**Written Report**

**Analysis Summary**

This assignment consisted of an analysis of data pertaining to the individual performance of students from different schools in math and reading as well as an overall performance of each school. There were comparisons to determine how schools were performing based on the performance of their students.

The first section - District Summary - provided an overall picture of the performance in math and reading with the use of functions like mean() but not without providing demographic data on the amount of schools and students. The mean reading and math scores for the entire district were fairly high at roughly 82 and 79 respectively, which is reflected in the passing rates.

The next section - School Summary - provided the same analysis but per school to provide a more detailed picture of these performances: using set\_index() and groupby(), we were able to analyze all sorts of data from budget to number of students to passing rates per individual school --> this analysis helped then narrow down the top 5 schools and the bottom 5 schools based on said passing rates and math/reading scores. This analysis helped establish which schools are bringing those aforementioned district averages up (Cabrera, Thomas, Griffin, Wilson and Pena) and which ones are bringing those averages down (Rodriguez, Figueroa, Huang, Hernandez and Johnson).

The next few sections - Math/Reading Scores by Grade and Scores by School Spending/Size/Type - provided an additional depth to the analysis by breaking down the performance of each school even further. They allowed us to analyze performance by grade using the groupby() function and to analyze the performance by school spending/size/type using bins, pd.cut() and groupby().

Firstly, the math and reading scores by grade seem to be fairly consistent across the board for all schools, with no major differences between grades at any school. This indicates a level of consistency in the teaching and thus student performance per school.

Secondly, the analysis of schools by spending reveals that spending per capita seems to be between $578-655 despite some large differences in school size (4976 students vs 427 students, for example).

Next, the analysis of schools by size shows higher passing rates and overall performance for schools considered small (<1000).

Finally, analysis by school type reveals much better performance/passing rates for charter schools compared to district schools.

**Two Conclusions**

Firstly, the top 5 schools (Cabrera, Thomas, Griffin, Wilson and Pena) are all charter while the bottom 5 schools (Rodriguez, Figueroa, Huang, Hernandez and Johnson) are all district, indicating some sort of discrepancies in teaching/learning. This analysis is further informed by the breakdown of schools per size, which shows that charter schools have much smaller numbers of students (numbers like 4976 and 4635 students for district vs 427 and 962 students for charter). As such, perhaps it can be said that the discrepancy is rather in the acquisition and distribution of resources rather than faulty teaching/learning in district schools.

Secondly, total budget does not necessarily always reflect performance as certain district schools have over double the budget as certain charter schools with worse performance. This can be explained by the fact that despite this, the difference in numbers at the schools result in very similar per student spending across all schools. Thus, budget alone does not mean greater resources as size is a limiting factor. While charter schools have slightly lower per student spending, they perform better because their resource allocation is better due to the ratio of overall budget to student size. As such, an analysis of overall budget alone as it pertains to performance clearly becomes misleading once school size and per capita spending are taken into account.