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Written Report for Module 4 Assignment

In this assignment we were tasked with analyzing, merging, and parsing two CSV files with data containing information about a Colorado district and the schools in its makeup. The initial analysis was creating a data frame to contain the whole macro data for the district in one snapshot giving us a total number of schools of 15, with nearly 40k students and almost $25 million in total budget. However, at this macro level we don’t really get to see much of the underlying data and the effects of different factors on each school, and it average grades. That is where the next fit of analysis comes in when we parsed to data frame to each school level and from there further analysis could take place, such as finding the top 5 performing schools all of which being charter schools with each having 90% passing rates for both math and reading. We were then able to look at the tail of this data frame and see the bottom 5 schools, all with larger total students, district type schools and far lower passing rates of roughly 53%. Some of the best analysis gleaned from this data comes from further separation and binning of average scores based off of school sizes, when 3 separate bins are set up for small, medium and large schools it becomes evident that the small and medium school have better rates of passing their students and higher average scores in math and reading, both being roughly equal in each column. While the large schools 2000-5000 have lower rates of passing grades at roughly 58% of students passing both subjects compared to small and medium schools sitting roughly at 90%, a massive difference likely attributed to lack of individual ability to seek help on each subject because of larger class and student body sizes. Another piece of interesting information is the discrepancy in scores based off of school type, with charter schools having a much larger percent of students passing each subject as well as slightly higher average scores in each subject, the difference between charter and district schools sets at 90% passing both in charter schools while 53% are passing both in district schools. This is likely due to higher standards of academics and teaching in charter schools which generally have much smaller school population sizes, making individual academic success more likely with more fine tunned learning opportunities.