Bias Detection Report

Custody Status Distribution Bias Analysis

This report provides an analysis of the distribution bias in the 'CustodyStatus' feature from the COMPAS dataset.

Bias Type

- **Distribution**

Relevant Feature

- **CustodyStatus**

Bias Level

- **Overall Bias Level:** Based on the results from multiple methods, the overall bias level is categorized as **Level 5 (Extreme Bias)**.

Methods and Results

Shannon Entropy and Balance Metric

- **Shannon Entropy:** 1.426

- **Balance Metric:** 0.552

- **Bias Level:** Level 4 (Significant Bias)

Gini Index

- **Corrected Gini Index:** 0.597

- **Adjusted Gini Index:** 0.716

- **Bias Level:** Level 4 (Significant Bias)

Max/Min Ratio

- **Max/Min Ratio:** 2008.6

- **Bias Level:** Level 5 (Extreme Bias)

Relative Risk

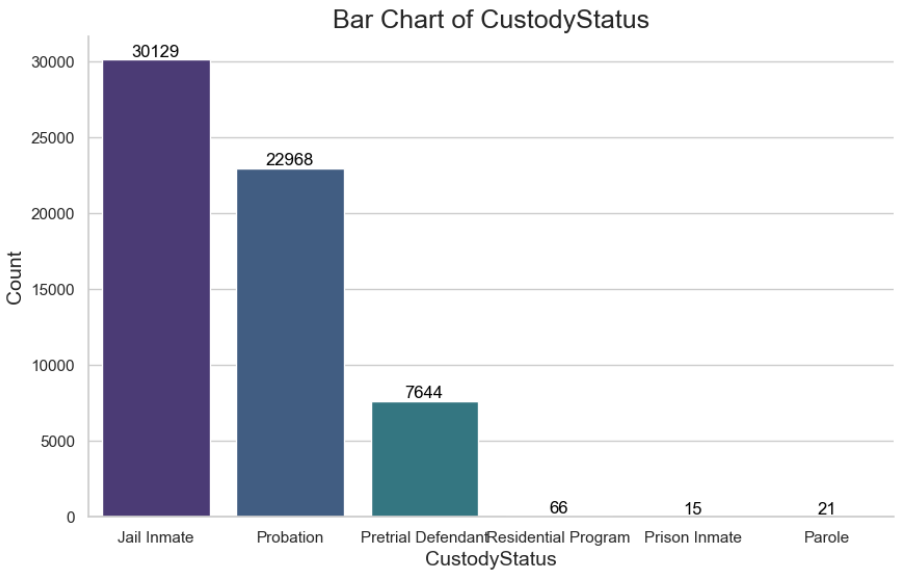
- **Normalized Bias Score:** 2008.6

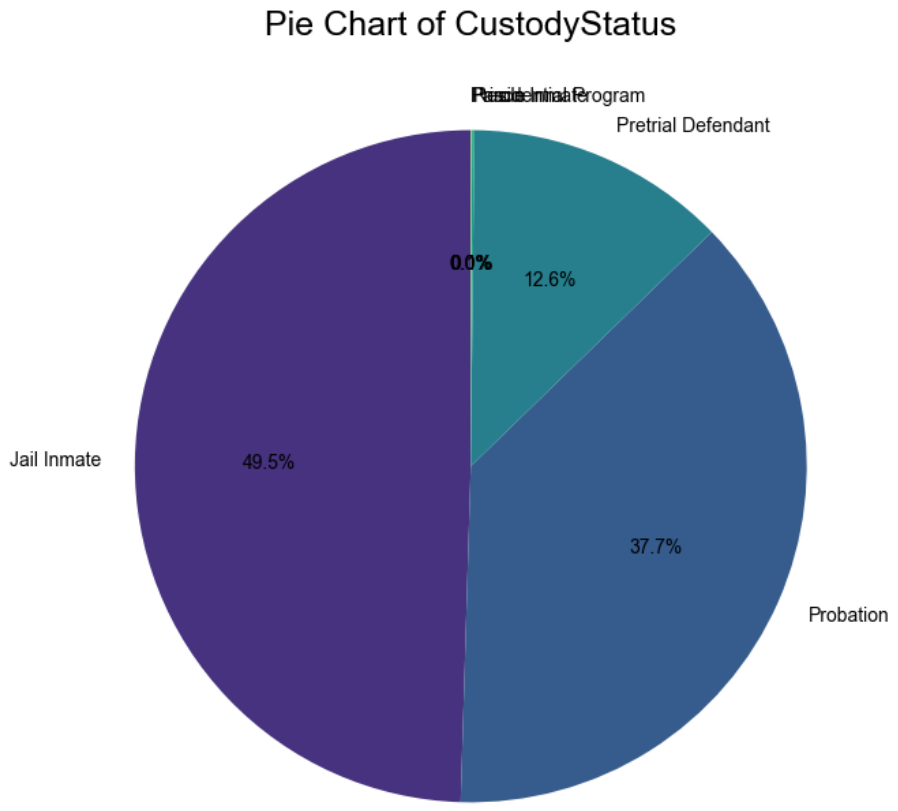
- **Bias Level:** Level 5 (Extreme Bias)

Jensen-Shannon Divergence

- **Jensen-Shannon Divergence:** 0.580

- **Bias Level:** Level 3 (Moderate Bias)





Conclusion

The analysis indicates a significant distribution bias in the 'CustodyStatus' feature. The Max/Min Ratio and Relative Risk analyses highlight extreme dominance by certain categories, suggesting a Level 5 bias. Other methods, including Shannon Entropy, Balance Metric, and Gini Index, confirm significant inequality and unevenness in distribution. The Jensen-Shannon Divergence method identifies a moderate bias, adding depth to the analysis.

This bias may affect the reliability of analyses conducted using this feature, and careful consideration is recommended when interpreting results from the COMPAS dataset.