



Analyzing Factors Influencing Student Academic Performance



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Summary of Exploratory Data Analysis (EDA)

- Test results are distributed somewhat normally, with the majority of students receiving scores in the middle range
- Impact of Parental Education: Student test results are positively correlated with higher parental educational attainment
- Ethnic Disparities: Test results among various ethnic groups differ significantly
- Health and Performance: Higher test scores are correlated with better health among students
- Relationships: There are moderate relationships between test results and a number of characteristics, including study time and parental participation

Distribution of Test Scores

Observation: Test scores are approximately normally distributed with a slight skew towards higher scores

Implication: Most students perform around the average, with fewer students achieving extremely low or high scores

Impact of Parental Education

Observation: Students whose parents have higher levels of education tend to score better

Implication: Parental education could be a significant factor in student academic performance

Ethnic Disparities

Observation: The average test scores of the various ethnic groups varied noticeably from one another

Implication: Because of different socioeconomic origins, ethnicity may have an impact on academic achievement

Health and Performance

Observation: Students with better health generally achieve higher test scores

Implication: Health interventions could potentially improve academic performance

Correlation Heatmap

Observation: Study time and parental involvement have moderate positive correlations with test scores

Implication: These factors could be targeted for interventions to improve student outcomes

Pairplot Analysis

Observation: Pairwise relationships highlight the importance of multiple factors such as health, parental education, and study time.

Implication: A multi-faceted approach is necessary to understand and enhance student performance.