Pandas-Challenge Written Report

Summary of The Analysis:

- As the new Chief Data Scientist for my city's school district, I will be helping the school board and mayor make strategic decisions regarding future school budgets and priorities. Part of my first task is analyzing the district-wide standardized test results. I've aggregated all student's math and reading scores, as well as information on the schools they attend in order to showcase obvious trends in school performance. From my data, the most apparent information comes from school size vs budget. More specifically, smaller schools have better educational outcomes, even with a smaller budget per student. This can be seen when comparing the larger, Figueroa High School to the smaller, Holden High School. Figueroa High School budgets approximately $639.00 per student, whereas Holden High School budgets $581 per student; however, despite budgeting more money per student, Figueroa High School only has an overall passing rate of 53.20%, while Holden High School has an overall passing rate of about 89.23%. Clearly, smaller schools are able to achieve a higher overall passing rate, despite budgeting less money per student.

  Additionally, when comparing school types (Charter vs District High Schools), there is a noticeable difference in the categories of "Average Math Score", "Average Reading Score", "% Passing Math", "% Passing Reading", and "Overall Passing." For example, Charter Schools have around a 90.43% overall passing rate, whereas District Schools have around a 53.67% overall passing rate. This is a pretty dramatic difference that leads me to conclude that Charter Schools are the better option for students to do better in math, reading, and to ultimately, achieve a passing grade in these classes.

  My recommendation would be to either increase the number of charter schools or to increase the number of district schools so that there are less "large" high schools and more "small" high schools. My data reflects that both charter schools and smaller/medium sized schools have better overall passing rates, so I would advocate for the promotion of these types of institutions, with less support of larger district schools, as they are evidently not able to ensure a high level of academic achievement.

Draw 2 correct conclusions/comparisons from the calculations:

- Both Holden High School and Pena High School are considered small, charter schools in terms of school size with <1000 students. However, Holden High School has a school budget of $248,087.00, whereas Pena High School's school budget is $585,858.00. Considering the differences in school budget, it is interesting to compare the similarities in average math and reading scores. Holden High School has an average math score of about 83.80 and an average reading score of about 83.81, whereas Pena High School has an average math score of around 83.84 and an average reading score of about 84.04. That being said, I can conclude that both Holden High School and Pena High School have similar math and reading averages, despite there being a difference of $337,771.00 in school budget.

- When comparing school sizes, I observed that small and medium high schools exceed the academic achievements of larger high schools. For example, both small and medium schools demonstrate that their approximate rates of students passing math are 93%, while their approximate rates of students passing reading are 96%. Alternatively, larger schools, have only about 69.96% of students passing math and about 82.77% of students passing reading. It's evident that larger schools are not able to compete with the academic achievement of students in small and medium sized schools.