

Bias Detection Report

Bias Detection Report: Analysis of School Impact on Final Grade

Introduction

This report evaluates the potential bias in the final grade ('G3') of students based on the school they attend. The analysis aims to determine if the school ('school') has a significant effect on the students' final grades.

Data Understanding

The dataset includes various attributes related to student performance, with a focus on the 'school' and 'G3' features for this analysis.

Methods and Tools

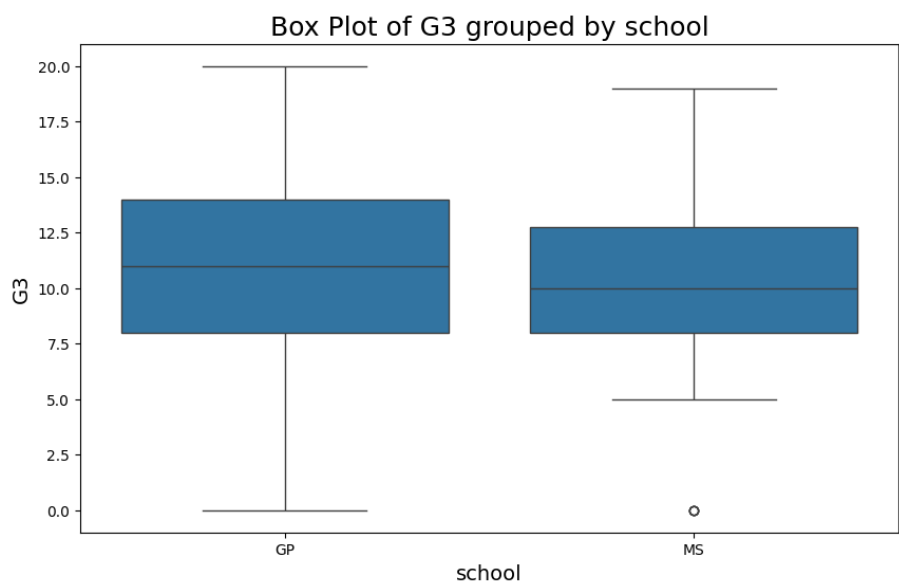
1. **Z-score Analysis**: Evaluated the bias for each school group using Z-scores.
2. **Max Absolute N Value**: Analyzed correlation using the maximum absolute mean.
3. **Cohen's d Effect Size**: Assessed effect size using Cohen's d method.

Results

- **Z-score Analysis**: Both 'GP' and 'MS' schools show "No Bias" with Z-scores close to zero.
- **Max Absolute N Value**: Indicated "Minimal Bias" with a value of approximately 0.124.
- **Cohen's d Effect Size**: Indicated "No Bias" with an effect size of approximately 0.145.

Visualization

The box plot visualizes the distribution of final grades across different schools, supporting the analytical findings.



Conclusion

The analysis concludes that the school attended does not significantly impact the final grade 'G3'. The findings suggest "No Bias" with only minimal inclination towards bias, confirming the reliability of the dataset for educational analysis.