

Module 4 Challenge Report: PyCitySchools Data Analysis

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Purpose: Using Pandas and Jupyter Notebook, create a report that includes district-level, and school-level data involving highest/lowest performing schools, average math/reading scores, and scores based on school size/type.

Summary: After analyzing the district database, we can see at the district level that 65.17% of students are passing (Table 1). Charter schools have an overall passing score of 90% while District schools average around 53.7% (Table 6). When we look at the 'Spending Per Student' at the school level, we can see that there are higher passing rates for smaller budgeted schools (Table 4). Another perspective on that would be the size of the school could impact the amount of funds received per student. For example, small (<1000) and medium (1000-2000) sized schools have a high percentage of students overall passing (~90%), while larger (2000-3000) schools have a significantly low percentage of 58% (Table 5). Based on highest performance, it shows that Charter schools with smaller student population have the best overall scores in the district while district schools' larger total students are the lowest performing (Table 2 & 3). Although the databases showed significant correlations between budget and student size, there is no significant difference between reading and math scores at the grade-level analysis.

Conclusion: Based on the data we can conclude that the size of the student body matters when it comes to its performance, larger schools tend to have a lower overall passing rate compared to smaller schools. In addition, the smaller schools mentioned before, which are Charter schools, tend to have a lower per student budget compared to District schools. Overall, due to student population District schools are obtaining more funds than Charter schools.

Data Summary Tables:

	Total Schools	Total Students	Total Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
0	15	39170	24649428	78.99	81.88	74.98	85.81	65.17

Table 1: District Data Summary

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Cabrera High School	Charter	1858	\$1,081,356.00	\$582.00	83.06	83.98	94.13	97.04	91.33
Thomas High School	Charter	1635	\$1,043,130.00	\$638.00	83.42	83.85	93.27	97.31	90.95
Griffin High School	Charter	1468	\$917,500.00	\$625.00	83.35	83.82	93.39	97.14	90.60
Wilson High School	Charter	2283	\$1,319,574.00	\$578.00	83.27	83.99	93.87	96.54	90.58
Pena High School	Charter	962	\$585,858.00	\$609.00	83.84	84.04	94.59	95.95	90.54

Table 2: Highest Preforming Schools

	School Type	Total Students	Total School Budget	Per Student Budget	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Rodriguez High School	District	3999	\$2,547,363.00	\$637.00	76.84	80.74	66.37	80.22	52.99
Figueroa High School	District	2949	\$1,884,411.00	\$639.00	76.71	81.16	65.99	80.74	53.20
Huang High School	District	2917	\$1,910,635.00	\$655.00	76.63	81.18	65.68	81.32	53.51
Hernandez High School	District	4635	\$3,022,020.00	\$652.00	77.29	80.93	66.75	80.86	53.53
Johnson High School	District	4761	\$3,094,650.00	\$650.00	77.07	80.97	66.06	81.22	53.54

Table 3: Lowest Preforming Schools

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Spending Ranges (Per Student)					
<\$585	83.452500	83.935000	93.460000	96.610000	90.367500
\$585-630	81.900000	83.155000	87.132500	92.717500	81.417500
\$630-645	78.517500	81.625000	73.485000	84.392500	62.857500
\$645-680	76.996667	81.026667	66.163333	81.133333	53.526667

Table 4: Spending Ranges (Per Student) Summary

	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
School Size					
Small (<1000)	83.820	83.92500	93.55000	96.10000	89.885
Medium (1000-2000)	83.374	83.86800	93.59800	96.79000	90.625
Large (2000-5000)	77.745	81.34375	69.96375	82.76625	58.285

Table 5: School Size Summary

School Type	Average Math Score	Average Reading Score	% Passing Math	% Passing Reading	% Overall Passing
Charter	83.472500	83.897500	93.620000	96.586250	90.431250
District	76.955714	80.965714	66.548571	80.798571	53.671429

Table 6: School Type Summary