School Data Written Analysis

In this analysis, we were applying the knowledge we learned about with Pandas and Jupyter Notebook to analyze school and standardized test data. The objective of this challenge was to provide insights and trends in school performance to assist the school board and mayor in making strategic decisions regarding school budgets and priorities.

First, we calculated the district-wide key metrics to create a snapshot of the district's performance. This included the total number of unique schools, total number of students, total budget, average math score, average reading score, percentage of students passing math and reading, and the overall passing percentage.

Next, we summarized the key metrics for each school. This included information such as the school name, school type, total students, total school budget, per student budget, average math score, average reading score, and the percentage of students passing math, reading, and overall.

We then identified the highest-performing and lowest-performing schools based on the overall passing percentage. The top 5 schools with the highest overall passing percentage were displayed in the "top\_schools" DataFrame, while the bottom 5 schools were displayed in the "bottom\_schools" DataFrame.

To analyze performance by grade, we created separate DataFrames for math scores and reading scores by grade level at each school.

Additionally, we examined school performance based on spending per student. We categorized the schools into spending ranges and calculated the average math and reading scores, as well as the percentage of students passing math, reading, and overall, for each spending range. The results were summarized in the "spending\_summary" DataFrame.

We also analyzed school performance based on school size. We categorized the schools into small, medium, and large based on the total number of students. We calculated the average scores and passing percentages for each size category and presented the results in the "size\_summary" DataFrame.

Lastly, we analyzed school performance based on school type. We grouped the schools by their school type (charter or district) and calculated the average scores and passing percentages for each type. The results were presented in the "type\_summary" DataFrame.

In conclusion, based on the analysis of the school and standardized test data, two observable trends are:

1. Charter schools tend to outperform district schools: The analysis revealed that charter schools had higher average scores and passing percentages compared to district schools. This suggests that the school type may have an impact on student performance. The results of the overall passing % were 90.43% for the Charter school type, versus 53.7% for the District school type.
2. Higher spending per student does not guarantee better performance: The analysis showed that schools with higher spending per student did not necessarily have higher average scores or passing percentages. As we can see in the results, schools that had a budget of <$585 per student had an overall passing % of 90.4%, whereas schools that spent the most ($645-680), had an overall passing % of 53.5%. This indicates that factors other than financial resources may influence school performance.

Overall, this analysis provides valuable insights into school performance and can aid decision-makers in allocating resources effectively and making informed decisions to improve educational outcomes.