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SWE-125

Part - B

Ans: to the que: NO - 4

Software testing is intended to show that a software does what it is intended to do to discover program defects before it is put into use. The testing process has two distinct goals:

1) To demonstrate to the developer and the customer that the software meets its requirements.

2) To discover situations in which the behavior of the software is incorrect, undesirable, or does not conform to its specification.

The first goal leads to validation testing, where the software expect to perform correctly using a

given set of test cases that reflect the system's expected use. The second goal leads to defect testing, where test cases are designed to expose defects. The test cases in defect testing can be deliberately obscure and need not reflect how the system is normally used.

Test Software testing cannot demonstrate that the software is free of defects or that it will behave as specific in every circumstance. It is always possible that a test that is overclocked could discover further problems with the system. An Dijkstra eloquently stated -

"Testing can only show the presence of errors, not their absence"

Unit testing:

Unit testing is the process of testing program components such as methods or object classes. Individual functions or methods are the simplest type of components. Test should be calls to these routines with different input parameters.

The purpose of unit testing is to test the correctness of isolated code. A unit component is an individual function or code of the application. Some crucial reasons of unit testing are -

1. Unit testing helps tester and developer to understand the base of code that makes them able to change defect causing code quickly.

2. Unit testing helps in the documentation.

3. It helps with code reusability by migrating code and test case.

Ans to the que NO-5

Software process:

A software process is a collection of activities, actions and tasks that are performed when some work product is to be created. These activities may involve the development of software from scratch in a standard programming language like Java or C.

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In the context of software engineering, a process is not a rigid prescription for the people doing how to build computer software. Rather, it is an adaptable approach that enables the people doing the work to pick and choose the appropriate set of work activities, actions and tasks.

There are many different software process but all must include four activities that are fundamental to software engineering.

- 1] Software specification, implementation and

2] Software design and implementation.

3] Software validation.

4] Software evolution.

Genetic process model:

Some genetic process models are -

1] The waterfall model: This takes the fundamental process activities of specification, development, validation, and evolution and represents them on a separate process phase such as requirements specification, software design, implementation, testing, and so on.

2] Incremental development: This is an approach

which interleaves the activities of specification, development, and validation. The system is developed as a

dition of versions, with each version adding functionality to the previous version.

3] Reuse-oriented software engineering: This approach

is based on existence of a significant number of reusable components. The system development process focus on integrating these components into a system rather than developing them from scratch.

Ans: to the que: No - 6

Software system requirements are often classified as functional requirements or non-functional requirements.

1] Functional requirements: These are statements of what the system should provide, how the system should react to particular inputs and how the system should behave in particular situations. In some cases, the functional requirements may also explicitly state

what the system should not do.

Example of functional requirements are:

1. The software automatically validates customers against the ABC contact management.
2. The sales system should allow users to record customers sales.
3. The background colour for all windows in the application will be blue.
4. Only Managerial level employees have the right to view revenue data.

5.

2) Non-functional requirement: Non-functional requirements

as the name suggests, are requirements that are not directly concerned with the specific services delivered by the system to its users.

They may relate to emergent system properties such as reliability, response time and storage occupancy.

Examples of non-functional requirements:-

1. User must change initially assigned login password immediately after the first successful login.
2. Employee never allowed to update their salary information.
3. Every unsuccessful attempt by a user to access any item of data shall be recorded.
4. A website should be capable enough to handle 20 million users without affecting its performance.
5. The software should be portable.