Assignment No. 1

Submitted By:

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BS (SE)

Subject :

Object Oriented Software Engineering

Question1 : In Software Engineering, there is not a single answer to the question "What should be done first, Coding or Modeling?". Elaborate different scenarios in which all the answers to this questions are justified.

Answer: What should be done first, Coding or Modeling
1) If Coding done First
This is because:
(i) To check whether the coding is possible or not.
(ii) Easy to testing.

2) If modeling done First
(i) In most of the cases it is found suitable because changing the models is quite easy then to change the coding.
(ii) It gives a prototype of the product to the customer, so they can change the product according to his need if he/she wanted to.

Explanation:
What should be done first, Coding or Modeling
1) If Coding done First
This is because:
(i) To check whether the coding is possible or not.
(ii) Easy to testing.
(iii) Generally, the models are more attractive than the actual product so if we create coding first then we create model accordingly.
(iv) Coding can be changed frequently and directly if there are some errors occurred in it. Without changing the models
(v) If there are errors in coding part then we can manage the errors easily and quickly.

2) If modeling done First
(i) In most of the cases it is found suitable because changing the models is quite easy then to change the coding.
(ii) It gives a prototype of the product to the customer, so they can change the product according to his need if he/she wanted to.

(iii) By the help of modeling you can easily cope-up with the requirement engineering.
(iv) It is good for testing and other modules to keep modeling before the coding.
(v) It doesn't effect the actual product.

Question2 : When carrying out Testing of a Software, a number of techniques are used. Why are they so many in number? Name a few popular Testing Techniques in Software Engineering and state the importance of each one.

Answer: We, as testers are aware of the various types of Software Testing such as Functional Testing, Non-Functional Testing, Automation Testing, Agile Testing, and their sub-types, etc.

Each of us would have come across several types of testing in our testing journey. We might have heard some and we might have worked on some, but not everyone has knowledge about all the testing types.

Different Types Of Software Testing

Given below is the list of some common types of Software Testing:

Functional Testing types include:

- Unit Testing
- Integration Testing
- System Testing
- Sanity Testing
- Smoke Testing
- Interface Testing

- Regression Testing
- Beta/Acceptance Testing

Non-functional Testing types include:

- Performance Testing
- Load Testing
- Stress Testing
- Volume Testing
- Security Testing
- Compatibility Testing
- Install Testing
- Recovery Testing
- Reliability Testing
- Usability Testing
- Compliance Testing
- Localization Testing
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#1) Alpha Testing

It is the most common type of testing used in the Software industry. The objective of this testing is to identify all possible issues or defects before releasing it into the market or to the user.

Alpha Testing is carried out at the end of the software development phase but before the Beta Testing. Still, minor design changes may be made as a result of such testing.

Alpha Testing is conducted at the developer's site. In-house virtual user environment can be created for this type of testing.

#2) Acceptance Testing

An Acceptance Test is performed by the client and verifies whether the end to end the flow of the system is as per the business requirements or

not and if it is as per the needs of the end-user. Client accepts the software only when all the features and functionalities work as expected.

It is the last phase of the testing, after which the software goes into production. This is also called User Acceptance Testing (UAT).

#3) Ad-hoc Testing

The name itself suggests that this testing is performed on an Ad-hoc basis i.e. with no reference to the test case and also without any plan or documentation in place for such type of testing.

The objective of this testing is to find the defects and break the application by executing any flow of the application or any random functionality.

Ad-hoc Testing is an informal way of finding defects and can be performed by anyone in the project. It is difficult to identify defects without a test case but sometimes it is possible that defects found during ad-hoc testing might not have been identified using existing test cases.

#4) Accessibility Testing

The aim of Accessibility Testing is to determine whether the software or application is accessible for disabled people or not.

Here, disability means deaf, color blind, mentally disabled, blind, old age and other disabled groups. Various checks are performed such as font size for visually disabled, color and contrast for color blindness, etc.

#5) Beta Testing

Beta Testing is a formal type of Software Testing which is carried out by the customer. It is performed in **the Real Environment** before releasing the product to the market for the actual end-users.

Beta Testing is carried out to ensure that there are no major failures in the software or product and it satisfies the business requirements from an end-user perspective. Beta Testing is successful when the customer accepts the software.

Usually, this testing is typically done by end-users or others. It is the final testing done before releasing an application for commercial purpose. Usually, the Beta version of the software or product released is limited to a certain number of users in a specific area.

So end-user actually uses the software and shares the feedback to the company. Company then takes necessary action before releasing the software to the worldwide.

#6) Back-end Testing

Whenever an input or data is entered on front-end application, it stores in the database and the testing of such database is known as Database Testing or Backend Testing.

There are different databases like SQL Server, MySQL, and Oracle, etc. Database Testing involves testing of table structure, schema, stored procedure, data structure and so on.

In Back-end Testing GUI is not involved, testers are directly connected to the database with proper access and testers can easily verify data by running a few queries on the database.

There can be issues identified like data loss, deadlock, data corruption etc during this back-end testing and these issues are critical to fixing before the system goes live into the production environment

#7) Browser Compatibility Testing

It is a subtype of Compatibility Testing (which is explained below) and is performed by the testing team.

Browser Compatibility Testing is performed for web applications and it ensures that the software can run with the combination of different browser and operating system. This type of testing also validates whether web application runs on all versions of all browsers or not.

#8) Backward Compatibility Testing

It is a type of testing which validates whether the newly developed software or updated software works well with the older version of the environment or not.

Backward Compatibility Testing checks whether the new version of the software works properly with file format created by an older version of the software; it also works well with data tables, data files, data structure created by the older version of that software.

If any of the software is updated then it should work well on top of the previous version of that software.