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ST Assignment No.-4

Que-1 What are the various levels of testing ? Explain objectives of each level.

Ans-1- There are 4 levels of testing -

i) Unit testing: Here individual units of source code are tested to determine if they are fit for use or not.

The objective is to check the correctness of isolated code.

ii) Integration Testing: Here the previously tested individual modules are combined & tested as a group. The objective is to evaluate the compliance of a system or component with specified functional requirements.

iii) System Testing: - Here the testing is performed on a complete integrated system to evaluate compliance of the system with the corresponding requirements. The objective is to evaluate the end to end system specifications.

iv) Acceptance Testing: Here the testing is done for acceptability. The objective is to evaluate the compliance of the system with business requirements & access whether it is ready for delivery or not.

Que-2- Compare the top down & bottom up integration testing approaches to test a program.

	Top Down Integration	Bottom Up Integration
i)	Integration begins from top to bottom.	Integration begins from bottom to top.
ii)	Higher level modules tested first & then lower ones are tested.	Lower level modules are tested first & then higher ones.
iii)	Stubs are used to simulate the sub-module	Drives are used to simulate the main module.
iv)	Beneficial if error occurs at the top of program	Beneficial if error occurs at bottom of program.
v)	Implemented on structural procedure oriented programming languages.	Implemented on object-oriented programming languages.
vi)	less Complex	More Complex.

Que-3- What is debugging? Discuss two debugging tech?

Ans-3→ Debugging is the process of detecting & removing of existing & potential errors or bugs in a software code that causes it to behave in an unexpected manner. When the bug is fixed it is ready to be used. & this process starts after receiving a failure report.

Debugging techniques:

1) Trial & Error methods: Here the debugging starts after the failure report is received. By experience & intelligence the testers used 'hit & trial' method to locate the bug & find

the solution. It is difficult to used in large programs.

ii) Brute force:- In this approach, memory dumps are taken, run time traces are involved & the program is loaded with print statements, this is done so as to find a else of information which leads to identification & correction of Eg.

Que-4- Discuss the static & dynamic testing with example.

Ans-4- Static Testing:- A method which is performed to cheer the defects in software without actually executing the code of the software.

Dynamic Testing:- Done to analyze the dyamic behaviour of the code, here the whole code is executed & it finds & fixes the errors. Ex:- Validation.

Que-5- What are the popular debugging approaches which one is more popular & why?

Ans-5- There are four approaches.

a) Trial & error method.
b) Backtracking
c) Brute force (most popular because as it is efficient & quick to find the bugs).
d) Cause elimination.

In trial & error, 'use' hit & 'trial' technique to locate bug.

- In backtracking we start where the output is wrong & after its analysis we move backward to code to move corrections

- In brute force we take memory dumps involve run time traces & add print statements to find a due by information produced & correct bugs.

- In cause elimination we create a list of all possible errors & conduct tests to eliminate them.

Que 6- What are non functional requirements stress & load testing.

Ans 6- They are constraints imposed on the system & specify quality attribute of the software. It deals with the issues like scalability, maintainability, performance, portability, security etc.

Stress Testing - It is a form of deliberate intense or through testing used to determine the stability of a given system. It involve testing beyond normal operational capacity often to a breaking point.

Load Testing - It is defined as a type of testing that determines or systems performance under real-life load conditions. It typically improves performance bottleneck scalability & stability of the application before production.

Qu-7- Difference between -

i)

Integration Testing	System Testing
- Here the interface btw inten connected components is checked.	Here the whole system is checked.
- Performed after unit testing.	Performed after integrat-ion testing.
- It is limited to functional aspects of the integrated components.	It is carried out for performing both funct-ional & non-functiond testing.
- Includes black-box testing techniques & white box techniques.	It includes black box testing techniques.

ii)

System Testing	Acceptance Testing
- Done to check whether the soft-wore meets the specified requirements	Done to check whether the software meets customer requirements or not.
- Used by developers as well as tester.	Used by testers & clients.
- It is the constitute of system & integration testing.	It is the constitute of alpha & beta testing
- Done Before acceptance testing	Done after system testing.

iii)

Unit Testing	Integration testing
- Each module of software is tested separately.	All modules are combined & then tested.
- Tester knows about internal design of software.	Tester don't have knowledge of internal design.
- It is performed first of all testing process.	It is performed after unit & before system testing.
- Performed by developer	Performed by tester.
- Detection of defects is easy.	Detection of defects is difficult.

iv)

Testing	Debugging
- It is the process of find bugs & errors.	It is the process to correct the bugs formed.
- It is the process to identify the failure of implemented code.	It is process of absolution of the failure of code.
- Done by Tester	Done by programmer.
- No need of knowledge of design of code.	Proper knowledge of design code required.
- Can be manule or automated	Always manual.

Qu-8- Write short notes on coverage analysis tests, performance testing tools, functional / regression testing tools.

Ans-8- Coverage Analysis tools :- Code coverage analysis is the process of discovering code

within a program that is not being exercised by test cases.

Performance testing tools when we have to measure the load, stability, response time of the application, we require performance testing tools which helps us to test the performance of the software or an application, they can be open source & commercial.
Appache Jmeter, Load Ninja, Webload are some tools.

Functional / regression testing tools :- Regression testing is done to confirm that a recent program or code has not adversely affected existing features.

Regression testing tools helps to carry out regression testing, the test cases can be automated & executed on a schedule basis.

Cloud QA, Winrunner QTP, Watir are some tools.