

# Bias Detection Report

## Bias Detection Report for 'LegalStatus' Feature

**Dataset Analyzed: COMPAS**

**Feature Examined: LegalStatus**

**Bias Type: Distribution**

### Analysis and Results

1. **\*\*Shannon Entropy and Balance Metric\*\***:

- Balance: 0.4620
- Shannon Entropy: 1.2971
- This indicates a significant bias (Level 4).

2. **\*\*Max/Min Ratio\*\***:

- Max/Min Ratio: 3131.5
- This indicates an extreme bias (Level 5).

### 3. **Gini Index**:

- Corrected Gini Index: 0.5226
- Adjusted Gini Index: 0.6097
- This indicates a significant bias (Level 4).

### 4. **Relative Risk**:

- Normalized Bias Score: 3131.5
- This indicates an extreme bias (Level 5).

### 5. **Jensen-Shannon Divergence** (from Literature):

- JSD: 0.2804
- This indicates moderate bias (Level 3).

## **Visualizations**

- A pie chart was created to visualize the distribution of legal statuses.

## **Conclusions**

The analysis shows significant to extreme bias in the distribution of legal statuses, suggesting the need to address these imbalances for fair analysis.

