# Module 4 Challenge

As described in the challenge, we have been asked to analyze the district-wide standardized test results. There is access to every student's math and reading scores, as well as various information on the schools they attend. In the code we have to aggregate the data to showcase obvious trends in school performance. The code also shows the results for various data points outlined below which highlights insights into the academic performance and resource allocation across schools within the district, enabling stakeholders to formulate informed decisions and strategies for educational advancement.

**Analysis of the district summary:**

* The analysis reveals that there are 15 unique schools in the district, with a total student population of 39,170.
* The district's total budget is $24,649,428 with an average math score of 78.99 and an average reading score of 81.88.
* The percentage of students passing math stands at 74.98%, while 85.81% of students pass reading. The overall passing rate, considering both math and reading, is 65.17%.

### **Analysis of the school summary:**

* Detailed school-level metrics include school type, total students, total school budget, per student budget, average math and reading scores, as well as the percentage of students passing math, reading, and both subjects.

### **Analysis of the top and bottom performing schools:**

* The top performing schools, based on overall passing percentage, include Cabrera High School and Thomas High School.
* In addition, the analysis also covered the bottom performing schools, by overall passing percentage as well.

### **Analysis of the math and reading scores by grade:**

* The analysis breaks down average math and reading scores by grade level (9th, 10th, 11th, 12th) across all schools.
* As mentioned above, Cabrera High School and Thomas High School have the top performing students relatively consistently across all grades.

### **Analysis of the scores by school spending:**

* Schools are categorized based on average spending per student, with corresponding metrics such as average math and reading scores, as well as passing rates.

### **Analysis of the scores by school size & type:**

* Performance metrics are delineated by school size categories: small, medium, and large.
* Analysis discerns school performance distinctions between charter and district schools, encompassing average scores and passing rates.

**Analysis of observable trends**

* As outlined in the “Scores by School Type”, the initial trend shows that Charter schools seemed to outperform District schools across all metrics including Average Math Score, Average Reading Score, % Passing Math, % Passing Reading, % Overall Passing. Charter schools are publicly funded and operate independently from their local district.
* When correlating this with the “Highest-Performing Schools”, both Cabrera High School and Thomas High School have the top performing students consistently.
* Considering that “Scores by School Size” shows that these two schools have less of the overall student size (medium) in comparison to other bottom performing schools (large), this may indicate that there is more focused attention given to the students in these schools. This additional focus in smaller student size may result in a culture of performance and successful outcomes.
* In contrast, “Bottom Performing Schools” shows that both Rodriguez High School & Figueroa High School are the bottom performing schools, which are on the higher end of the student size (shown as large in “Scores by School Size”). This again may indicate that in district schools, there may be less focus for these students which results in lower performance.
* It’s also worth noting that the bottom performing schools have a higher school budget and spending ranges (per student), and while this is likely attributed to the larger student size, the board may want to consider re-allocating the funding towards smaller student size (possibly even charter) schools as this approach may potentially provide better success outcomes as a follow up to this report.