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Data Bootcamp

**Written Report**

**Summary:**

The analysis used data on the fifteen schools in the PyCity school district to compare the performance of schools based on various factors such as school type, school size, and school budget. The analysis revealed that smaller and medium-sized schools tend to perform better than larger schools in terms of student achievement. Additionally, schools with higher budgets per student did not necessarily perform better than those with lower budgets.

The analysis also looked at the overall district performance, which showed an average math score of 78.9 and an average reading score of 81.9. The percentage of students passing math was 74.8%, while the percentage passing reading was 85.7%. The overall passing percentage was 64.9%.

Overall, the analysis provides insights into the factors that impact student achievement in the PyCity school district and highlights areas where improvements could be made to enhance student performance.

Two Conclusions:

1. Scores by School Spending - The most interesting observation I could derive from this data is the results of the Scores by School Spending DataFrame. Anecdotally, higher student spending per capita supposably leads to better scores. More funds should potentially allow students access to more resources, better facilities, or other tools to help further their education. The averages shown below seem to prove the opposite of that in this instance. The schools that spend below $585 per student are the ones that have the highest scoring students in average math and reading scores, as well as a higher percentage of passing students in those courses as well as overall passing rate. Meanwhile, the schools with the highest spending per student seemingly have the lowest scores across the board.

|  | **Average Math Score** | **Average Reading Score** | **% Passing Math** | **% Passing Reading** | **% Overall Passing** |
| --- | --- | --- | --- | --- | --- |
| **Spending Ranges (Per Student)** |  |  |  |  |  |
| **<$585** | 83.455399 | 83.933814 | 90.369459 | 90.369459 | 90.369459 |
| **$585-630** | 81.899826 | 83.155286 | 87.133538 | 92.718205 | 81.418596 |
| **$630-645** | 78.518855 | 81.624473 | 73.484209 | 84.391793 | 62.857656 |
| **$645-680** | 76.997210 | 81.027843 | 66.164813 | 81.133951 | 53.5268 |

1. School By School Size - The information provided in the size\_summary dataframe may prove the idea that smaller schools lead to greater success due to students potentially having more individual focus placed on them by teachers. Students from “Small” and “Medium” sized schools had significantly higher math scores – 83.82 & 83.37 respectively – compared to the “Large” school students who averaged a math score of 77.74. Students from “Small” and “Medium” schools also performed similarly in their Average Reading Score’s while the students from the “Large” schools had an average that was 2.5 points lower than their contemporaries. Regarding passing percentages – % Passing Math, % Passing Reading, & % Overall Passing – the “Small” and “Medium” schools heavily outpaced their “Large” counterparts with a passing rate in math that was over 23% better, 15% in reading, and over 30% in overall passing rate.

While the data seems to show that students benefit from attending a school of < 2,000 students, there is still some more information that would help clarify exactly what led to these score differences. The prevailing thought isn’t necessarily that smaller schools are best for students, more so that smaller class size is the real impetus behind student improvement. So while the smaller schools may have smaller class sizes as they typically do, at the moment that is an assumption without any more information.