# Day 3: Function, Array, and Vector

## 1. Array Manipulation:

- **Concepts:** Arrays, functions, passing arrays by reference, loops
- **Requirements:**
  - Define an array of integers in the main function.
  - Write functions for the following:
    - `findMaxElement` : This function takes an integer array and its size as input and returns the index of the largest element.
    - `reverseArray` : This function takes an integer array and its size as input (pass by reference) and reverses the elements in the array (e.g., [1, 2, 3] becomes [3, 2, 1]).
  - In the main function, call these functions with the defined array and print the results (index of max element and the reversed array).

## 2. Missing Number in Array:

- **Concepts:** Arrays, functions, loops
- **Requirements:**
  - Define an array of integers in the main function, where all elements from 0 to n-1 (n is the size of the array) are present except for one missing number.
  - Write a function `findMissingNumber` that takes the array and its size as input and returns the missing number. (Hint: Use the concept of expected sum).
  - In the main function, call the function and print the missing number.

## 3. Vector Sum and Average:

- **Concepts:** Vectors, iterators, loops
- **Requirements:**
  - Define a vector of integers in the main function.
  - Write functions for the following:
    - `calculateSum` : This function takes a constant reference to a vector of integers and returns the sum of all elements.
    - `calculateAverage` : This function takes a constant reference to a vector of integers and returns the average of all elements (sum divided by the number of elements).
  - In the main function, call these functions with the defined vector and print the sum and average.