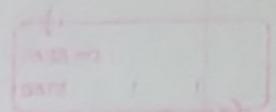


# Assignment No 1

Government Polytechnic, Mumbai



Subject:- Software Testing

Course code:- CO16410

Roll No :- SD18C0008

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Q.1

a) Define term software testing

"Software Testing" is a process of evaluating a system by manual or automatic means and verify that it satisfies specified requirements or to identify difference between expected & actual result.

b) Enlist phases of STLC

- Requirement Analysis
- Test Planning
- Test Environment
- Test Case Designing
- Test Execution
- Test Closure

c) Enlist software testing myths

- ① Testing is too expensive
- ② Testing is time consuming
- ③ Only fully developed product are tested
- ④ Complete testing is possible
- ⑤ A tested software is bug free
- ⑥ Anyone can test a software application

d) Classification type of White Box Testing

→ it main two type as follow:

Static T. I

Code inspection

Code Walkthrough

Technical review

Dynamic T. II

Code flow testing

Code coverage testing

Code complexity ty

E) Give Example of positive & negative testing

→ Positive Testing - is type of testing that can be performed on the system by providing valid data also application to check whether it is working as expected. it take valid input.

Ex

Enter only Number -

9999

• Negative Testing : it type testing is a variant of that is can be performed on the system by providing invalid data input.

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## f) Unit Testing :-

The unit testing is a type of testing where individual units or components of a S/W are tested.

Unit testing is done during development (coding phase) of an application by the developer.

A unit test may be an individual function, method, procedure, module, or object.

## g) Various Type of Testing

- 1) Unit Testing
- 2) Integration Test
- 3) Regression Test
- 4) Smoke Test
- 5) Alpha ? Test
- 6) Beta Test
- 7) System Test
- 8) Stress Test
- 9) Performance Test.

Q.2)

(a) To Good To Be A Software Tester :-

Here the list of traits that most software tester should have.

1) They are explorers : S.T. aren't afraid to move into unknown situation. They love to get new pieces of SW. Install it on their pc, & see what happen.

2) They are troubleshooters : ST. are good at figuring out why something doesn't work. They love puzzles.

3) They are tenacious / unbroken : ST keep trying. They may see a bug that quickly vanishes or is difficult to recreate. Rather than dismiss it as a chance they will try every way possible find out.

4) They are patient :- ST. aim for perfection, but know when it become unattainable and they are okay with getting as they can.

5) They exercise good judgment :- S.T need to make decisions about what they will test, how long it will take, and if the problem they're looking at really a bug.

6) They are frank & diplomatic :- S.T. are always the person bad news. They have to tell the programmers that their bug is ugly, good. ST. know how to do so fully & professionally or know.

## b) Grey Box Testing

Grey Box Testing is a software testing technique which is a combination of Black Box testing technique & White Box Testing technique.

In Black Testing technique, tester is unknown to the internal structure of them being tested & in White Box Testing the internal structure is known to tester. The internal structure is partially known in Grey Box Testing.

Black Box	+	White Box	=	Grey Box
T. of user req. & func.	+	T. of internal structure	=	T. of user req. & func. + T. of internal structure

### \* Objective of Grey Box testing

- 1) To combine the input of developer as well as testers.
- 2) To improve overall product quality.
- 3) To provide enough free time to developers to fix defects.
- 4) to test from the user point of view rather than a designer point of view.

### \* Advantage

- 1) User & developer have clear goals while doing testing.
- 2) Grey Box testing is mostly done by the user perspective.
- 3) Grey Box testing is non-intrusive.
- 4) Overall quality of the product is improved.

### \* Disadvantage

- 1) Most of the test cases are difficult to design.
- 2) if testing is not suitable for algorithm testing.
- 3) Limited access to internal structure leads to limited access for code path traversal.

Q.3

a) D

**Verification**

1) The verifying process include checking document, design, code, & program.

2) it does not involve executing the code.

3) Verification use method like review, walk-through, inspection, & desk-checking etc.

4) whether the software conforms to specification is checked.

5) It finds bugs early in the development cycle.

6) It finds bugs early in the development cycle.

7) It comes before validation.

**Validation**

1) The validation mechanism of trying to validating the actual product.

2) it always involves executing the code.

3) it uses method like Black Box testing, White Box testing, & non-functional testing.

4) It check whether the SW meets the requirement & expectation of a customer.

5) It can find bugs that the verification process can not catch.

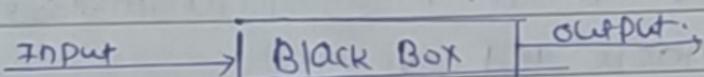
6) It can find bugs that the verification process can not catch.

7) It comes after verification.

### (c) What is Black-Box Testing?

It is defined as a testing technique in which functionality of the Application under test (AUT) is tested without looking at the

- internal code structure
- implementation details
- knowledge of internal path of the software.



### Techniques of Black-Box Testing

1) Requirement Based Testing :- It's testing approach in which test cases, conditions & data are derived from requirement. It includes functional & non-functional attributes such as performance, scalability or usability.

#### Stages in Req.

- Define Test Completing Criteria
- Design Test Cases
- Execute Test
- Verify Test Result
- Verify Test Coverage
- Verify Test Track To managed Defects.

2) Positive Testing :- Positive Testing is type of testing that can be performed on the system by providing the valid data as input:

Ex- Positive Testing mobile No: [123456789] only No.

3) Negative Testing :- It is a variant of testing that can be performed on the system by providing invalid data as input.

Eg. Negative testing mobile no : [ABCD~~E~~F]

(only numbers)

(Mobile number)

4) ~~Equivalence class testing~~ :- It is used to minimize the number of possible test cases to an optimum level while maintaining reasonable test coverage.

Number of possible test cases to an optimum level while maintaining reasonable test coverage.

Ex. Age	(accepts 18 to 50)		
Invalid	Valid	Invalid	
$x = 17$	$18 \text{ to } 50$	$y = 51$	

5) Boundary Value Testing :- It testing is focused on the values at boundaries. This technique determines whether a certain range of values are acceptable by the system or not.

- It is most suitable for the systems where an input is within certain ranges.

Ex. Age	(accepts 18 to 50)		
Invalid (min-1)	Valid (min+1 to max-1)	Invalid (max+1)	
17	18, 19, 49, 51		