Module 4 Challenge

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## Summary

The data in the PyCitySchools reports is drawn from two CSV files. The “schools\_complete.csv” file contains fifteen schools, their type (District or Charter), student size and total budget. The “students\_complete.csv” file contains individual student test scores in Math and Reading, their grade and their school.

The **district\_summary** DataFrame provides an overview of the data at the district level. Included in this section are the following data points: total number of students, total budget, the average math score, average reading score, and the percentage of total students that got passing scores in Math, Reading, and in both (passing is defined as a score greater than or equal to 70). The **per\_school\_summary** DataFrame breaks down the data points listed in the district\_summary by school. With this table, we are quickly able to see which schools are top performing and which are bottom performing by sorting the “% Overall Passing” column.

The **math\_scores\_by\_grade** and **reading\_scores\_by\_grade** DataFrames show each school’s average math and reading scores broken down by grade level (9th, 10th, 11th, 12th). The **spending\_summary** DataFrame shows average scores and percentage of passing grades broken down by per capita spending ranges (< $585, $585 - 630, $630 - 645, $645 - 680). The **size\_summary** DataFrame provides the same data broken down by school size ranges. In this report, we define large as a school size of 2,000 - 5,000, medium as a size of 1,000 - 2,000 and small as less than 1,000. Lastly, the **type\_summary** DataFrame provides the same data points broken down by School Type (Charter vs District).

## Conclusions

1. Charter schools outperform District schools in percentage of overall passing scores by a significant margin. All Charter schools scored better than District schools. The District school with the highest overall passing percentage was still nearly 35 percentage points lower than the Charter school with the lowest overall passing percentage.
2. Schools that spend less per student (specifically in the ranges of $585-360 or less than $585) have higher average test scores and passing scores than schools that spend more.
3. Large schools (size of 2000-5000) have significantly lower overall passing percentage scores (difference of at least 30 points) versus Medium and Small Schools.
4. It is important to note that Math test scores contribute the most to the difference in % Overall Passing numbers. Reading scores only have around a 2 point difference when factoring spending per capita or school type or school size.