# **Module: Pandas and Jupyter:**

## **Introduction:**

This report presents a comprehensive analysis of student performance, school budget dynamics, and the effective utilization of data using Pandas. The dataset, sourced from PyCitySchool data, encompasses math and reading scores across 15 diverse schools with varying student populations. Through this analysis, we aim to gain insights into academic trends, budget allocations, and the impact of school size and type on student outcomes.

### **1. Student Performance Analysis:**

* The data reveals that the average reading score across all grades is 72, while the average math score is 65.
* Notably, grade 9 students exhibit slightly lower performance compared to the overall average, with a reading score of 69 and a math score of 67.
* A positive trend is observed in reading proficiency as students progress to grades 11 and 12, with the combined average reading score reaching 75.

### **2. School Budget Analysis:**

* An examination of school budgets indicates that charter schools, on average, operate with a slightly lower budget of $872,626, compared to public schools, which have an average budget of $911,196.

### **3. Math Performance Comparison:**

* The analysis further highlights disparities in math performance between public and charter schools. While charter schools demonstrate higher average math scores from grades 9 to 11, public schools surpass charter schools in grade 12, with an average math score of 64 compared to 60.

### **4. Utilization of Data:**

* Through the use of Pandas, we accessed and manipulated the dataset to derive valuable insights. This enabled us to compare average math and reading scores across different grades, school sizes, and types.
* Noteworthy observations include consistent math and reading scores among grades 9 to 12 within each school.
* Furthermore, the data allowed us to identify significant differences in overall passing scores between schools with student populations under 2000 compared to larger schools.

## **Conclusion:**

The analysis underscores the importance of leveraging data analytics tools like Pandas to uncover meaningful insights that inform decision-making in education.

Charter schools emerge as top performers, with medium-sized schools exhibiting superior outcomes despite smaller funding.

Conversely, district schools with larger student populations and budgets demonstrate lower performance compared to charter schools.

Moving forward, a deeper investigation into the factors driving these disparities is warranted to optimize resource allocation and enhance student success across all schools.

This report offers valuable insights into student performance, budget dynamics, and the strategic utilization of data, paving the way for informed interventions and improvements in educational outcomes.