

# Bias Detection Report

Bias Detection Report: Correlation Analysis between Paid Classes and Final Grades

Objective: Analyze the correlation between attending extra paid classes and final grades to determine any correlation bias.

Dataset Path: source\_files/Student Performance.csv

Bias Type: Correlation

Relevant Features: 'paid' (categorical), 'G3' (numerical)

Overall Bias Level: Level 2 (Minimal Bias)

Analysis Results:

- HSIC Value:  $6.9311 \times 10^{-7}$  (weak correlation)
- Max Absolute N Value: 0.1109 (minimal bias)
- Cohen's d Effect Size: 0.2078 (minimal bias)
- Standardized Difference: -0.1431 (minimal bias)

Summary: The analysis indicates that attending extra paid classes has a minimal impact on final grades. The weak correlation and minimal bias observed across multiple methods confirm that paid class attendance does not significantly affect academic success.

