

SOFTWARE TESTING ASSIGNMENT

Practical Exercises

- 1) **Unit Testing: Perform unit testing for a simple "Calculator" class that has methods for addition, subtraction, multiplication, and division. Write test cases for each method and ensure they pass successfully. Provide the code for both the test cases and the Calculator class.**

Unit Testing:

Unit testing is a software testing technique that focuses on evaluating individual units or components of a software application in isolation. A "unit" in this context typically refers to the smallest testable part of a software program, such as a function, method, or class. The main purpose of unit testing is to ensure that each unit of the code works as expected and that it performs its specific function correctly. It is done during the coding phase by the developers. To perform unit testing, a developer writes a piece of code (unit tests) to verify the code to be tested (unit) is correct.

Test Cases:

a) Test Cases on addition:

- [1] Verify that the addition function correctly adds two positive integers.
- [2] Verify that the addition function correctly adds two negative integers.
- [3] Verify that the addition function handles the addition of a positive and a negative integer correctly.
- [4] Verify that adding zero to a number returns the original number.
- [5] Verify that the addition function handles floating-point numbers correctly.
- [6] Test the addition of two large numbers to ensure that it doesn't result in overflow or precision issues.

b) Test Cases on subtraction:

- [1] Verify that the subtraction function correctly subtracts one positive integer.
- [2] Ensure that the subtraction function correctly handles the subtraction of one negative integer from another.
- [3] Verify that the subtraction function correctly handles the subtraction of a positive integer from a negative integer.
- [4] Verify that subtracting zero from a number returns the original number.
- [5] Verify that the subtraction function correctly handles floating-point numbers.