Data Analytics and Visualization Boot Camp

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Module 4 Challenge – Pandas Challenge

- Two sets of databases, one for students and one for schools, were merged to create a single database for analysis.
- A general analysis of the district's data was conducted, which included obtaining the Total Schools, Total Students, Total Budget, Average Math Score, Average Reading Score, %Passing Math, % Passing Reading, and % Overall Passing. From this table is important to note that there is a total of 15 schools in the district, with 39,170 students, and the district budget a total of $24,649,428.
- A more detailed school summary was prepared for each of the 15 schools, including School Type, Total Students, Total School Budget, Per Student Budget, Average Math Score, Average Reading Score, % Passing Math, % Passing Reading, and % Overall Passing.
- From the school summary analysis is possible to note that The school with the largest student population is Bailey High School, while Holden High School has the lowest student population.
- The average math score for all schools falls within the range of 76 to 84, and the average reading score falls within the range of 80 to 85. The budget per student ranges from $578 to $655.
- The summary table was filtered by the highest and bottom performing (by % overall passing), is noted that Cabrera High School has the highest overall performance (math and reading) with 91% in comparison to Rodriguez High School which has the lowest overall performance (math and reading) with approximately 53%
- The data was filtered by the average of math and reading scores by grade for each school. The average math scores for 9th, 10th, 11th, and 12th graders are consistently close to 80, with the highest average near 81 found in 11th grade. Regarding reading scores, all grade levels (9th through 12th) show an average score very close to 83, indicating better performance in reading.
- An analysis of scores by school spending revealed that the highest average math score (83), average reading score (84), % passing math (93%), % passing reading (97%), and % Overall Passing (90%) are observed in schools with spending per student below $485.

- An analysis of scores by school size showed that large schools with 2000 to 5000 students have the lowest average math scores (78), average reading scores (81), % passing math (67%), % passing reading (83%), and % overall passing (58%). In comparison, small schools (<1000 students) and medium-sized schools (1000 to 2000 students) performed better.
- An analysis of scores by school type indicates that charter schools outperform district schools. For example, charter schools achieve around 90% in % Overall Passing (math & reading), compared to district schools that achieve around 54%. In reading, the average scores are relatively close, with charter schools achieving around 84% and district schools achieving around 81%.