Bias Detection Report

Bias Detection Report: Student Extracurricular Activities and Father's Occupation

Introduction:

This report analyzes the correlation and potential bias between students' participation in extracurricular activities ('activities') and their father's occupation ('Fjob') using the 'Student Performance' dataset.

Methodology:

- **Chi-Square Test:** Utilized to determine the statistical association between 'activities' and 'Fjob'.

- **Maximum Mean Discrepancy (MMD):** Applied to assess distributional differences between the two categorical features.

Results:

Chi-Square Test:

- Chi-Square Statistic: 2.1639

- p-value: 0.7056

- Degrees of Freedom: 4

- Interpretation: The high p-value indicates no significant association between the two features.

Maximum Mean Discrepancy (MMD):

- MMD Value: -2.2838

- Interpretation: Indicates minimal distributional differences.

Conclusion:

The analysis concludes with a Bias Level of 1 (No Bias), indicating no significant correlation or distributional bias between student extracurricular activities and their father's occupation.

Recommendations:

The dataset is suitable for further analysis without concerns of bias between these features.