Bias Detection Report

Bias Detection Report for Employment Duration

1. Introduction:

This report analyzes the distribution of the 'Duration in month' feature to determine the presence of distribution bias.

2. Skewness Analysis:

- Skewness Value: 1.094

- Bias Level: Level 5 (Extreme Bias)

The skewness value indicates a significant deviation from symmetry, suggesting an extreme bias in the distribution.

3. Shapiro-Wilk Test:

- Shapiro-Wilk Test Statistic: 0.900

- p-value: 4.91e-25

The extremely low p-value confirms that the distribution significantly deviates from normality, indicating bias.
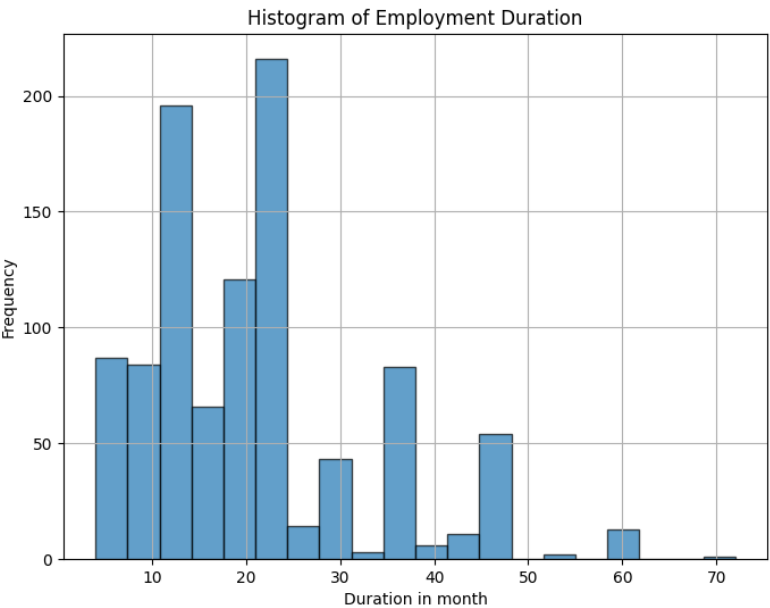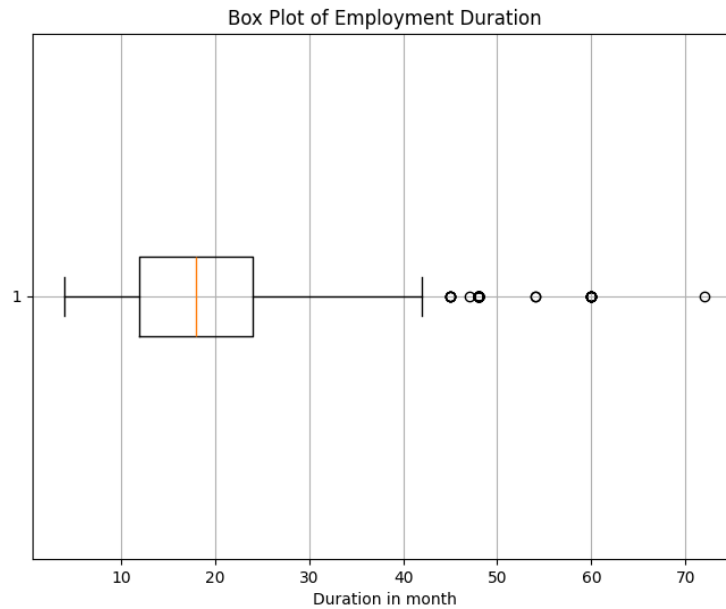
4. Kurtosis Analysis:

- Kurtosis Value: 0.920

- Bias Level: Level 5 (Extreme Bias)

The kurtosis value suggests an extreme peakedness or flatness in the distribution, reinforcing the presence of bias.

5. Visualizations:

The following images illustrate the distribution characteristics of the employment duration:

Histogram of Employment Duration

Box Plot of Employment Duration

Duration in month

6. Conclusion and Recommendations:

The analyses consistently indicate an extreme bias in the distribution of employment duration. It is recommended to explore data transformation techniques or enhance data collection methods to mitigate this bias.

7. Appendices:

Additional supporting data and calculations can be provided upon request.