

Computer Science Department
Software Engineering (COMP 433)
First Semester 2014/2015
(80 minutes)



Midterm Exam 20/11/2014

ZU/11/ZU14 Student Name:



Question 1 [30 marks] 1. LIST three generalizable reasons why software projects fail. For each reason, provide one software engineering technique or methodology that strechnique Divide and conque) could have prevented that failure. [6] [] No Decomposition + 3 There is No Hierarach - technique Layrazins-Abstraction using scenarios and use case How does software engineer deal with complexity in large projects?[4] There are 3 ways to deal with complexity: 1 Abstraction - using scenariofanduse cases 121 Decomposition: there are two days to deal them which are: Obsert. Dijentation and functional decomposition. (Technique used: Divide and conque [3] Hierarachy (Tedwig we used: Layering) Define the following terms:[10]

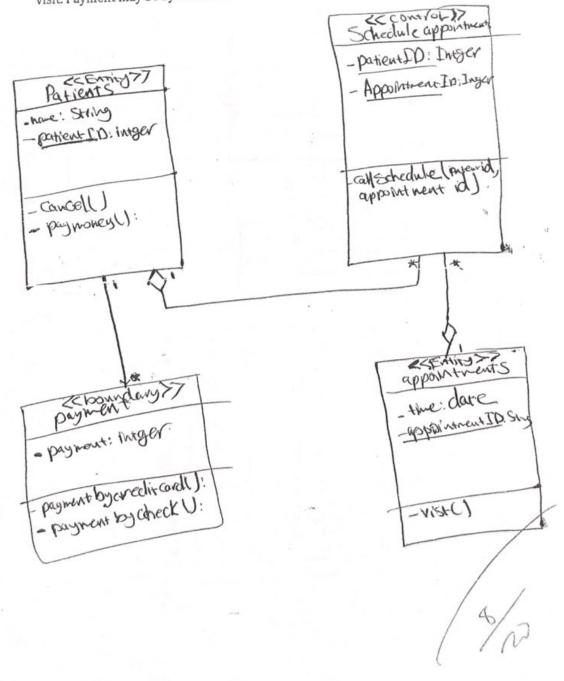
1. Entity Object: Fristhe Object which is in the Entity classes One of the System Entitles which interact with the boundary o beet and the control object do this arrangement 2. Boundary Object. It is an object that is found in the Bounds class which is in the Sister boundary, which the system interact with it but it is not in the system Entitles 3. Control Object: It is an important object that is used in my c "model, view, control objects that is from the Control Entity which do the interaction between the system entity and the Boundary entities.

4. Non-functional requirement: Aspects not directly related to the functional between the system. betraviour of the System, which discrebes a freedures or constraints of the System of the phrased as constraints or Psuedu Requirments.

For example: the performence time should be less then a second. 5. Greenfield Engineering: Engineering a Software Starting from the Scratch, it is one type of Engineering type That we have Nothing to consider. And the software life cycl should be all be implemented from Requirements Elicitation & Regins Analysis - > System Design - Object Design - inplementation then top

Draw a class diagram (using the UML notation) to reflect the requirements of the

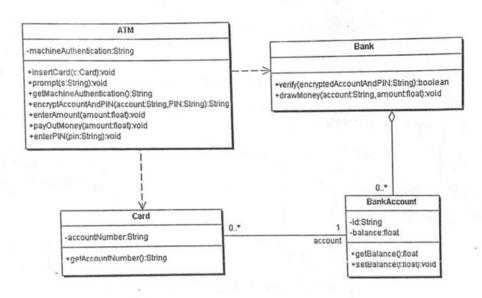
You are to develop a system for a clinic. The primary purpose of the system is to schedule appointments for patients. Patients usually call in to schedule appointments. The appointments result in a visit, unless the patient cancels the appointment. If a patient does not show up, the appointment is canceled. The visit may result in some medication, which is prescribed by the doctor who attends on the patient. The patient has to make his/her payment at the end of the visit. Payment may be by credit card or check.



Question 3 [20 marks]

Create a sequence diagram for the following collaboration. Use the classes and methods on Class Diagram below.

A customer wants to draw money from his bank account. He enters his card into an ATM (automated teller machine). The ATM machine prompts "Enter PIN". The customer enters his PIN. The ATM (internally) retrieves the bank account number from the card. The ATM encrypts the PIN and the account number and sends it over to the bank. The bank verifies the encrypted Account and PIN number. If the PIN number is correct, the ATM displays "Enter amount", draws money from the bank account and pays out the amount





BankAccount get Ratauce [F. Mar.) void.
Grans Moneylacour, amount & 1 Set Balance Verify (encrybte) Accountand in strongesty). Bank - Set Arama Nymber 33-7 pay out Money (pin: Sung: void ONICA AMBRIAN Camart Closperg enclypt Accountantin (acompayed) ATM prompt (5: Swmg): Vaid > Bry State Control Park Bulkentication (138) insert Card (c.con) : void of Question 2

Question 3 [20 marks]

Assume that an account in the Banking Application has the following characteristics:

1. An account is in the "Open" state when it is created

2. When the account balance falls below the minimum balance, it goes to the "Overdrawn" state, and the customer is notified immediately. Such an account would be restored to the "Open" state as soon as the balance goes above the minimum required.

3. Accounts that remain in the "Overdrawn" state for 30 days are put in a

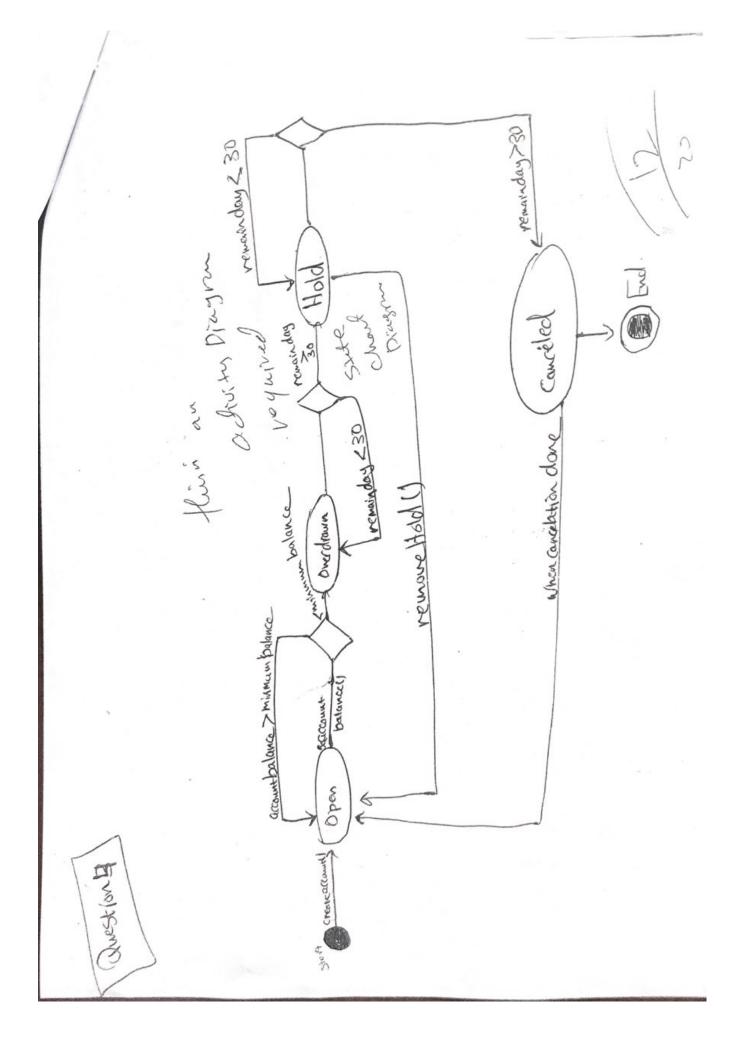
"Hold" state.

4. An account object goes from the "Hold" state to the "Open" state when a message called removeHold() is sent to the account object.

5. Accounts that remain in the "Hold" state for 30 days are automatically canceled, in which case the account goes to the "Canceled" state.

6. In addition, the customer may cancel an account, which would put the account in the "Canceled" state. Cancellation may be done when the account is in the "Open" state.

Draw a statechart to model the lifecycle of an account object.



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Rewrite the following requirements to be good requirements, or state that they are good requirements: [10] a) The system should be easy to learn.	
and this is done by using training scenarions describing steel by step instructions for nouronce users guiding them how to use	90
b) Each user must be at least 18 years old.	
good requirements	
The system must be use gathentication.	
d) The user interface will be section 508 compliant.	
good requirment.	
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The Other ways are not specified. The Other ways are not specified. One Of the payment methods can be using creditar	rd
f) The system will allow a normal and a premium user. The requirement is good. It is specified En	٠.
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