Graph Descriptions and Observations

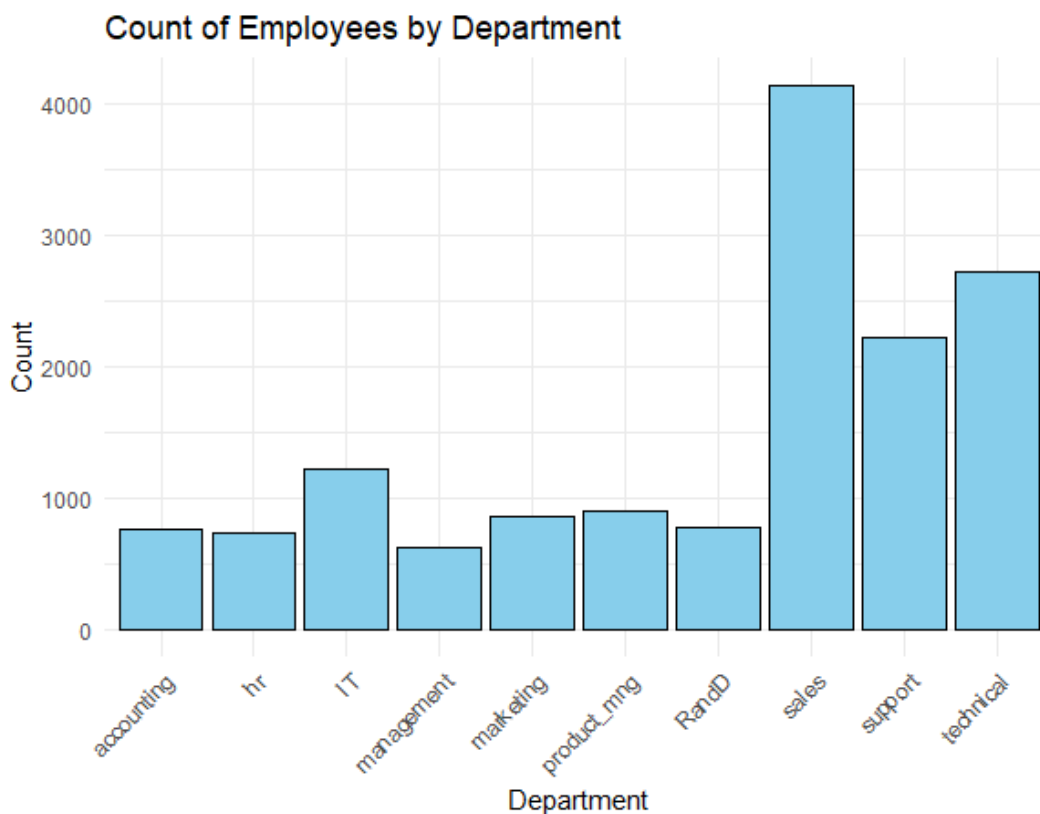Univariable Graph – Categorical Data (Department Bar Plot)

Dealing with missing data: Missing data level entries would be deleted or filled in with appropriate imputations, e.g., mean, or median.
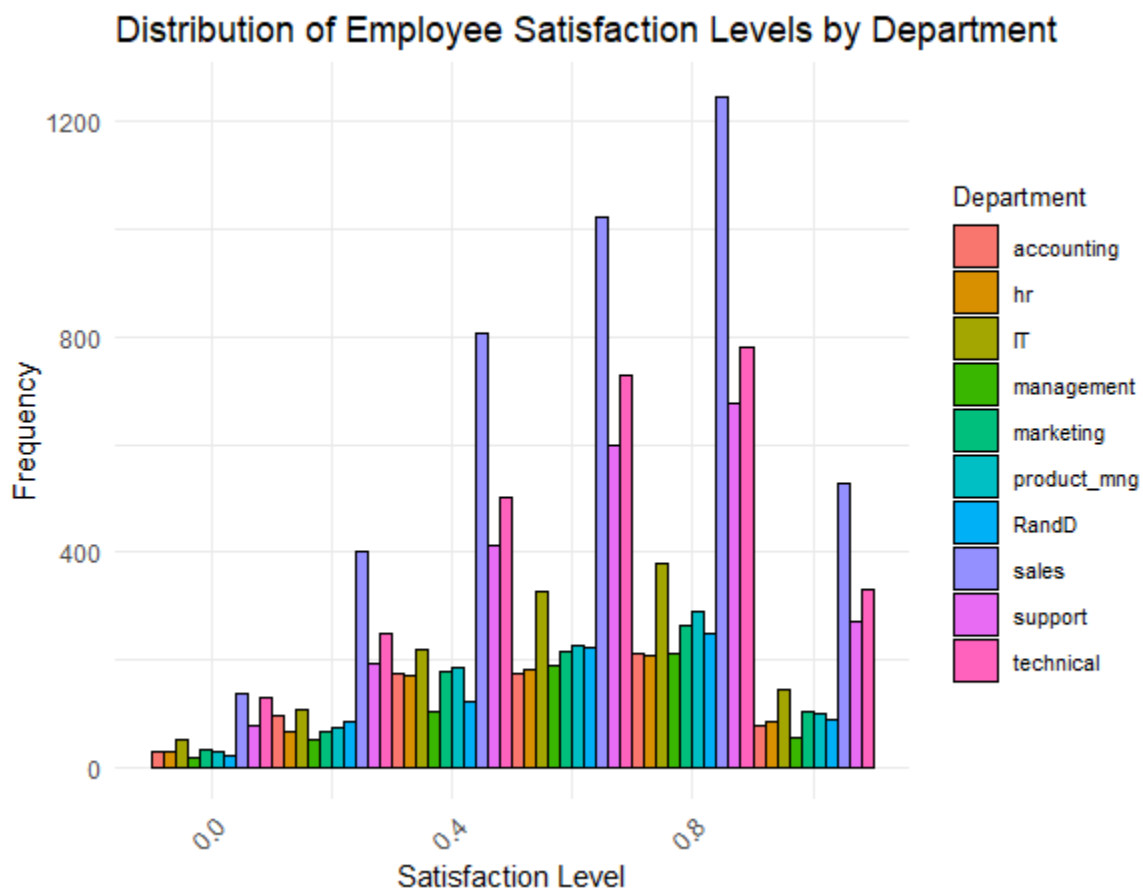
Why this Type of Graph? A bar plot is best for categorical data since it displays the frequency for every category and allows easy comparisons between departments.

Strengths and Weaknesses: Easy to read and intuitive but too congested with many categories or verbose labels.

Target Audience: HR personnel or analysts who present the employee distribution per department.

Message of Data Story: Bar plot of employee distribution, also with department-level resource allocation.

Count of Employees by Department

Univariable Graph – Quantitative Data (Histogram for Satisfaction Level)

Dealing with missing data: Missing satisfaction level entries would be deleted or filled in with appropriate imputations, e.g., mean, or median.

Why this kind of Graph? A histogram is especially well-suited to show the shape of a continuous variable, and patterns and outliers in satisfaction will be revealed.

Strengths and Weaknesses: Good for showing distribution but potentially deceptive if bin width is not sensibly selected.

Audience: Managers or HR analysts needing to see overall employee satisfaction.

Data Story Message: The histogram would illuminate employee satisfaction and identify issues or areas of strength in morale.

Bivariate Graph – Categorical-Categorical (Stacked Bar Plot for Attrition by Department)
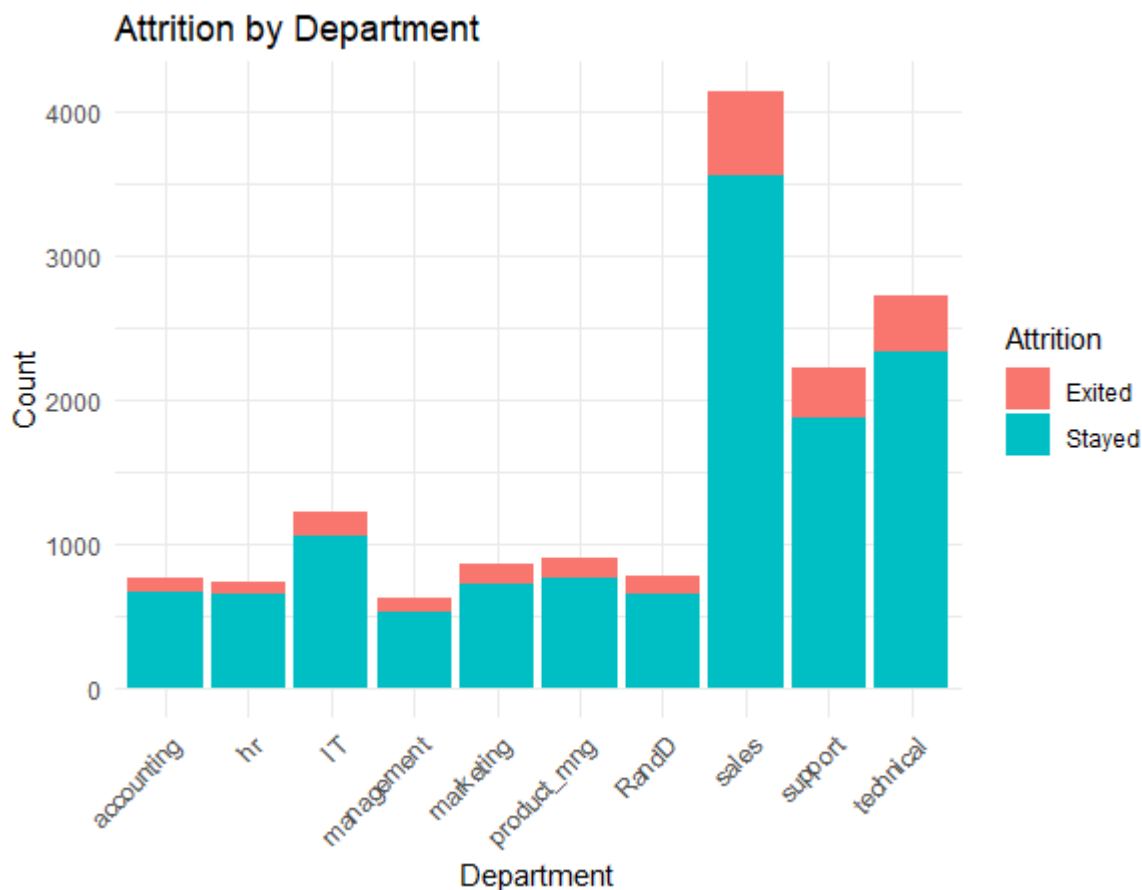
Missing Data Handling: Missing values for attrition or dept would be managed by marking them as "Unknown" or deleting the rows as I did.

Why the Graph Type? The stacked bar chart compares two proportions for two categories of variables and offers insight into departmental attrition rates.

Strengths and Weaknesses: The Graph allows the categories to be compared but can be challenging to read if there are many groups or colors.

Audience: Senior management or HR with an interest in employee turnover patterns.

Data Story Message: This plot shows department attrition rates, and problem areas, like work culture or management, are revealed.

Bivariable Graph – Quantitative-Categorical (Box Plot of Satisfaction Level by Department)

Missing Data Handling: Missing satisfaction data would be excluded or replaced with the same department's median satisfaction level or deleted.

Why This Type of Graph? A box plot is suitably positioned to graph relative levels of satisfaction between departments and to determine the median, range, and extremes of these levels of satisfaction.

Strengths and Weaknesses: This section provides an overview of the data but could be difficult for readers outside of the technical rank.

Target Audience: HR professionals or managers who want to know department satisfaction levels.

Data Story Message: A box plot is feasible for identifying departments with lower levels of satisfaction and areas for improvement which is needed for HR professionals or managers.

Any graphs are valid. Bar plots and stacked bar plots enable us to study categorical data, and histograms and box plots enable us to investigate further quantitative variables. Missing data quality management justifies the reliance on graphs to deliver substantial information to HR staff, managers, and analysts.