Final Exam

Course Name: Object Oriented Software Engineering

Submitted By:

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BS (SE-8) Section: A

Submitted To:

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Dated: 29th June 2020

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SEC302 - Object Oriented Software Engineering

FINAL EXAM

Question #1 (16 Marks)

An ATM machine can be used for Money Withdrawal and getting Mini Account statement. Make a State Machine Diagram for these two cases.

Question #2 (10 Marks)

You have to make a personalized software for a consultancy firm. Some components of the software are those for which you already have code. Some parts of the software are such that you can find ready-to-be-used code from internet. If you want to embed both types of code into your product, and complete the software by coding the remaining part, what can you expect during this whole process? Will it be easy or hard? What problems you might face and how will you overcome those problems?

Question #3 (24 Marks)

1. What is the difference between a Task and a Work Product? Explain in your own words and give an example of each.
2. You are working on coding of a software in which a lot of calculations are involved. The calculations are quite easy to be done, but you do expect some inconsistency in the calculations because of some inner problem with the software. Would you rather go for Fault Avoidance technique or Fault Detection technique in the Testing Phase? Explain your answer.
3. There are different types of testing. State which techniques are performed by the developer and which of them are performed by the client.

Instructions for Paper 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
Answer:
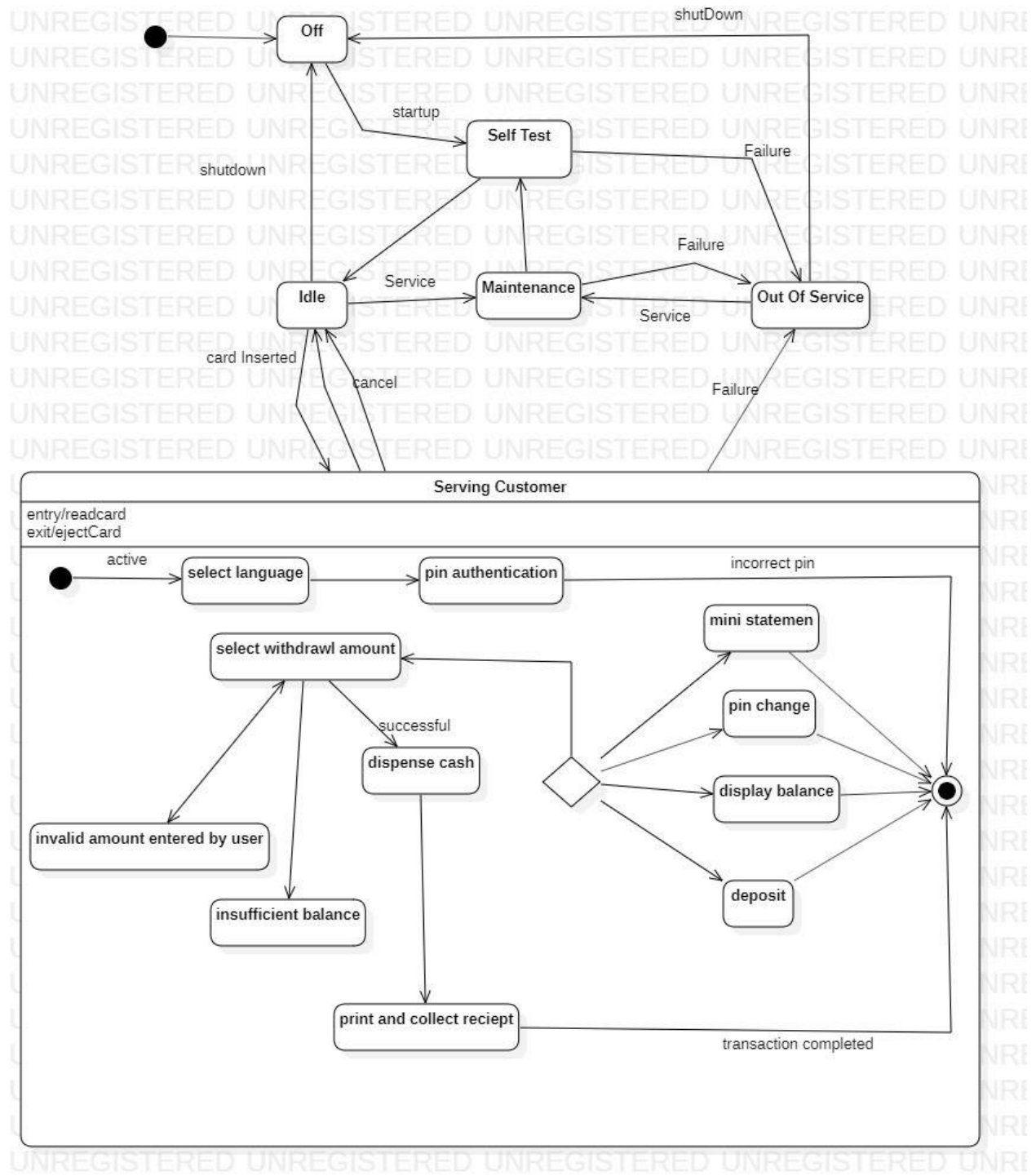
Question 2
Answer:

In my opinion, first of all we have to understand and gather all requirements from client, after that we will do a proper research that we can fulfill the project. I have the codes or I will get codes from the internet and can also get help from the experts. Will it be easy or hard? We will have some codes to fulfill the requirements of the client. So, it is easy for a developer (us) but those codes which we got from the internet and connecting or adjusting with customer requirement effectively will be a bit difficult. What problems you might face and how will you overcome those problems: A person who is expert in coding and also know the basics of every language he/she could not face any problem in coding the requirements if the person will get help from the internet, friend and developers then they might face many problems in the coding and in development so the expert cannot face problem he/she can handle it.

Question 3 Part (1)
Answer:

Task Product:
Task mean duty job, chore, stint, assignment mean a piece of work imposed by a person in authority charged with a variety of task duty implies. in project management it is an activity that need s to be accomplished within a different periods of time or by a deadline to work towards work related goals it is small initials piece of job that serves as a mean of various components of a project.

For example:
To task is to drain someone the sources or to assign someone to do a particular job, an example of task is when a child took all his parents energy an example of task is when you assign the job of taking out the garbage.

Work Product:
A work product is a correct result of plant project related activity such as analysis or project management work products include items delivered to the customer and item used purely internally with a project, activates and work. A work product may begin an analysis made during the development of the project creating a type of proposal for the project that a company cannot deliver until a project has received approval. Companies used work product to provide information to current stack holders and potential investor types of work, product information available might include prototype.

For Example:
Copies of business plan, reports, presentations, evaluations, recommendations, critical reviews, promotional materials, designs, newspaper articles, blueprints, website tests, photography, news copy.

Question 3 Part (2)
Answer:

I will use fault avoidance technique because the system is not executed yet so for expecting some inner problems we will use this technique because fault avoidance technique try to detect faults statically, that is, without relying on the execution of any of the system models, in particular code model.
Fault avoidance aims to prevent faults from occurring within the operational system. It limits introduction of faults throughout system construction. It includes fault prevention, fault removal, and fault forecasting. Fault prevention makes an attempt to eliminate any risk of faults creeping

into a system before it goes operational. Fault removal tries to seek out and remove the causes of errors. Thus, fault avoidance helps to boost the quality of both the components and the systems. Approaches for software fault avoidance embody a collection of strategies and techniques intended both to decrease the presence and to avoid the introduction of faults (in number and severity). When designing dependable systems we should deal with reliability problems from the start by addressing fault-tolerance mechanisms inside the system design and by employing acceptable fault-avoidance approaches within the design process. Adding dependability afterward can be both costly and may be not as effective as designing it in from the start.

Question 3 Part (3)
Answer:

The common varieties of tests that developers will write for applications are:
1. Unit Tests
2. Integration Tests
3. Regression Tests
4. System Tests

1. **Unit Tests:**
   Unit Testing is that the execution of a part of code or little program which is tested in isolation from the additional complete system. Tested in isolation means that not calling the implementation of code not underneath test e.g. database, net service calls or different code dependencies. The idea of isolation is why mocking frameworks are usually used for unit tests. These would be written by developers throughout the development of a feature.

2. **Integration Tests:**
   Integration Testing is that the combined execution sections of code. In these varieties of tests, you'd hit the database, build net service decisions or call alternative code dependencies. These would be written by developers. These would be written by developers throughout the development of a feature.

3. **Regression Tests:**
   Regression testing is that the repetition of previously executed test cases for the aim of finding defects in software that previously passed a similar set of tests. Such tests would usually be used before shipping code to a new setting or as a part of a build process. It's common to examine tools such a selenium wants to write these varieties of tests, wherever an internet browser would be launched and user input automatic. Human testers may also perform regression tests by using an application directly.

4. **System Tests:**
   System testing is that the execution of the software in its final configuration, as well as integration with alternative software and systems. It tests for security, performance, resource loss, timing issues, and other problems that can't be tested at lower levels of integration. Like regression testing, automatic tools like selenium are often used for this process also as human testers.

5. **Beta Testing:**
   Beta Testing is one of the Acceptance Testing types, which adds value to the product as the end-user (intended real user) validates the product for functionality, usability, reliability, and compatibility. Inputs provided by the end-users helps in enhancing the quality of the product further and leads to its success. This also helps in decision making to invest further in the future products or the same product for improvisation.

6. **Acceptance Testing:**
   An Acceptance test is performed by the client and verifies whether or not the tip to finish the flow of the system is as per the business needs or not and if it's as per the requirements of the end-user. Shopper accepts the software system only if all the options and functionalities work for sure. It is the last part of the testing, once that the software system goes into production. This is often additionally known as User Acceptance Testing (UAT)