

## # Assignment: Reusable Student Analytics Module

You are building a Python utility module that can be reused by:

- \* School management systems
- \* Online learning platforms
- \* Data analysis pipelines

This module will analyze student scores and provide statistical insights that other programs can reuse.

Your task is to create reusable functions to compute:

- \* Mean
- \* Variance
- \* Standard Deviation

---

## Given Data

student\_scores = [78, 85, 62, 90, 88, 76, 95, 89, 70]

## ## Tasks to Complete

### ### Task 1: Create a function to calculate Mean

- \* Function name: `calculate\_mean`

- \* Input: list of numbers

- \* Output: mean value

### ### Task 2: Create a function to calculate Variance

- \* Function name: `calculate\_variance`

- \* Use the mean function inside it

- \* Formula (HINT):

$$\text{variance} = \text{sum}((x - \text{mean})^2) / n$$

### ### Task 3: Create a function to calculate Standard Deviation

- \* Function name: `calculate\_standard\_deviation`

- \* Use the variance function inside it

- \* Formula (HINT):  $\text{std\_dev} = \text{square root of variance}$

$$\text{std\_dev} = \sqrt{\text{variance}}$$

### ### Task 4: Display Results

Print:

- \* Mean

- \* Variance

- \* Standard Deviation

## Expected Output (Approximate)

**Mean Score: 81.44**

**Variance: 103.36**

**Standard Deviation: 10.17**

## Bonus Challenge (Optional)

1. Round all outputs to 2 decimal places
2. Add a function `analyze\_scores()` that calls all three functions and prints the report