CSE 112 : Object Oriented Programming Lab
Lab - 11

Intake 52
Section - 03

May 9, 2024

Lab Tasks

Task 1

- Write a generic function named `findMaximum` that takes an array of the same data type and returns the maximum value.
  - The generic function is designed to work with arrays of any data type.
  - It iterates through the array to find and return the maximum value.
- In the `main()` function, use the generic function to find the maximum of arrays containing integers, doubles, and characters.
  - For integers: `intArray[] = {5, 10, 3, 8, 2}`
  - For doubles: `doubleArray[] = {3.14, 2.718, 1.618, 2.22, 0.99}`
  - For characters: `charArray[] = {'A', 'B', 'Z', 'D', 'C'}`
- Display the results to show the maximum values for each array type.

Task 2

- Create a generic class named `Container` capable of storing elements of any data type.
  - The class utilizes templates to provide flexibility for different data types.
  - Member functions include:
    - `addElement`: Adds elements to the container.
    - `displayElements`: Displays the elements stored in the container.
    - `getSize`: Determines the size of the container.
- In the `main()` function, create objects of the `Container` class for different data types (e.g., `int`, `double`, `char`).
  - Demonstrate the usage of these objects by adding elements, displaying the elements, and finding the size of the containers.

Task 3

- Assume a scenario where a teacher is inputting final marks into the system for students.
  - There is a condition that if the teacher mistakenly inputs a mark greater than 40, an exception is triggered.

- Handle the exception appropriately in the system.
  - If the exception occurs, the system should print the message: "Marks of the final exam cannot be greater than 40."

Task 4

- Write a C++ function that takes two integers as input and performs division.
  - The function attempts to divide the first integer by the second integer.
- Implement exception handling in the function to catch and handle the case where the denominator is zero.
  - If the denominator is zero, an exception is thrown to signal the division by zero error.
- In the `main()` function, call this division function with different inputs to observe the exception handling.
  - Demonstrate how the program gracefully handles the division by zero scenario through the implemented exception handling.