Final Exam, Course: OOAD

Deadline: - Mentioned on SIC
Marks: - 50
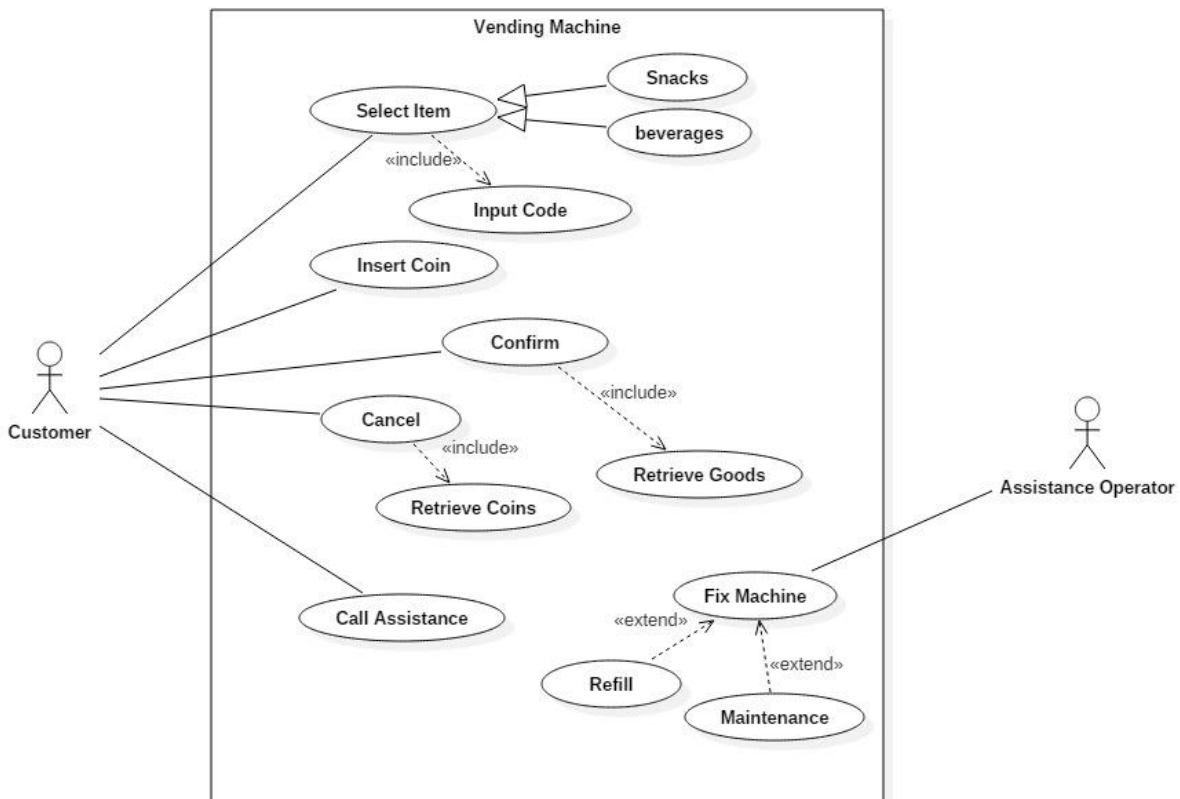
Program: - BS-SE
Dated: 23rd June, 2020

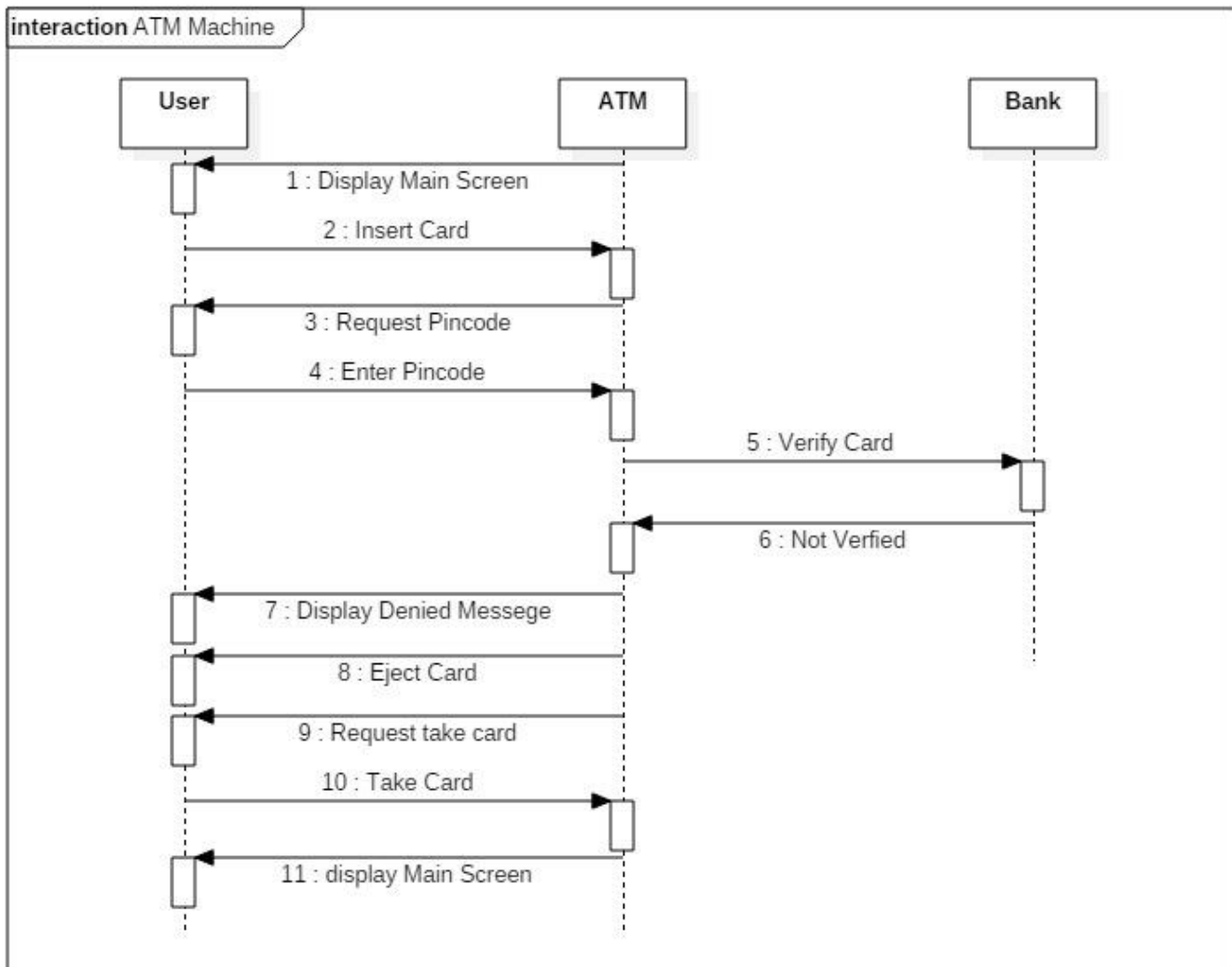**Student Name: Faisal Karim Afridi**   **Student ID#: 13163**
**Class and Section: BSSE (Sec-A)**

Q1: Draw Use Case diagram Propose a use case diagram for a vending machine that sells beverages and snacks. Make use of inclusion and extension associations and remember that a vending machine may need technical assistance from time to time. (10 marks)

Q2: Draw Sequence Diagram Model a scenario of the Withdraw Money use case of a Bank ATM system. The user is able to make withdrawal of money. The system employs a standard procedure of validating the card and account holder's password. (10 marks)

interaction ATM Machine

| User | ATM | Bank |

1 : Display Main Screen
2 : Insert Card
3 : Request Pincode
4 : Enter Pincode
5 : Verify Card
6 : Not Verfied
7 : Display Denied Messege
8 : Eject Card
9 : Request take card
10 : Take Card
11 : display Main Screen

Q3: Draw State chart diagram ATM is initially turned off. After the power is turned on, ATM performs startup action and enters Self-Test state. If the test fails, ATM goes into Out of Service state, otherwise transition to the Idle state. In this state ATM waits for customer interaction. The ATM state changes from Idle to Serving Customer when the customer inserts banking or credit card in the ATM's card reader. On entering the Serving Customer state that is composed of basic ATM functions i.e. authentication, money withdrawal etc. (10 marks)
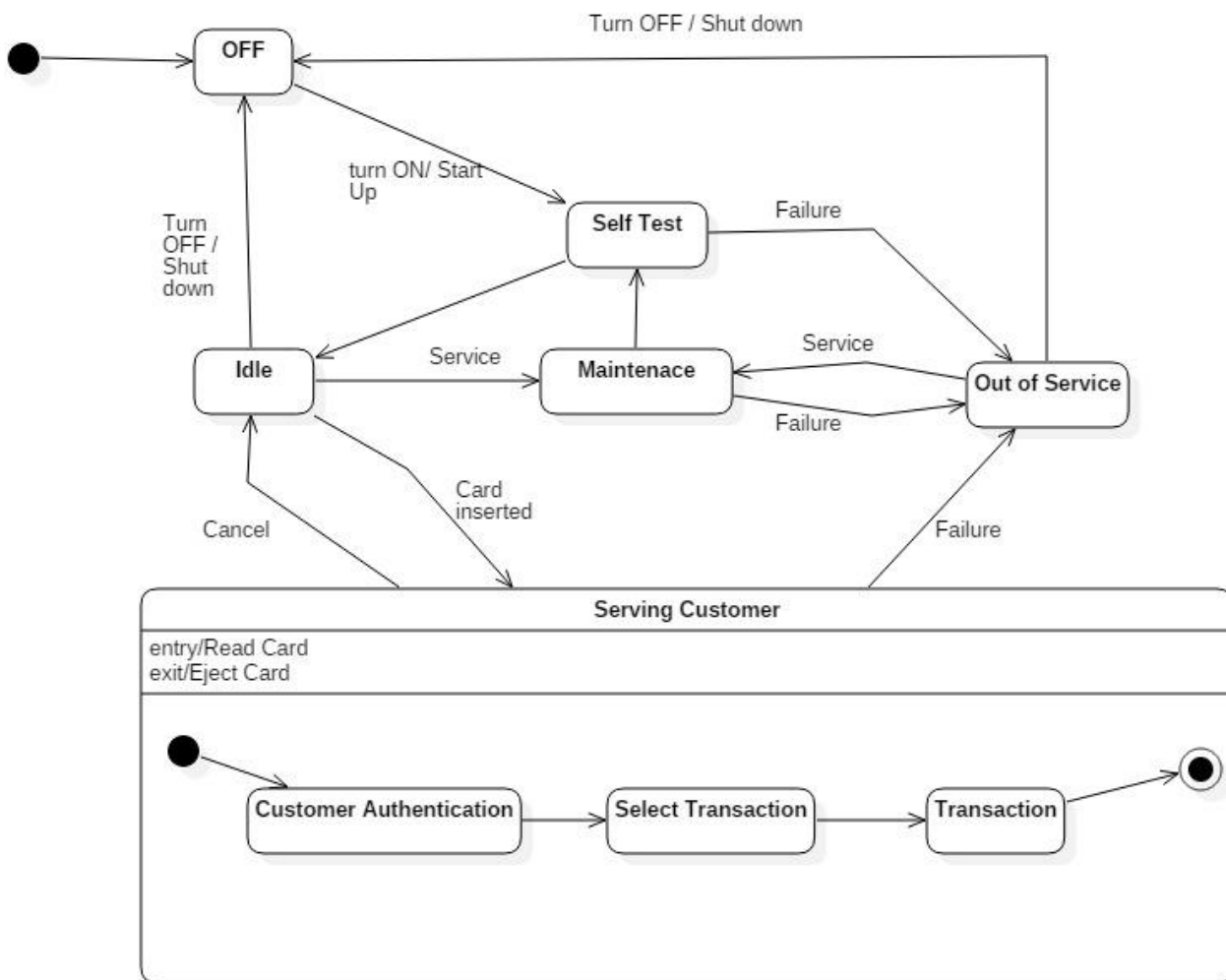
Q4: Draw Class Diagram Illustrate Class diagram for ATM Machine. The various Classes involved in the system are: Bank, Account, Customer Info, Debit Card, Current Account, Saving Account, ATM Info, ATM Transaction, Withdraw Transaction, Change Pin, Transfer Money, Check Balance. The Bank maintains personal and ATM information of each customer. The customer can access their account using Debit Card issued by the Bank. In this system there could be two types of Account: Current Account and Saving Account. Both use to share many of the properties and methods. The ATM Machine can perform multiple transactions such as Withdrawing cash, change pin, check balance and Transfer Money to each account. (10 marks)
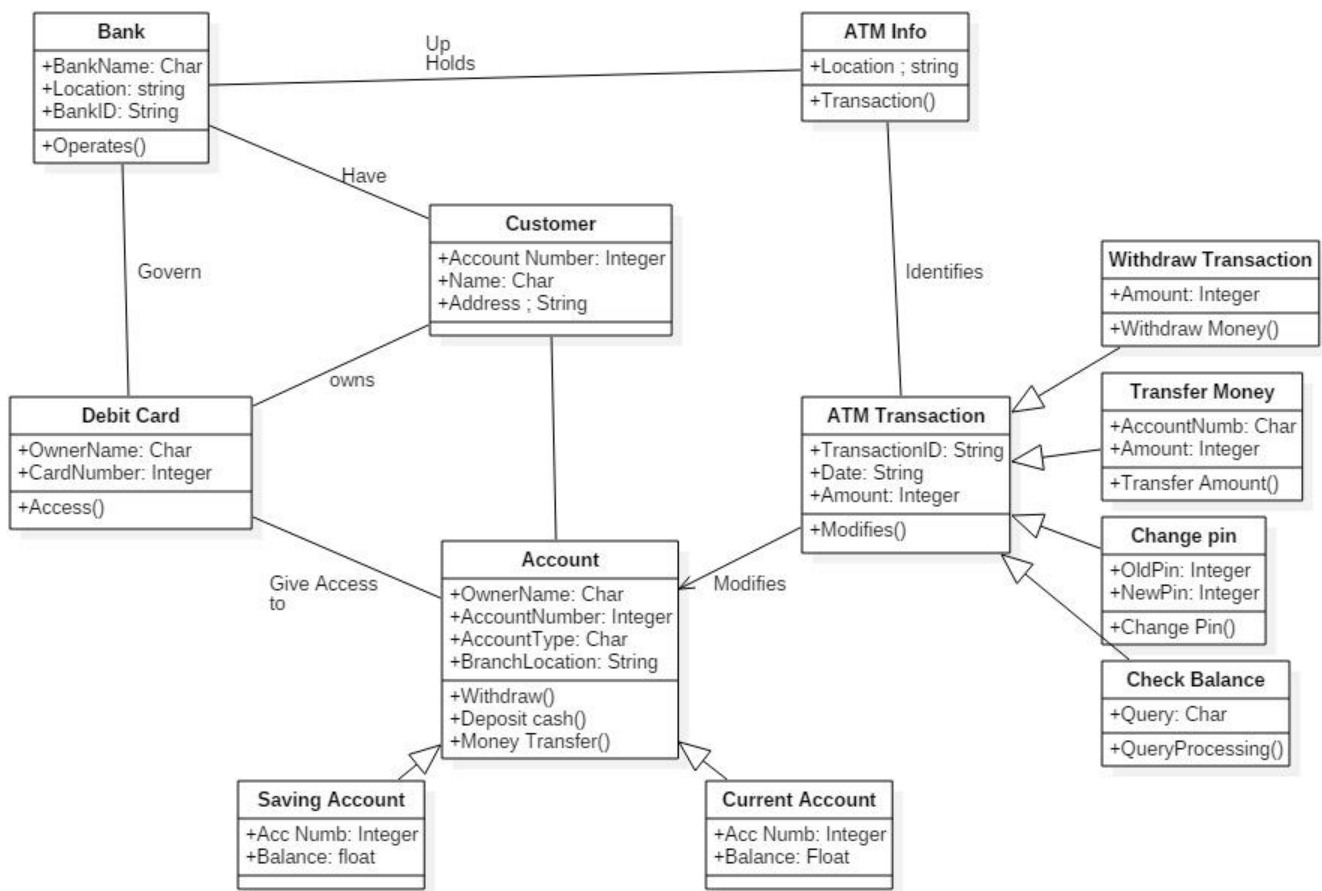
Q5: Design Pattern Suppose we have the following java files. Identify the pattern also Considering the java files draw class diagram. (10 marks)

Answer:

The Pattern used in the following question is Decorator pattern, which allows a user to add new functionality to an existing object without altering its structure. This type of design pattern comes under structural pattern as this pattern acts as a wrapper to existing class.