



## **Sessional Assignment**

**Course Name: OOSE**

**Submitted By:**

Inzamam (12998)

BS (SE) Section: A

**Submitted To:**

Ma'am Sana Jeehan

**Dated: 20<sup>th</sup> June 2020**

**Department of Computer Science,  
IQRA National University, Peshawar Pakistan**

# Object Oriented Software Engineering

## SE - 5<sup>th</sup> Semester

### TERM ASSIGNMENT

#### Question #1 (10 Marks)

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.

#### Question #2 (10 Marks)

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.

#### Instructions for Assignment Submission

1. Write your names and Ids at the top of each paper of answer sheet.
2. Scan / Take Photo of each paper and save each photo with a number. E.g. photo of page 1 of answer sheet be saved with name 1.jpg, then 2.jpg and so on.
3. Put all answer photos in a folder, name the folder with your Roll Number, Name and Subject Name, e.g. “11512 - Sanaa Jeehan - OOSE”. Alternately, you can also make a PDF file of all the pictures and name it as explained.
4. Zip the folder and upload.

### **Question #1:**

Both modeling and coding are very important in software engineering. Mostly modeling is done first because it makes it easier for the coders to code when they know the model of the project they are working on. The more complex your project, the more likely it is that you will fail or that you will build the wrong thing if you do on modeling at all. But sometimes coding is done first because of shortage in time. Doing coding first may result in many errors and failures as we don't have a clear visual of the system. Following are some scenarios for both situations:

#### **Project scenario in which modeling comes first:**

1. When a software house is given a big project to make software for an organization, they will do modeling first after gathering the requirements from the client because modeling can help the development team better visualize the plan of the system that is required and allow them to develop more rapidly by helping them build the right thing. After that the software engineer will start coding by following the models given to them.
2. When a software house is making a project for an organization, first the team will make a model of that specific project and will check out that how that organization used to work? Why they need the software for their organization? In general, the team will gather all the information about requirements to make a better image and ease to their task. After the team gets into the big picture, they will divide specific jobs for specific developers, that will help to manage the time and resources.

#### **Project scenario in which coding comes first:**

1. Consider a client, who wants urgent software for his organization, he wants the software house to build the software in short amount of time. The software house will collect the requirements from the client and will start coding directly as they will have short amount of time to complete their project. Then they will deploy the software into the client's system.
2. Sometimes in universities when a project deadline is near to close and the students are very late, they do not have much time for modeling their project. What they do, they start the coding phase without modeling and when ever they proceed in different phases, they model it as a task has been accomplished. After the project completion, they build model of their project in order to inform the teachers and supervisors.

## **Question #2:**

- **Why so many Software Testing techniques:**

There are so many software testing techniques because they're required to point out the defects and errors that were made during the development phases. Software Testing is necessary because we all make mistakes. Some of those mistakes are unimportant, but some of them are expensive or dangerous. We need to check everything and anything we produce because things can always go wrong. It's essential since it makes sure that the customer finds the organization reliable and their satisfaction in the application is maintained. It is very important to ensure the Quality of the product. Quality product delivered to the customers helps in gaining their confidence. It's important to ensure that the application should not result into any failures because it can be very expensive in the future or in the later stages of the development.

- **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).

- **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.

- **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

- **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.

- **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.

- **Boundary Value Testing:**

This type of testing checks the behavior of the application at the boundary level.

Boundary Value Testing is performed for checking if defects exist at boundary values. Boundary Value Testing is used for testing a different range of numbers. There is an upper and lower boundary for each range and testing is performed on these boundary values.

If testing requires a test range of numbers from 1 to 500 then Boundary Value Testing is performed on values at 0, 1, 2, 499, 500 and 501.