**Laurie Walker Pandas Homework- Py\_City\_Schools Analysis**

The Py\_City\_Schools challenge data set is large, and provides rich data to analyse school performance in a single city district.

Three trends that are immediately noticeable, and provide an interesting starting point for further analysis and public policy discussion. These trends are:

1. **Outperformance of district public schools by private charter schools.**

When analysing our sample of 15 schools, it is striking that that the top five high schools (as measured by the percentage of students which pass both reading and mathematics) are all charter schools, whilst the lowest scoring schools are all district schools. This is also supported by the analysis performed in the last results table, Scores by School Type which shows a massive difference in the proportion of students passing both maths and reading between district and charter high schools.

1. **Negative correlation between school spending and student outcomes**

This is based on a very simple analysis, comparing average student scores and student pass rates for reading and mathematics per school, against the per student spending bracket of that schools. When looking at the results table of Scores by School Spending, it seems that student scores decline when schools move into the higher spending brackets. To establish a robust negative correlation between school spending and outcomes, we would have to perform a linear regression, and properly account for all variables present in our dataset (for instance schools with higher per student spending may also include schools for students with special needs). Furthermore, our dataset (n=15) is too small to make any real statistical inferences. Nonetheless, the apparent negative relationship is counter-intuitive (governments tend to believe that spending more money fixes everything), and worthy of further analysis.

1. **School size and student results**

Finally, when examining the scores by school size, there is a remarkable decrease in student performance between the Medium (1000-2000 students) and Large (2000+) size schools, as measured by the percentage of students passing both subjects. Whilst this is not necessarily surprising, a more granular analysis may be worthwhile to examine the trade-offs (if any) between economies of scale at larger schools, versus poorer student outcomes.