

Bias Detection Report

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Task Overview

This analysis aims to explore the correlation between ethnic groups and recommended supervision levels in the COMPAS dataset. Specifically, it examines whether certain ethnic groups are more likely to receive higher or lower levels of supervision.

Methodology

- **Dataset**: COMPAS.csv
- **Features Analyzed**: Ethnic_Code_Text (Ethnicity), RecSupervisionLevelText (Recommended Supervision Level)
- **Analysis Method**: Chi-Square Test for Correlation Bias Analysis
- **Tools Used**: Python with `scipy.stats.chi2_contingency()`, Visualization tools for stacked bar chart and heatmap.

Results

- **Chi-Square Statistic**: 5939.378
- **Degrees of Freedom**: 24
- **p-value**: 0.0
- The low p-value indicates a statistically significant association between the ethnic groups and the

recommended supervision levels, suggesting a potential bias.

Visualizations

The visualizations provide a graphical representation of the distribution of supervision levels across different ethnicities, reinforcing the statistical findings.

Conclusion

- **Bias Type**: Correlation

- **Relevant Features**: Ethnic_Code_Text, RecSupervisionLevelText
- **Bias Level**: Level 5 (Extreme Bias)
- The analysis suggests that certain ethnic groups are indeed more likely to be assigned specific supervision levels, indicating a significant bias.

Recommendations

It is recommended to investigate the causes of this bias and explore potential measures to address any unfair treatment across different ethnic groups.