## Research Question 1: Data Summarization and Descriptive Statistics

* **Variables**: Key demographic or outcome variables in the CSCS dataset (ex. age, income level, education, specific scores).
* **Analysis**: Summarize measures of central tendency and variability for chosen variables, calculating means, medians, standard deviations, and generating frequency distributions.
* **Possible Results**: Could reveal demographic group differences or illustrate score distributions across categories.
* **Relevance**: Provides foundational data distribution knowledge, guiding further analysis by identifying patterns and outliers that may need in-depth exploration.

## Research Question 2: Confidence Intervals and Hypothesis Testing

* **Variables**: Performance metrics or scores by specific subgroups (ex. education level or income bracket).
* **Analysis**: Calculate confidence intervals for subgroup means to explore variability, followed by hypothesis testing (ex. t-tests) to assess if differences between subgroups are statistically significant.
* **Possible Results**: May indicate significant differences across subgroups, highlighting potential demographic or socioeconomic impacts on performance.
* **Relevance**: Helps explore data equity or disparities, relevant for understanding accessibility or outcome-based objectives.

## Research Question 3: Simple Linear Regression

* **Variables**: Choose a predictor and outcome variable (ex. income level predicting test scores or academic performance).
* **Analysis**: Conduct simple linear regression to examine the relationship between the predictor and outcome. Analyze the regression coefficient and p-value for significance.
* **Possible Results**: Potentially reveals significant positive or negative correlations, showing how predictor changes might impact performance.
* **Relevance**: Offers insights into potential causal relationships, essential for formulating recommendations or interventions grounded in dataset findings.