Q. No 1: Bank Interest Computation

Consider the following attributes: P : Principle Amount R : Rate Of Interest N : Number Of Years SI : Simple Interest A : Amount

Requirement Specification:

a. Customer deposits money in the bank. The deposited money is called the Principle Amount.

b. After authentication and verification of the user, the principle amount and interest is computed and the amount is displayed.

c. The time in years varies for RD, FD, SB account types and interest is computed based on the following factors: - Account Type: RD, FD, and SB.

Time duration: Monthly, quarterly, half yearly and annually.

Minimum Balance: 5000/- SB , 10,000/- FD ,10,000/- RD

Draw the usecase, class diagram and the state chart diagram for the same.

Q. No 2: A class called Television has the following attributes make, screen, size, purchase date, color/black & white. Define a method for displaying attribute values of a TV. Represent this following specification using UML class notations. Television class should be designed with the required attributes. The main method should be written to test methods of television class. For example display TV() method may be used to print the attributes of television class.

a) Identify the various use cases and actors involved and represent the user view of the system.

b) Identify the various classes and attributes and bring out a class diagram and sequence diagram.

c) Draw the Activity diagram

Requirements

1. The system should be able to display all the kinds of models available according to particular made (Sony, Samsung…).
2. It should be able to show the stock available based on brand, size, color/black & white
3. The user must be authenticated to use the system .
4. The system should be able to display the price list based on the customer Specification.

Q. No 3: Library Information System

Problem Statement:

A Library lends books and magazines to member, who is registered in the system. Also it handles the purchase of new titles for the Library. Popular titles are bought into multiples copies. Old books and magazines are removed when they are out or date or in poor condition. A member can reserve a book or magazine that is not currently available in the library, so that when it is returned or purchased by the library, that person is notified. The library can easily create, replace and delete information about the tiles, members, loans and reservation in the system.

Requirement Specification

The Library System offers the following Services:

• Issuing of Books and Magazines to member who are registered in the system.

• It handles the purchase of new titles for library. Popular titles are bought in multiple copies.

• Old books and magazines are removed when they are out of date or in poor condition.

• If a member asks for a book/magazines then

The book is issued if available

Otherwise, it is reserved for that member so that he can get the book when book is available.

• It shall provide the loan for purchasing book for student

. It shall provide a way to create, replace and delete information about book titles, member, loans and reservation in the system.

a) Draw system sequence diagram amd relating it to the use cases.

b) Draw the State chart diagram for the same.

c) Develop Activity diagram.

Q. No 4: Develop a class diagram and identify Logical Architecture and refine them, component and deployment diagrams to represent the following scenario:

Over the summer holiday, university students can book college hall accommodation online. They must specify their name, student number, course, year, and identify three college residences as their preferences. The system makes an allocation of students to rooms before the start of the term, trying, where possible, to allocate students to a room in one of their preferred halls. Identify Software Patterns.

Q. No 5: A car-rental company maintains a vehicle database for all vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number, manufacturer, model, date of purchase, and color. Special data are included for certain types of vehicles:

1. Trucks: cargo capacity
2. Sports cars: horsepower, renter age requirement
3. Vans: number of passengers
4. Off-road vehicles: ground clearance, drive train (four- or two-wheel drive)

Develop a Class diagram , sequence diagram and package diagram. Assign GRASP Patterns to the classes.