

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)

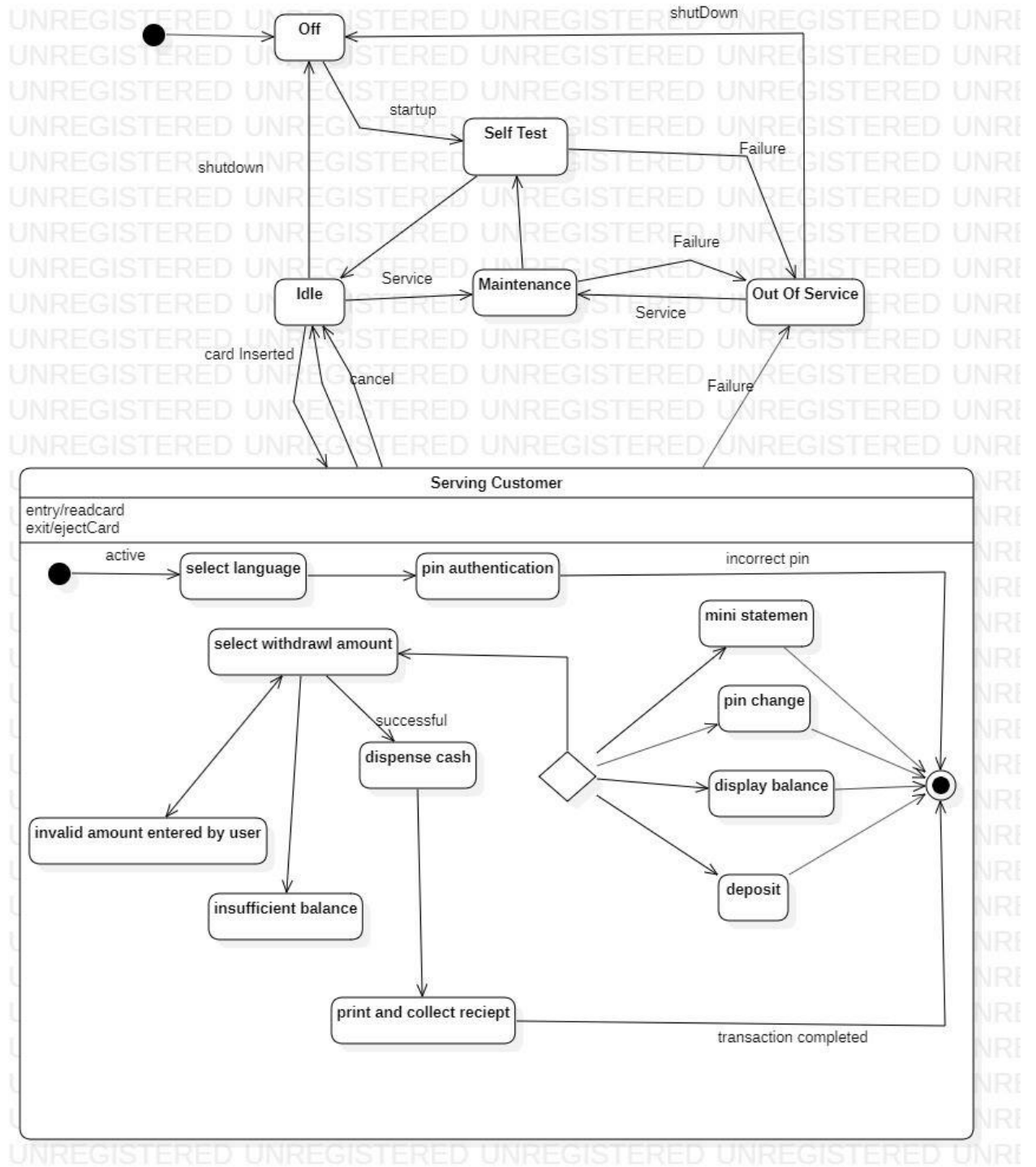
1. What is the difference between a Task and a Work Product? Explain in your own words and give an example of each.
2. You are working on coding of a software in which a lot of calculations are involved. The calculations are quite easy to be done, but you do expect some inconsistency in the calculations 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 No. 1:

Ans:



Question No.2:

Ans: In my opinion , first we have to understand and get all the requirments from the client and after that we will do a complete research that we can do it, I can get the codes from the internet and also get help from a friend.

Problems you may face:

A person who is expert in coding and expert in all languages of coding and also expert in the basics of every language then he will not face any problem in the coding requirements. But if the person is not expert in any language and will get help from internet, friends and developers then they will must face a lot of problems in the coding statement and in the development, So the expert will never face the problem, he can easily handle it.

Question No. 3:

(1):

Ans:

Task: In computer programming, an operating system controls a task which is a basic unit of programming. Defines a task in its design depending on the operating system.

Example: Example of tasks are, sequencing, ranking a project, finding differences and similarities, planning etc.

Work Product: Work product is a physical item that is resulted from a specific task. A work product is the start stage of a project, proposals, agendas, reports, analysis and information on the project.

Example: A word product can be a document, document review, a piece of code and also a test report.

(2):

Ans: 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.

(3):

Ans:

Techniques that are performed by the developer

- Alpha Testing: The objective of this testing is to point out all the errors and faults before publish it to the market or to the users.
- Browser Compatibility Testing: It is designed for web application, it will make sure that the software will run with the mixture of various browser and operating system.
- Compatibility Testing: A type of testing in which it confirms in different environment how a software runs and behave.
- Component Testing: It performs testing of one or more functionalities, after connecting those functionalities, it points out the faults if detects.
- Exploratory Testing: The main goal of this testing is to first explore the software application and look for defects if detects in the application.
- Gorilla Testing: This testing can also be performed by a developer. In this testing one module is tested completely. The target of this testing is to examine the strength of the application.
- Integration Testing: It verifies the combined functionality when testing of all integrated modules after integration.

Techniques that are performed by the Clients

- Acceptance Testing: #2) 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
- Beta testing.
- Risk-Based Testing (RBT)