Module 4: Python Challenge Report

District summary defines numbers of unique school in the file. Total students, total budget is accounted for all schools accumulated. Average score and passing rate for math and reading are calculated followed by the overall passing rate.

Per school summary defines each school’s type, number of total students, total budget, per student budget, and respective score and passing rate for each school followed by overall passing rate.

Next, it displays top five schools and bottom schools based on their overall passing rate. Based on the first impression of the analysis, we assume that the top five schools are charter schools with relatively lower total students and bottom five schools are district schools with relatively higher total students and lower per-student budget.

The math scores by grade provides average math scores by grade on each school. On the other side, the reading scores by grade provides average math scores by grade on each school.

The scores by School Spending categorize each school by their spending ranges per student. Then a new data frame is made to observe the relationship between spending ranges and scores/passing rate. Based on the observation, the lower spending ranges tend to have lower scores and higher passing rates, which supports the assumption made based on the analysis on top and bottom five schools.

The scores by School Spending categorize schools by their size (number of students). Then a new data frame is made to observe the relationship between school size and scores/passing rate. Based on the observation, small and medium school size seem to have similar score and passing rate, but large school size has significantly lower score and passing rate, which the assumption is partially correct. A new conclusion would be that the school has much higher difficulty to manage when the size of the school grows to a certain extent. The limitation of each school to maintain capability of achieving high passing rate is somewhere between 2000 to 5000 students.

Lastly, the scores by school type categorize schools by their type (charter or district). Then a new data frame is made to observe the relationship between school type and scores/passing rate. Based on the observation, the charter schools tend to have higher score and overall passing rate, which supports the assumption made based on the analysis on top and bottom five schools.