

Bias Detection Report

The dataset analyzed is the COMPAS dataset, which contains information about criminal defendants.

The features examined are the numerical features in the dataset, including 'Person_ID', 'AssessmentID', 'Case_ID', 'ScaleSet_ID', 'Scale_ID', 'RawScore', 'DecileScore'.

The type of bias detected is distribution bias.

The tools used are the max/min ratio calculation and the statistical analysis.

The values obtained and the extent of the bias are as follows:

- The max/min ratio for each numerical feature is calculated, and the bias level is classified based on the ratio.
- The results show that some features have extreme bias, while others have significant, moderate, or minimal bias.

The visualizations used are not provided in this case, but they could include histograms or density plots to show the distribution of the numerical features.

My natural language interpretation of the bias severity is as follows:

- The features with extreme bias have a very high max/min ratio, indicating a large difference between the maximum and minimum bin frequencies.
- The features with significant bias have a high max/min ratio, indicating a notable difference between the maximum and minimum bin frequencies.
- The features with moderate bias have a moderate max/min ratio, indicating some difference

between the maximum and minimum bin frequencies.

- The features with minimal bias have a low max/min ratio, indicating a small difference between the maximum and minimum bin frequencies.

My recommendations for the user regarding the use of the dataset are as follows:

- The user should be cautious when using the features with extreme or significant bias, as they may lead to unfair outcomes.
- The user should consider using techniques to mitigate the bias, such as data preprocessing or feature engineering.
- The user should carefully evaluate the results obtained from the dataset and consider the potential impact of the bias on the outcomes.