

Bias Detection Report

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Dataset Analyzed

- File: Student Performance.csv

Features Examined

- Categorical Feature: 'romantic'
- Numerical Features: 'G1', 'G2', 'G3'

Bias Type: Correlation

Tools Used

- Max Absolute Mean
- Cohen's d Effect Size
- Standardized Difference
- Hilbert-Schmidt Independence Criterion (HSIC)

Results Obtained

- **Max Absolute Mean:**

- G1: 0.0525

- G2: 0.1578

- G3: 0.1835

- **Cohen's d Effect Size:**

- G1: 0.0801

- G2: 0.2360

- G3: 0.2725

- **Standardized Difference:**

- G1: 0.0291

- G2: 0.1487

- G3: 0.1404

- **HSIC Values:**

- G1: 4.33e-08

- G2: 5.03e-07

- G3: 1.01e-06

Extent of Bias

The correlation bias between being in a romantic relationship ('romantic') and academic performance ('G1', 'G2', 'G3') is negligible. All metrics indicate very low correlation, suggesting there is no significant bias.

Visualizations

- Box plots and correlation heatmaps were generated to visualize the relationships. (Note: Visualizations are not included in the text section)

Recommendations

The dataset can be used confidently without concern for bias between the 'romantic' status and academic performance scores.