**City School Analysis**

**Module 4**

**pandas-challenge**

**Summary:**In this report we analyze student and school district data from different city school datasets. We manipulate this data to discover key insights about the school district under analysis. From the data we’re given, let’s see if we can excavate some truth behind it. Does the size of the school influence passing grade percentages? Do charter vs district schools vary in any meaningful way? In what scenarios are students failing at a greater rate?

**Findings:**

The first thing to do with our datasets was to combine them. We turned all the data we were given into a data frame, ran analysis, and added new column fields based off our calculations. See the image below for an analysis between student details and school success rate per school.

A screenshot of a computer screen

Description automatically generated

After connecting the pieces and organizing our data, it was time to get to analyzing. We built a series of functions to calculate hidden values in the data (number of students per school, passing scores percentages, budgets per school, etc.) Given these functions and our data frame featured above, we were able to breakdown our data further to achieve deeper analysis.

Let’s investigate how school size can affect passing grades. Here, in the image below, we tallied the total number of students per school and sorted the grading metrics based on size from small to large. And to no surprise, larger schools had a much lower passing rate than medium and small schools. And this makes sense, because with smaller schools you have smaller classes, and smaller classes means more meaningful time with professors and the class curriculum. The data supports this concept.

A screenshot of a graph

Description automatically generated

Now let’s look at charter vs district schools and see if there’s anything that sticks out. We don’t know for certain whether charter or district schools fall in a larger or smaller school size category. Although charter schools are typically smaller, we can’t assume that in this report. So, let’s analyze passing grade percentages between charter and district schools directly. In the image below, we have a datasheet comparing math and reading score averages and passing percentages between the two school types. Notice anything drastic? Look at the lopsided numbers when it comes to overall passing percentages…

**A screenshot of a score

Description automatically generated**

**Conclusion:**

In conclusion, we’ve discovered that charter schools have a much higher passing percentage from students overall than district schools. In fact, it’s not even close, as charter schools have nearly a 40% chance of passing (90.4%) vs district school students (54.7%). In addition, charter schools are typically smaller than public district schools. And our data shows that medium-small sized schools typically have passing scores in the ~90th percentile, whereas large schools (2000-5000 students) have a meager 60% passing rate. Therefore, we can conclude that charter schools have a higher success rate than district schools. And although this may not be true in every case, the data certainly does not lie.