# Module 4 Challenge: Pandas DataFrames

Data on student demographics and standardised test scores from 15 different schools from the district were analysed. Insights derived from this investigation can help to support future decisions on school budgets and priorities.

## Summary of Analysis

A total of 8 summary tables were generated from our initial sample of students. These can be retrieved as dataframes from Pandas. The call names of each dataframe are in red if to facilitate extraction.

Below is a brief description of each of these tables:

1. Local Government Area Summary (area\_summary)
2. Provides an overview of the district’s performance.
3. A total of $24,649,428 was spent by all 25 schools in our district during the period in which the data was collected.
4. Close to 3 out of 4 students in our district are passing both their Maths and Reading tests.
5. School Summary (per\_school\_summary)
   1. There were 7 Government and 8 Independent schools in our district.
   2. The highest % Overall Passing rate was 81.34%.
   3. The lowest % Overall Passing rate was 66.36%
6. Highest-Performing Schools (top\_schools)
   1. 3 Independent Schools and 2 Government Schools were in the top 5 rankings based on % Overall Passing rate.
7. Lowest-Performing Schools(bottom\_schools)
   1. 1 Independent Schools and 4 Government Schools were in the top 5 rankings based on % Overall Passing rate.
8. Maths Scores by Year (maths\_scores\_by\_year)
   1. Years 9-12 considered.
   2. Opportunity for further examination of rate of improvement over the years per school
9. Reading Scores by Year (reading\_scores\_by\_year)
   1. Years 9-12 considered.
   2. Opportunity for further examination of rate of improvement over the years per school
10. Scores by School Spending (spending\_summary)
    1. Schools within the $585-630 range for Per Student Budget had the highest % Overall Passing Rate.
    2. Opportunity for further examination of rate of improvement over the years per school.
11. Scores by School Size (size\_summary)
    1. Small schools with enrolments of less than a thousand students had the highest %Overall Passing.
    2. These schools also had the highest % pass rates for Maths and Reading as well as average schools for those two subjects.

## Key Conclusions from Data

There is substantial evidence that School Size has a considerable influence on student performance. From the ‘size\_summary’ table, schools that had less than a thousand enrolments outperformed their peers on all noted metrics.

Furthermore, based on the ‘spending\_summary’, it seems that having the highest per student budget did not have a considerable effect on their academic performance. Of note, schools that had the highest range of per student budget ($645-680) had the lowest % Overall Passing (66.76%) as compared to other schools. Schools that had a relative moderate budget per student of $585-630 performed the best across all the metrics.