**Module 4 Pandas Challenge, Analysis, by Rebecca Butcher**

This PyCitySchools pandas challenge dataset included 15 schools with a total of 39 170 students. The total school budget for this local government area is $ 24 649 428, the per\_school\_summary data frame illustrates the budget breakdown per school and further down we have a dataframe showing the spending per student which interestingly showed that the less money spend on students the better the percentage passing maths and reading scores. The highest percentage passing overall (79.8%) was in the budget per student bracket of $585-630.

The average reading score is 69 and the average maths score is 70. The percentage passing maths (86%) is higher than the percentage passing reading (84%), indicating that students perform better in maths than reading. Though if we were to perform some statistics on this data the difference in percentages may or may not be significant. This data would seem to illustrate that in this LGA area, school prioritises maths over reading. An overall passing percentage of 72% does seem low.

The school summary findings showed that spending was higher in government schools per student compared to independent schools. The top performing school is Griffin High school which is an independent school, it has 1468 students with a budget per student of $625, with a total budget of $ 917 500. Percentage passing maths was high at 91% and percentage passing reading at 88% with the highest overall passing percentage of 81%. This table also illustrates that Government schools have more students than Independent schools. This could be due to demographics or geographical factors.

The lowest performing school was a Government school, Hernandez High School. The school has 4635 students and a per student budget of $652.00, with a total school budget of $3 022 020.00. The average passing reading was 81% and average passing maths was 80% with an overall passing rate of 66%. Its interesting that the Independent school has a slightly smaller budget per student and a smaller total school budget yet the school is performing better than a more resourced Government school.

The maths and reading scores for all schools are reasonably consistent across years 9 – 12. Holden High School year 10 students hold the highest average maths score (75). Holden High School year 11 students also has the highest average reading score (73).

It is rather unusual that as the budget per student increases the student performance (average maths score, average reading score, percentage passing maths, percentage passing reading and the overall passing) decreases. This would indicate that student performance is not governed by the amount spent on the student. So we could infer that quality of education is not cost dependent. This outcome could lead to further investigations into the motivation for academic performance.

We could infer that as school size increases student performance decreases as shown in the top and bottom performing schools. This would be a good metric for State and Local Governments to focus on – reducing or managing school student numbers.

From this dataset it is clear that the number of students per school rather than the budget per student that is ultimately influencing student performance.