**Assignment-1**

**Data Analysis of Student Performance Dataset Results**

**Bhavitha Jarugula**

**16355223**

1. The graph displays the average scores for math, reading, and writing, grouped by gender. It allows for a comparison of how male and female students perform across these subjects. The stacked format shows not only the total average scores for each gender but also highlights individual subject contributions. This visualization helps identify trends, such as which gender may excel in specific areas, and reveals any overall performance disparities.

A screenshot of a computer

Description automatically generated

1. The graph shows histograms for the distributions of math, reading, and writing scores. Each histogram includes a kernel density estimate (KDE) overlay, highlighting score trends. The math scores reveal where students excel or face challenges, while reading and writing scores offer similar insights. This visualization helps identify patterns, such as peaks in performance and areas needing improvement. Overall, it provides a comprehensive view of student achievement across subjects.

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1. The graph shows average test scores for students who completed versus those who did not complete a test preparation course, categorized by subject (math, reading, and writing). It facilitates a direct comparison of scores between the two groups. The colors indicate performance in each subject, revealing trends in score improvements linked to course participation. This visualization highlights the effectiveness of the preparation course on student achievement. Overall, it provides insights into how test preparation influences academic performance.

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1. The donut chart illustrates the distribution of parental levels of education among students. Each segment represents a different educational attainment level, with percentages indicating the proportion of students' parents at each level. The varying colors enhance visual differentiation between categories. This visualization helps identify trends in parental education, which may influence student performance. Overall, it provides insights into the educational background of students' families.

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1. The grouped bar chart shows average test scores (math, reading, and writing) based on parental levels of education. Each bar represents the average score for a subject across different education levels, allowing for easy comparison. The colors differentiate between subjects, highlighting trends in student performance relative to their parents' education. This visualization can reveal how parental education influences student achievement. Overall, it provides insights into the relationship between parental background and academic outcomes.

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