Bias Detection Report

Bias Detection Report for 'Personal status and sex' Feature

1. Analysis Overview

The analysis focused on detecting distribution bias in the 'Personal status and sex' feature using various statistical methods. The methods included Shannon Entropy, Gini Index, Relative Risk, Chi-Square Test, and Jensen-Shannon Divergence.

2. Key Findings

- Shannon Entropy and Balance Metric indicate a Moderate Bias (Level 3) with a Balance Metric of 0.7661.

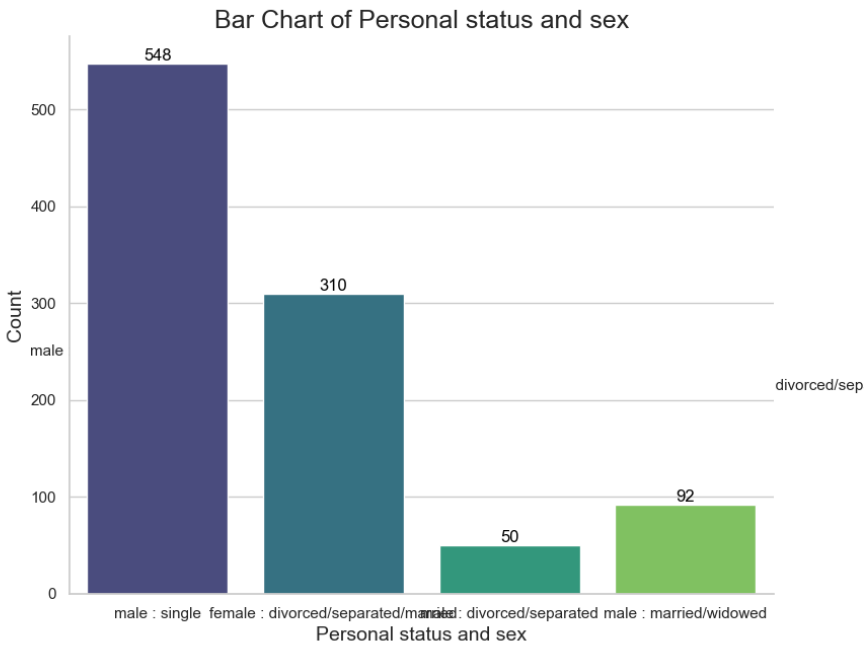
- Gini Index suggests a Minimal Bias (Level 2) with an Adjusted Gini Index of 0.7911.

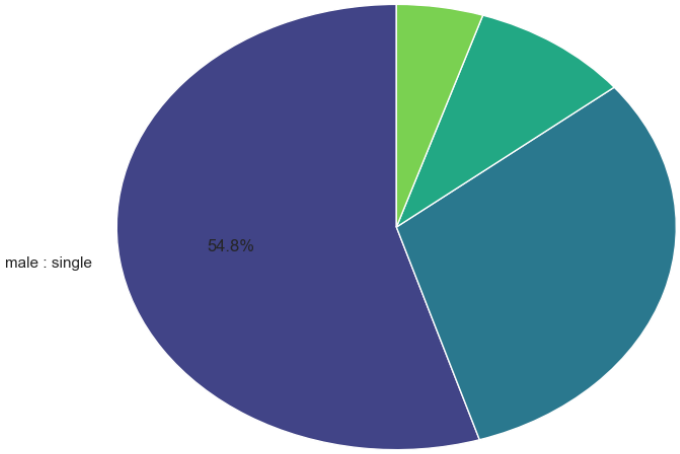
- Relative Risk highlights a Significant Bias (Level 4) with a Normalized Bias Score of 10.96.

- Chi-Square Test reveals a significant deviation with a Chi-Square Value of 324.04, indicating Significant Bias.

- Jensen-Shannon Divergence indicates a Moderate Bias (Level 3) with a JSD value of 0.2923.

3. Visual Analysis





4. Overall Bias Assessment

The 'Personal status and sex' feature exhibits a Significant Bias (Level 4) overall, as indicated by multiple methods showing substantial deviations from expected distributions.

5. Recommendations

- Consider implementing data balancing techniques to address the detected bias.

- Further investigation into the implications of this bias in decision-making processes is advised.

6. Conclusion

The analysis reveals significant distribution bias within the 'Personal status and sex' feature, warranting attention in applications relying on this dataset.