SW-A3

Question 1 :

1. Unit testing :

Unit testing is a code testing strategy that breaks down the code into **small components** (functions in most cases) and tests them individually. With the help of unit testing it is easy to debug code and catch any bug which enables us to write **quality and correct code.**

2. Expected output :

It is the output that a program **should produce** for a given input if **correctly designed**. Consider a function `boolean isPalindrome(String str);` It takes a string as input and returns `true` if it is a palindrome . Here, for input string :

- `madam` - expected output is `true` as it is a palindrome .
- `qwerty` - expected output is `false`.

3. Actual output :

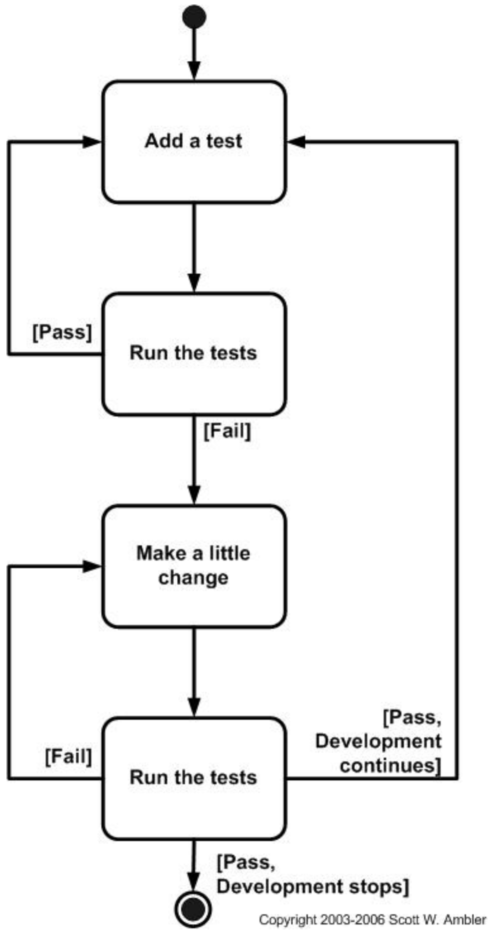
It is the output that a program **produces** when it **runs on** a given input. Consider a function `boolean isPrime(int a);` It takes an integer as input and returns `true` if it is a prime number . Here, for any input number :

- if the program outputs `true` then actual `output is true` else output is `false` regardless of its **correctness.**

4. Test Results :

- **Passed** - If the expected output is **equal to** the actual output the test is passed .
- **Failed** - If the expected output **differs from** actual output the test is failed.

Question 2:



Add a test
Run the tests
[Pass]
[Fail]
Make a little change
Run the tests
[Fail]
[Pass, Development continues]
[Pass, Development stops]
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- The first step is to quickly add a test, basically just enough code to fail.
- Next you run your tests, often the complete test suite although for sake of speed you may decide to run only a subset, to ensure that the new test does in fact fail.
- You then update your functional code to make it pass the new tests. The fourth step is to run your tests again.
- If they fail you need to update your functional code and retest.
- Once the tests pass the next step is to start over (you may first need to refactor any duplication out of your design as needed, turning TFD into TDD).