Pandas Assignment

Summarise the Analysis

**Schools Summary**

The analysis focused on key metrics related to school performance and student outcomes. The following are key findings based on the School Summary Data:

**School Performance**

The dataset encompasses schools of two types, Government and Independent.

The total number of students varies across schools, ranging from 427 to 4976 students.

Budget details reveal varying financial allocations for schools, affecting per-student budgets.

Average math scores range from approximately 68.70 to 72.58, with similar variations observed in average reading scores.

**Math and Reading Pass Rates**

Schools exhibit differences in the percentage of students passing math and reading, with varying rates across institutions.

**Overall Passing Rates**

The overall passing rates, accounting for both math and reading, range from 66.36% to 81.34%, showcasing disparities in the effectiveness of different schools.

**Budget and Performance**

While schools have different budgets, the per-student budget varies, potentially influencing academic outcomes.

**Top Performing Schools Summary (By % Overall Passing)**

The Top Performing schools include both Independent (e.g., Griffin, Cabrera, Wright) and Government (e.g., Bailey, Rodriguez) types.

Total students vary, with the largest school having 4,976 students (Bailey High School) and the smallest having 1,468 students (Griffin High School).

Budget allocations differ, with Government schools generally having larger budgets.

**Academic Performance**

Average math scores range from 71.65 to 72.35, indicating relatively consistent performance across the selected schools.

Average reading scores also show consistency, with a range from 70.97 to 71.36.

**Math and Reading Pass Rates**

Schools exhibit high math and reading pass rates, with percentages ranging from 90.85% to 91.78% for math and 86.67% to 89.07% for reading.

**Overall Passing Rates**

Overall passing rates, considering both math and reading, vary from 79.42% to 81.34%.

**Budget and Performance**

Per-student budgets vary among the selected schools.

**Correlation between Budget and Performance**

Further analysis is recommended to understand the correlation between school budgets and overall passing rates in this specific subset.

**Considerations**

Despite differences in budgets and school types, the selected schools generally demonstrate strong academic performance.

**Bottom Performing Schools Summary (By % Overall Passing)**

The following schools exhibit lower overall passing rates, suggesting challenges in academic outcomes:

Hernandez High School (Government)

Huang High School (Government)

Johnson High School (Government)

Wilson High School (Independent)

Ford High School (Government)

**Academic Performance**

Average math scores range from approximately 68.84 to 69.17, indicating consistent but lower performance.

Average reading scores vary from around 68.91 to 69.57.

**Math and Reading Pass Rates**

The bottom performing schools have lower pass rates for both math and reading compared to higher-performing schools.

**Overall Passing Rates**

Overall passing rates for these schools range from 66.36% to 67.47%, indicating a need for improvement.

**Budget and Performance**

Per-student budgets vary among the identified schools, suggesting a potential area for further investigation.

**Reading and Maths Scores by year for each School**

**Reading Scores**

Cabrera High School generally maintains consistently high reading scores across all years.

Figueroa High School experiences a decline in reading scores from Year 9 to Year 11 but shows a slight improvement in Year 12.

Other schools exhibit variations that may require further investigation.

**Math Scores**

Bailey High School and Griffin High School show relatively stable math scores across all years.

Hernandez High School experiences a decline in math scores over the four years.

Wilson High School shows consistent performance in math scores.

**Scores by School Spending**

Schools in the lowest spending range (<$585) have a relatively high overall passing rate, driven by strong performance in both math and reading.

As per-student spending increases, there is a general trend of higher average scores and passing rates, suggesting a positive correlation between spending and academic outcomes.

The highest spending range ($645-680) shows a decrease in overall passing rates, indicating that extremely high spending may not guarantee better performance.

**Scores by School Size**

Small Schools (<1000):

Exhibit the highest overall passing rate, driven by strong performance in both math and reading.

Benefit from a higher percentage of students passing math and reading.

Medium Schools (1000-2000):

Show solid academic performance with balanced average scores and passing rates.

Large Schools (2000-5000):

Experience a decrease in overall passing rates compared to smaller schools.

Demonstrate slightly lower average scores and passing rates, indicating potential challenges in larger educational environments.

**Scores by School Type**

Government Schools, show lower average scores and passing rates compared to Independent schools.

Despite this, they maintain a respectable overall passing rate.

Independent Schools, demonstrate higher average scores and passing rates in both math and reading.

Exhibit a notably higher overall passing rate, indicating strong academic performance.

**Draw two Conclusions from the Calculations**

1. As per-student spending increases, there is a general trend of higher average scores and passing rates, suggesting a positive correlation between spending and academic outcomes.
2. Independent Schools, demonstrate higher average scores and passing rates in both math and reading.

Exhibit a notably higher overall passing rate, indicating strong academic performance.