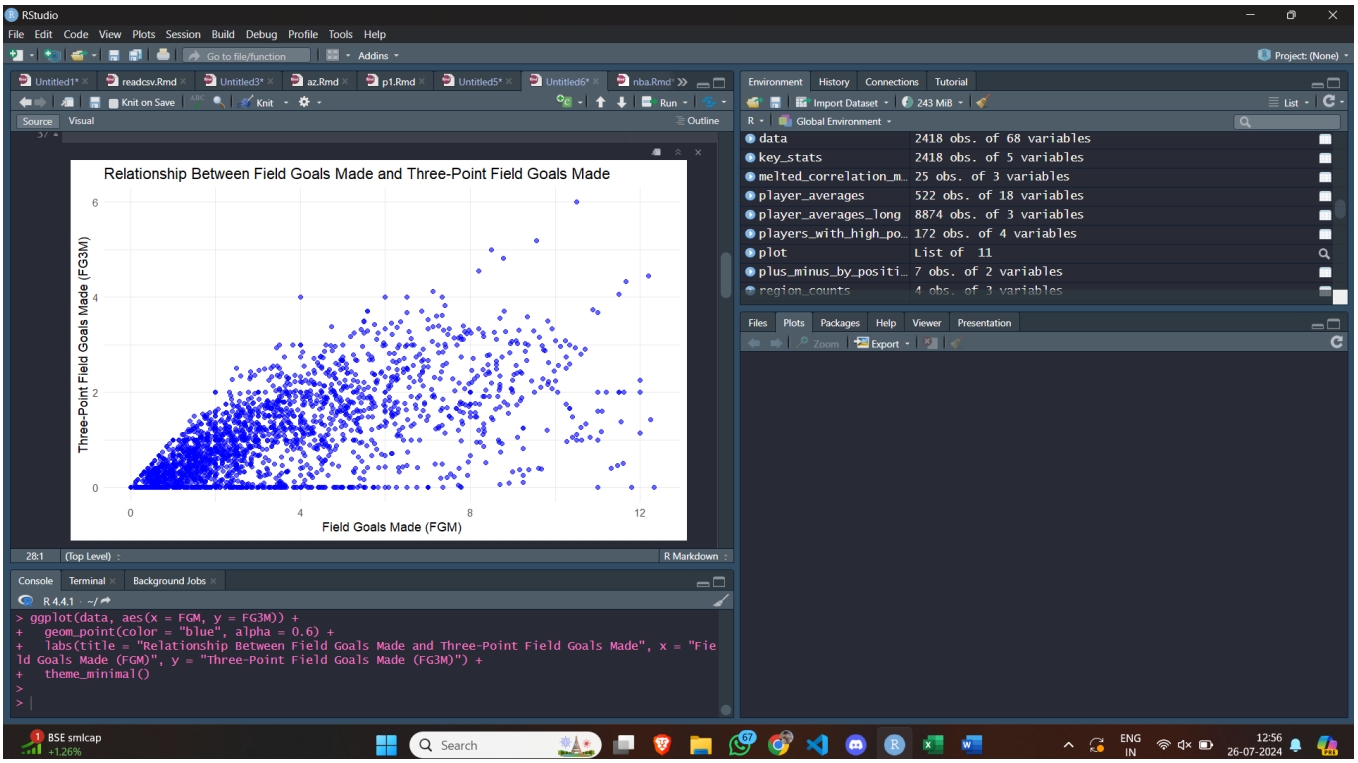
Question 1: What is the Distribution of Points Scored by Players?
To visualize the distribution of points scored by players, we can use a histogram.



Histogram of Points Scored:

- **Graph**: Histogram
- **Description**: This graph helps visualize the frequency distribution of points scored by players, showing how many players fall into various point ranges. Each bar represents a range of points, and the height of the bar indicates the number of players who scored within that range.
- **Insight**: This histogram can highlight the most common scoring ranges and any outliers in the dataset.

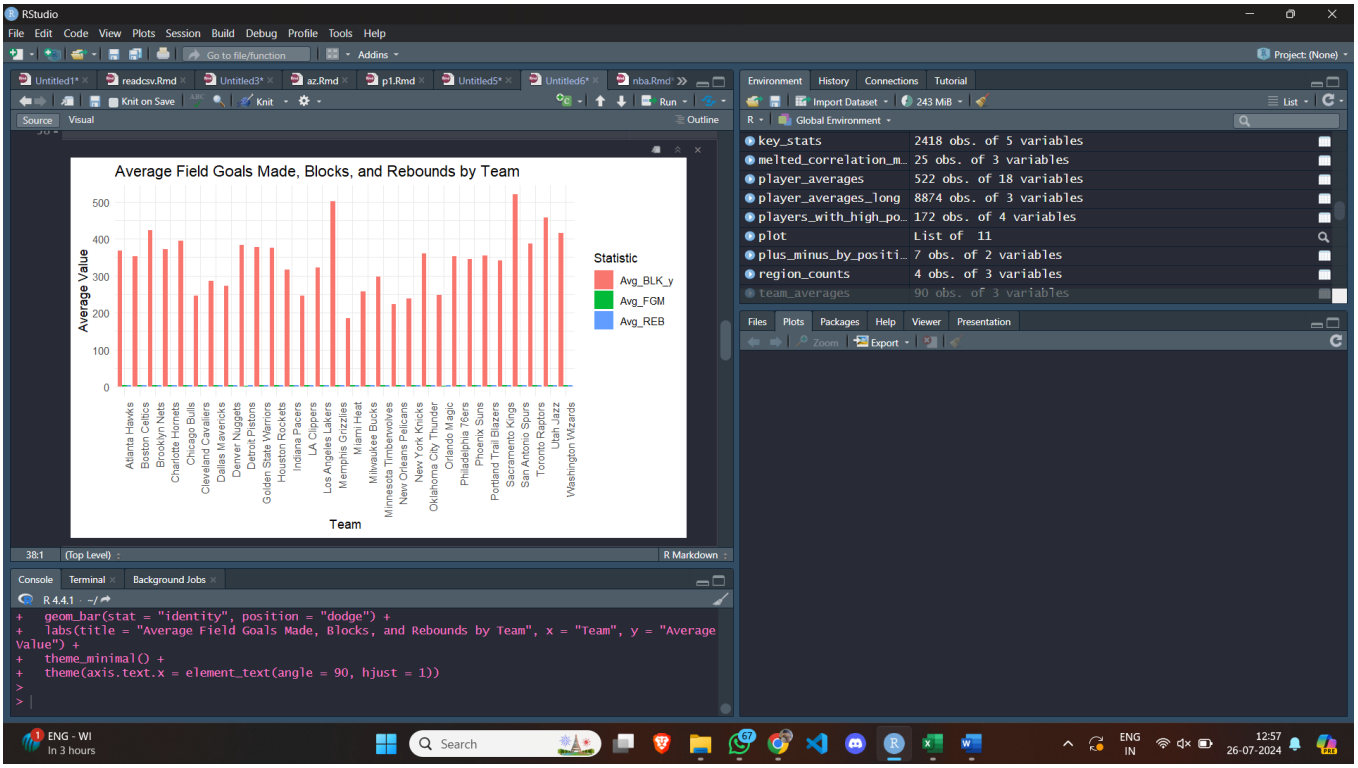
Question 2: How Do Field Goals Made (FGM) and Three-Point Field Goals Made (FG3M) Relate to Each Other?



Scatter Plot of FGM vs. FG3M:

- **Graph**: Scatter Plot
- **Description**: This graph illustrates the relationship between the number of field goals made (FGM) and the number of three-point field goals made (FG3M). Each point represents a player's performance in these two metrics.
- **Insight**: By examining this scatter plot, we can identify correlations between FGM and FG3M, such as whether players who make more field goals also tend to make more three-point field goals.

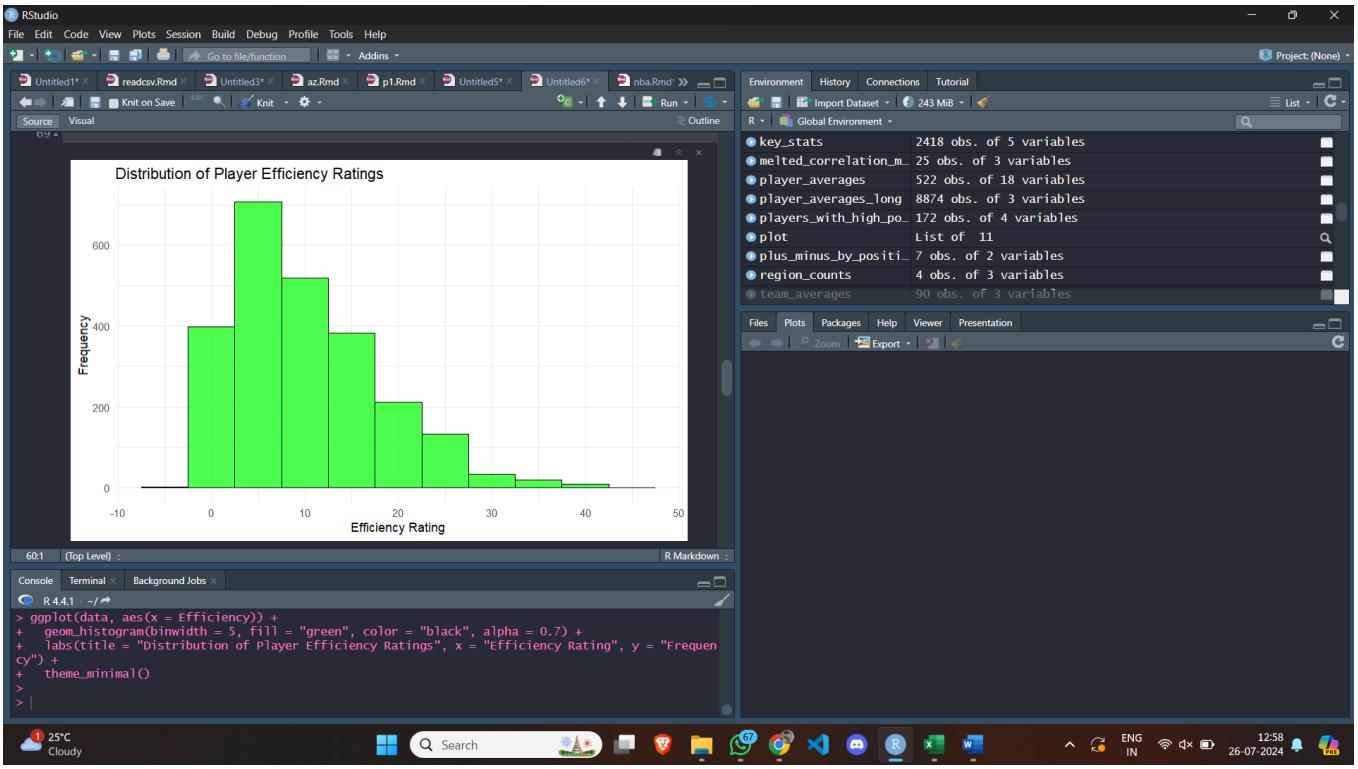
Question 3: What Are the Average Field Goals Made (FGM), Blocks (BLK_y), and Rebounds (REB) by Team?



Bar Plot of Average FGM, BLK_y, and REB by Team:

- **Graph**: Bar Plot
- **Description**: This graph shows the average field goals made (FGM), blocks (BLK_y), and rebounds (REB) for each team. Each bar represents the average value of one of these metrics for a team.
- **Insight**: This bar plot allows for comparison of these metrics across different teams, helping to identify which teams excel in specific areas.

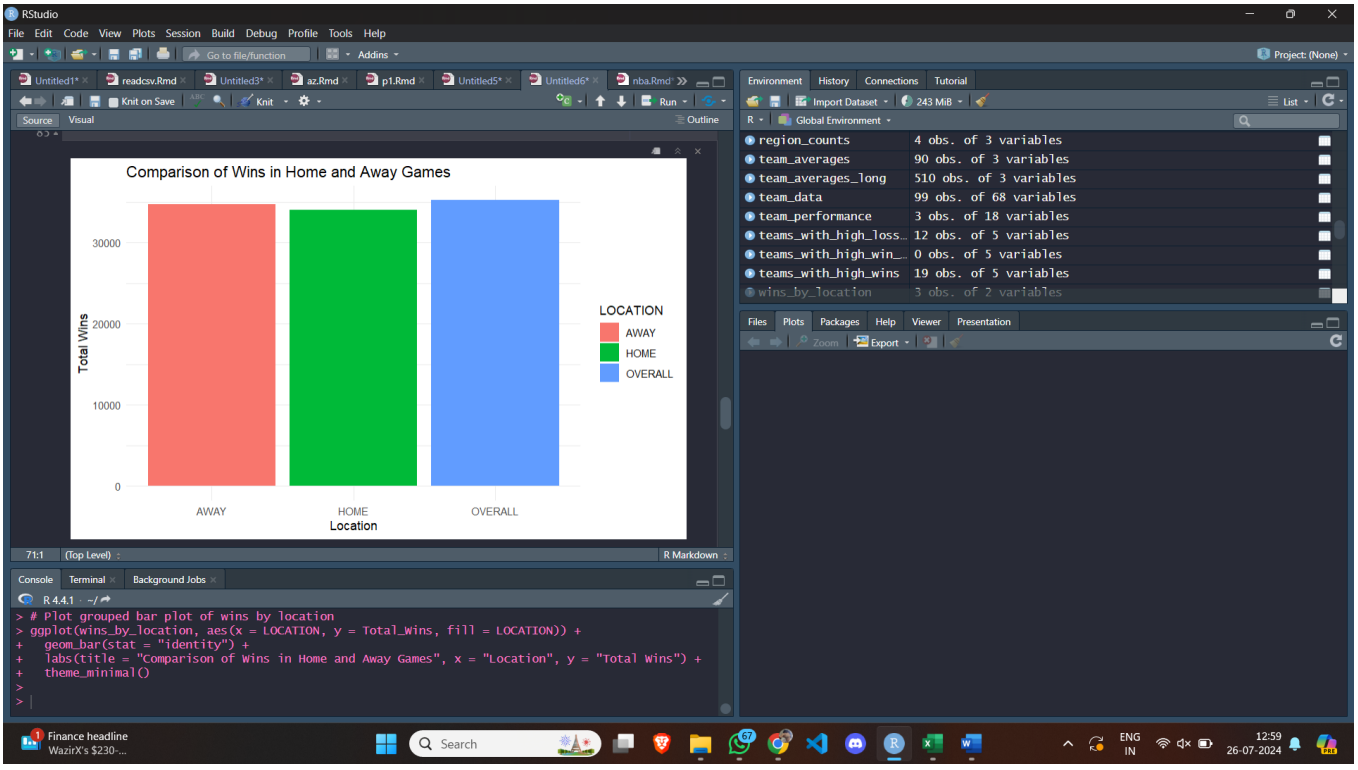
Question 4: What is the Distribution of Player Efficiency Ratings?



Histogram of Player Efficiency Ratings:

- **Graph**: Histogram
- **Description**: This graph displays the distribution of player efficiency ratings. Each bar represents a range of efficiency ratings, and the height of the bar indicates the number of players who fall into that range.
- **Insight**: This histogram helps to understand the spread and central tendency of player efficiency ratings, showing which efficiency ratings are most common

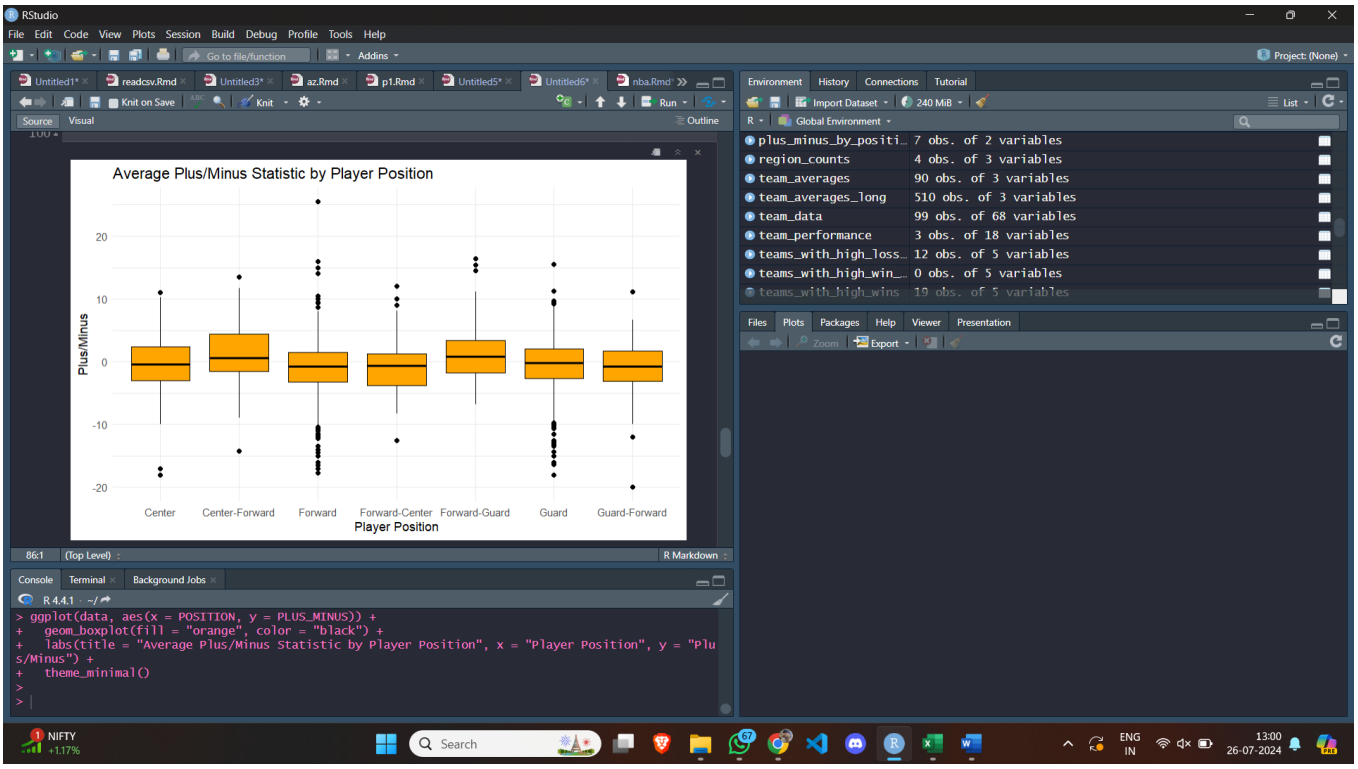
Question 5: How Does the Number of Wins Compare Between Home and Away Games?



Grouped Bar Plot of Wins by Location:

- **Graph**: Grouped Bar Plot
- **Description**: This graph compares the number of wins between home and away games. Each bar represents the total number of wins in a specific location (home or away).
- **Insight**: By comparing the heights of the bars, we can determine if there is a significant difference in the number of wins when teams play at home versus away.

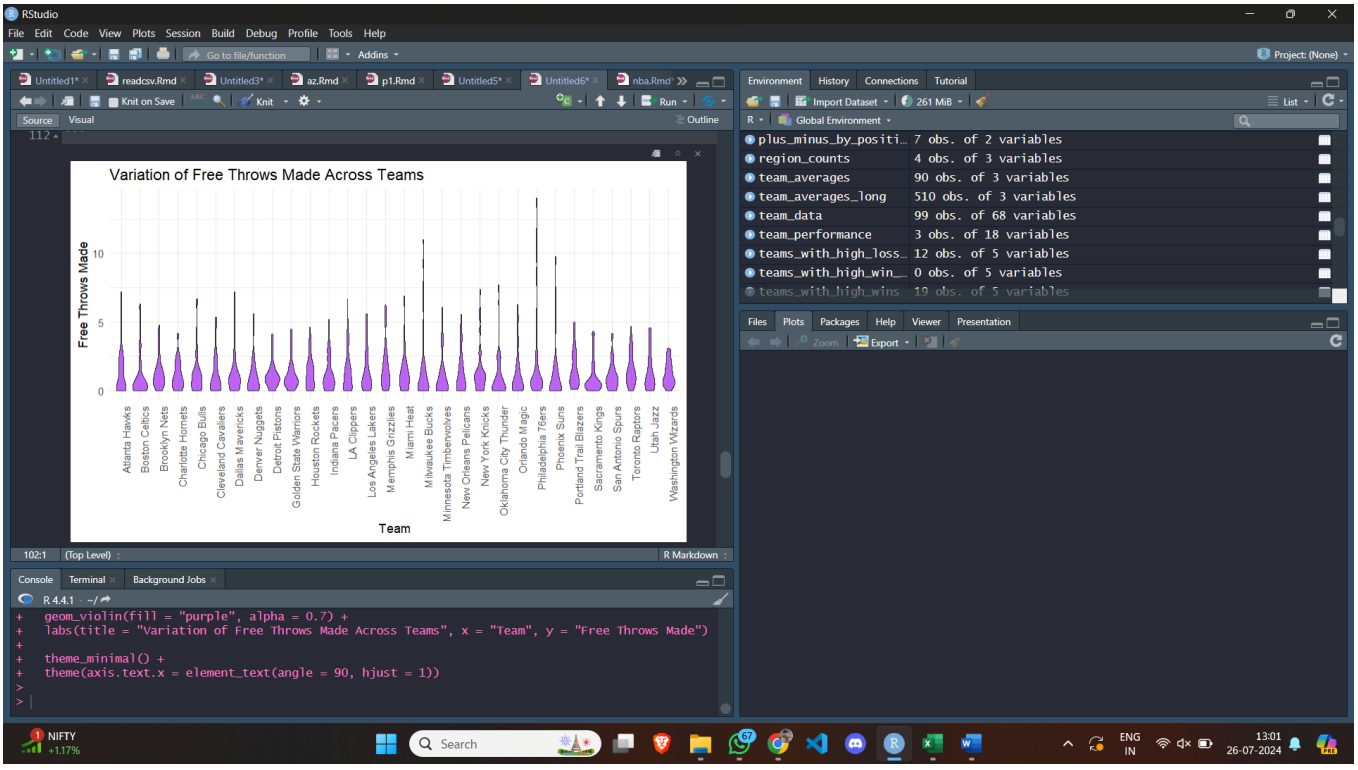
Question 6: What is the Average Plus/Minus Statistic by Player Position?



Box Plot of Average Plus/Minus Statistic by Player Position:

- **Graph**: Box Plot
- **Description**: This graph visualizes the average plus/minus statistic for players, grouped by their position. Each box represents the distribution of the plus/minus statistic for a specific position.
- **Insight**: The box plot allows for comparison of the plus/minus statistic across different player positions, highlighting which positions tend to have higher or lower values.

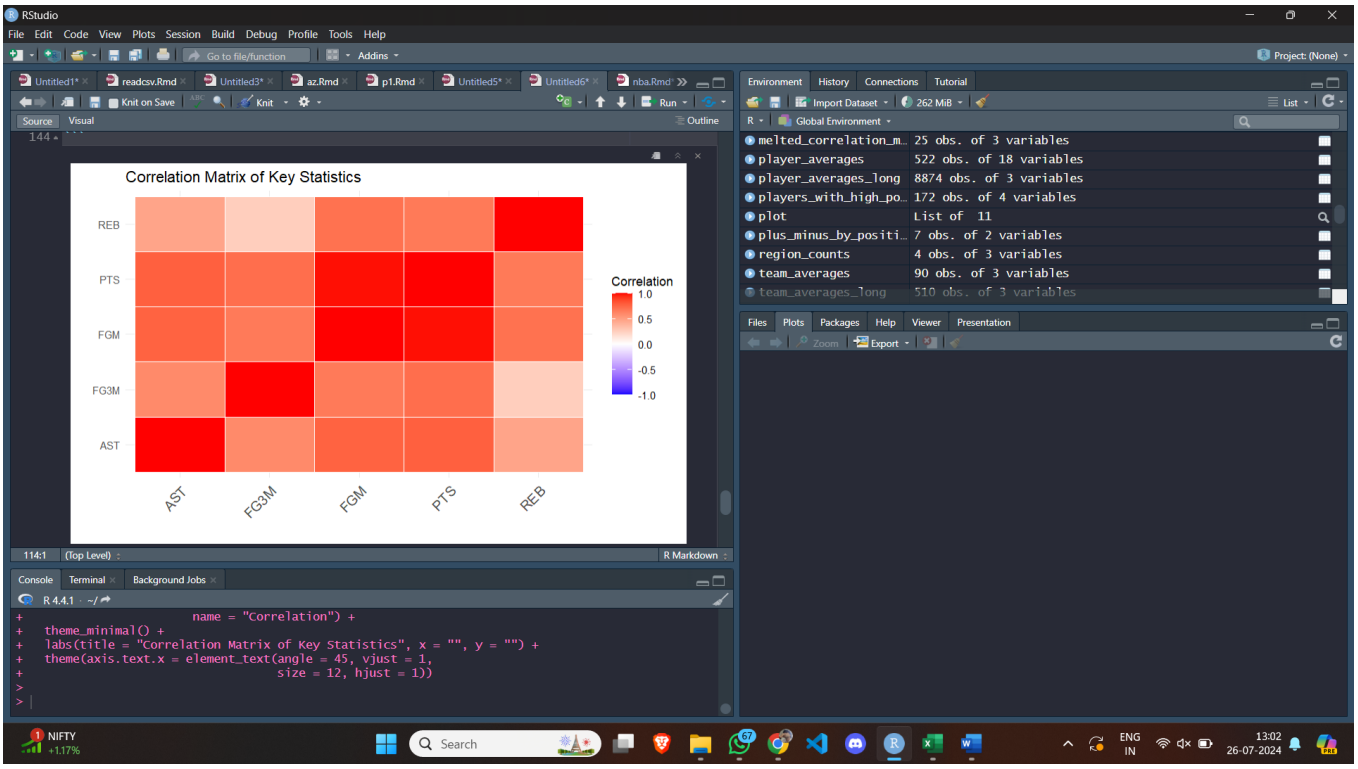
Question 7: How Do Free Throws Made (FTM) Vary Across Teams?



Violin Plot of Free Throws Made Across Teams:

- **Graph**: Violin Plot
- **Description**: This graph shows the variation of free throws made (FTM) across different teams. Each violin shape represents the density of FTM values for a team.
- **Insight**: The violin plot helps to visualize the distribution and variability of free throws made within each team, indicating which teams have consistent or varied performance in this metric.

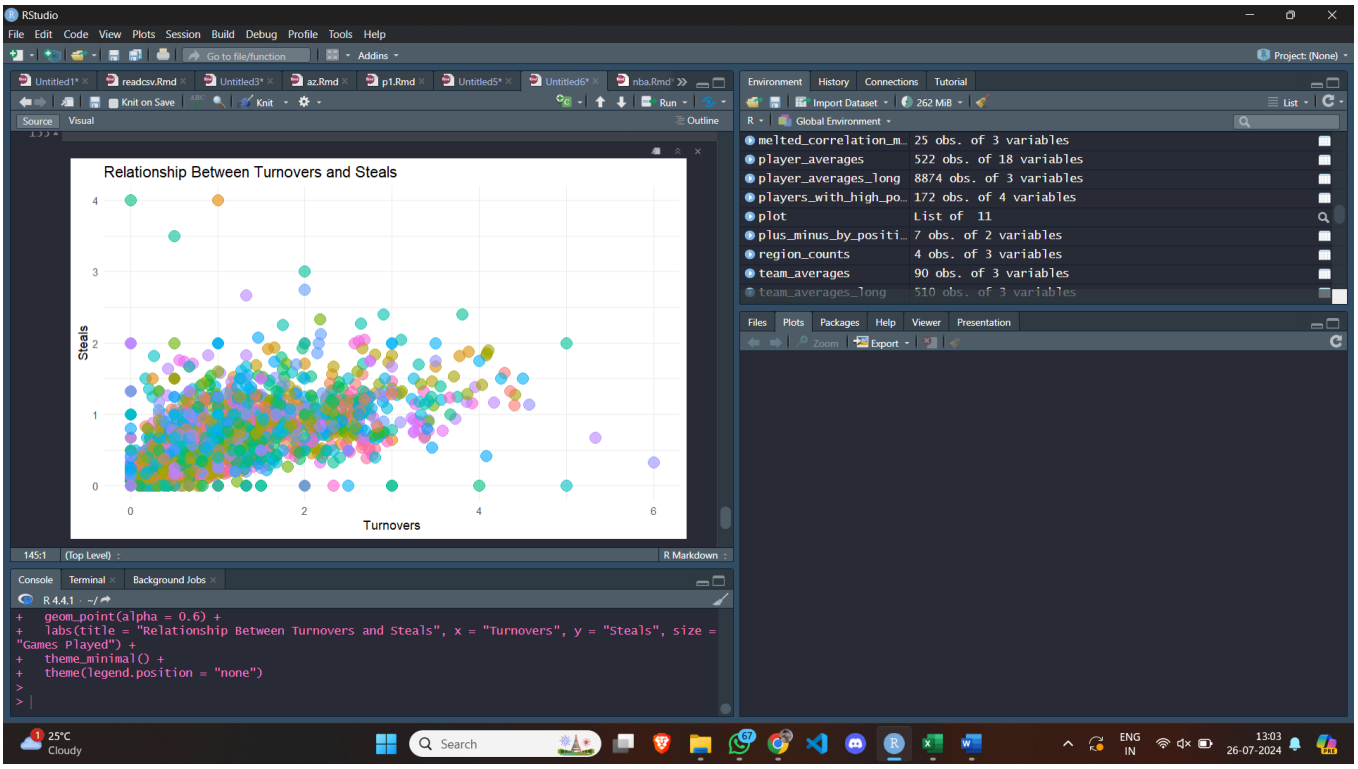
Question 8: What is the Correlation Matrix of Key Statistics?



Correlation Heatmap of Key Statistics:

- **Graph**: Heatmap
- **Description**: This graph visualizes the correlation matrix of key statistics (FGM, FG3M, REB, AST, PTS). The color of each cell represents the strength and direction of the correlation between two statistics.
- **Insight**: The heatmap helps to identify strong positive or negative correlations between different key statistics, providing insights into how these metrics are related.

Question 9: What is the Relationship Between Turnovers (TOV) and Steals (STL_x)?



Bubble Plot of Turnovers vs. Steals:

- **Graph**: Bubble Plot
- **Description**: This graph illustrates the relationship between turnovers (TOV) and steals (STL_x). Each point represents a player, with the size of the point corresponding to the number of games played (GP_x) and the color representing the player's team.
- **Insight**: The bubble plot allows us to see how turnovers and steals are related, and the size of the points provides additional context on the player's game experience.