

## **Day 07**

### **Topic Covered: Bar Charts in R**

#### **Summary:**

Today's session focused on bar charts in R, which are one of the most commonly used tools for visualizing categorical data. A bar chart represents data using rectangular bars, where the height or length of each bar corresponds to the value of that category. Bar charts are useful for comparing values across different groups, making them an important part of data analytics.

In R, bar charts are created using the `barplot()` function. The values are plotted on the y-axis for vertical bars or the x-axis for horizontal bars. By using customization options such as labels, colors, and density, bar charts can be made more clear and informative.

#### **New Concepts Learned:**

##### **1. Bar Chart**

A bar chart displays categories using bars whose size represents numeric values.

Key functions and features learned:

- `barplot(y)`: Creates a basic bar chart
- `barplot(y, names.arg=)`: Adds labels to each bar
- `barplot(y, density=)`: Applies shading patterns to bars
- `barplot(y, horiz=TRUE)`: Creates horizontal bars
- `barplot(y, col=)`: Adds color to bars

Using the `table()` function can also help create a bar chart that behaves like a histogram by counting the frequency of each category.

#### **Activity:**

- Created simple bar charts using `barplot()`
- Added category labels using the `names.arg` argument
- Changed orientation by plotting horizontal bars
- Customized bar appearance using color and density

- Used `table()` to convert categorical data into frequency-based bar charts

### **Challenges Faced:**

Remembering specific parameters like `names.arg` and `density` was slightly confusing in the beginning. Positioning labels correctly and understanding how `density` affects shading required some trial and error.

### **Key Takeaway:**

Bar charts are a basic but powerful visualization tool in R for comparing categorical data. Learning how to customize labels, orientation, and appearance improves the clarity and readability of charts. This topic enhanced my understanding of how visual representation supports better data interpretation in analytics.