# CSE108 – Computer Programming Lab.

# Lab 6

# Function Pointers and Array Manipulation

# 11/04/2025

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**Part 1.** (60 pts) Write a program that includes a function named applyFunction. This function should take two parameters: an integer array, and a function pointer. Inside applyFunction, the passed-in function should be called using the array, and the result should be returned. Assume that the array size is 10 and take the integer numbers from the user.

You should also write the following functions which can be passed to applyFunction:

- findRepetitions: Returns the number of sequential repetitions in the array, i.e., the number of times the same element is repeated in consecutive positions:
  **Example**: Let array be 1 1 2 3 5 5 4 4 4
  **Output**: 3
- findMean: returns the sum of the elements in the array
- countEvens: returns the number of even numbers in the array

Your task is to implement applyFunction and also the three functions listed above so they can be used as parameters.

**Part 2.** (40 pts) Now, extend your program by writing a new function named calculateStd that calculates the standard deviation of the elements in the array. Assume that the array size is 5 and take the integer numbers from the user. Use the following formula for the standard deviation:

$$std = sqrt\left(\left(\frac{1}{n}\right) * sum((x_i - mu)^2)\right)$$

Where $x_i$ is the i-th element of the array, $mu$ is the mean (average) of the array, and $n$ is the size of the array.

Example Input / Output:

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Input:

Enter 5 numbers: 1 2 3 4 5

Output:

Standard Deviation: 1.4142
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