**Prog985a**

**(Calculator Unit Testing)**

**Program Description:** Develop a basic calculator application that can perform simple arithmetic operations like addition, subtraction, multiplication, division, and modulus. The focus of this assignment is not only on implementing the functionality but also on writing comprehensive unit tests to ensure the accuracy and reliability of your code.

**Requirements:**

**Functionality:** The calculator should support the following operations: addition, subtraction, multiplication, division, and modulus.

* Each operation should be implemented as a separate function or method.
* The calculator should handle invalid inputs gracefully, without crashing.

**Unit Tests:** Write unit tests for each arithmetic operation.

* Ensure tests cover various scenarios, including normal cases, edge cases, and potential error cases (like division by zero; e.g., see ‘assertRaises’ in Python).
* Each test should assert that the output of the operation is as expected.
* You should have at least 15 unit tests – three for each function.

**Data Location:** unit tests (see next page)

**Sample Output:**

TestCalc.test\_add\_edge\_case: 0.000013

TestCalc.test\_add\_error\_case: 0.000008

TestCalc.test\_add\_normal\_case: 0.000008

TestCalc.test\_div\_edge\_case: 0.000038

TestCalc.test\_div\_error\_case: 0.000008

TestCalc.test\_div\_normal\_case: 0.000008

TestCalc.test\_mod\_edge\_case: 0.000020

TestCalc.test\_mod\_error\_case: 0.000008

TestCalc.test\_mod\_normal\_case: 0.000006

TestCalc.test\_mul\_edge\_case: 0.000011

TestCalc.test\_mul\_error\_case: 0.000006

TestCalc.test\_mul\_normal\_case: 0.000008

TestCalc.test\_sub\_edge\_case: 0.000009

TestCalc.test\_sub\_error\_case: 0.000005

TestCalc.test\_sub\_normal\_case: 0.000005

----------------------------------------------------------------------

Ran 15 tests in 0.002s

OK