



SCHOOL OF  
COMPUTING

# LAB RECORD

23CSE111- Object Oriented Programming

*Submitted by*

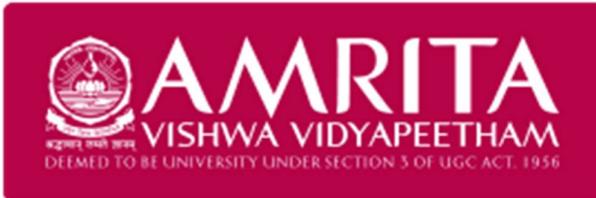
CH.SC.U4CSE24157- S Halitha Begam

**BACHELOR OF TECHNOLOGY**  
**IN**  
**COMPUTER SCIENCE AND**  
**ENGINEERING**

AMRITA VISHWA VIDYAPEETHAM  
AMRITA SCHOOL OF COMPUTING

CHENNAI

March - 2025



SCHOOL OF  
COMPUTING

AMRITA VISHWA VIDYAPEETHAM  
AMRITA SCHOOL OF COMPUTING, CHENNAI

**BONAFIDE CERTIFICATE**

This is to certify that the Lab Record work for 23CSE111- Object Oriented Programming Subject submitted by **CH.SC.U4CSE24157 – HALITHA BEGAM S** in “Computer Science and Engineering” is a Bonafide record of the work carried out under my guidance and supervision at Amrita School of Computing, Chennai.

This Lab examination held on 13/03/2025

Internal Examiner 1

Internal Examiner 2

# INDEX

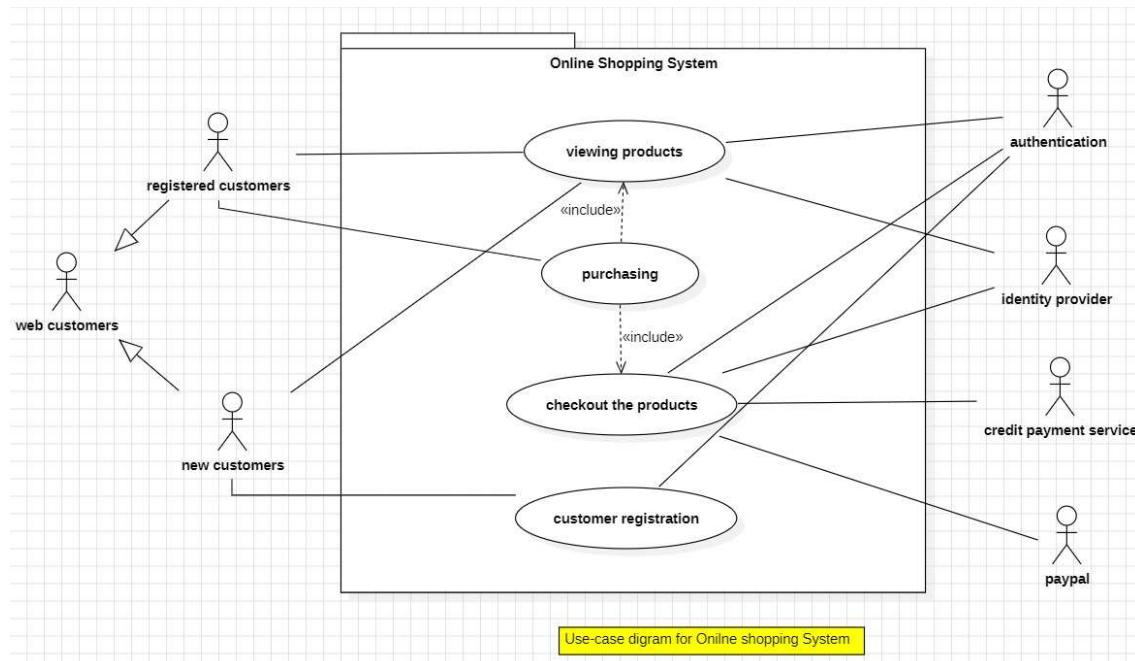
S.NO	TITLE	PAGE.NO
	UML DIAGRAM	
1.	<b>ONLINE SHOPPING MANAGEMENT SYSTEM</b>	
	1.a) Use Case Diagram	4
	1.b) Class Diagram	5
	1.c) Sequence Diagram	5
	1.d) Object Diagram	6
	1.e) Activity Diagram	7
2.	<b>ATM MANAGEMENT SYSTEM</b>	
	2.a) Use Case Diagram	8
	2.b) Class Diagram	8
	2.c) Sequence Diagram	9
	2.d) Object Diagram	9
	2.e) Activity Diagram	10
3.	<b>BASIC JAVA PROGRAMS</b>	
	3.a) ATM management System	11
	3.b) Hotelbilling system	13
	3.c) Salary slip	15
	3.d) Train Ticket Booking System	16
	3.e) Number Guessing Game	17
	3.f) Taxi Fare Calculator	18

	3.g) Parking Lot System	19
	3.h) Quiz System	21
	3.i) Elevator	22
	3.j) reverse a number	23

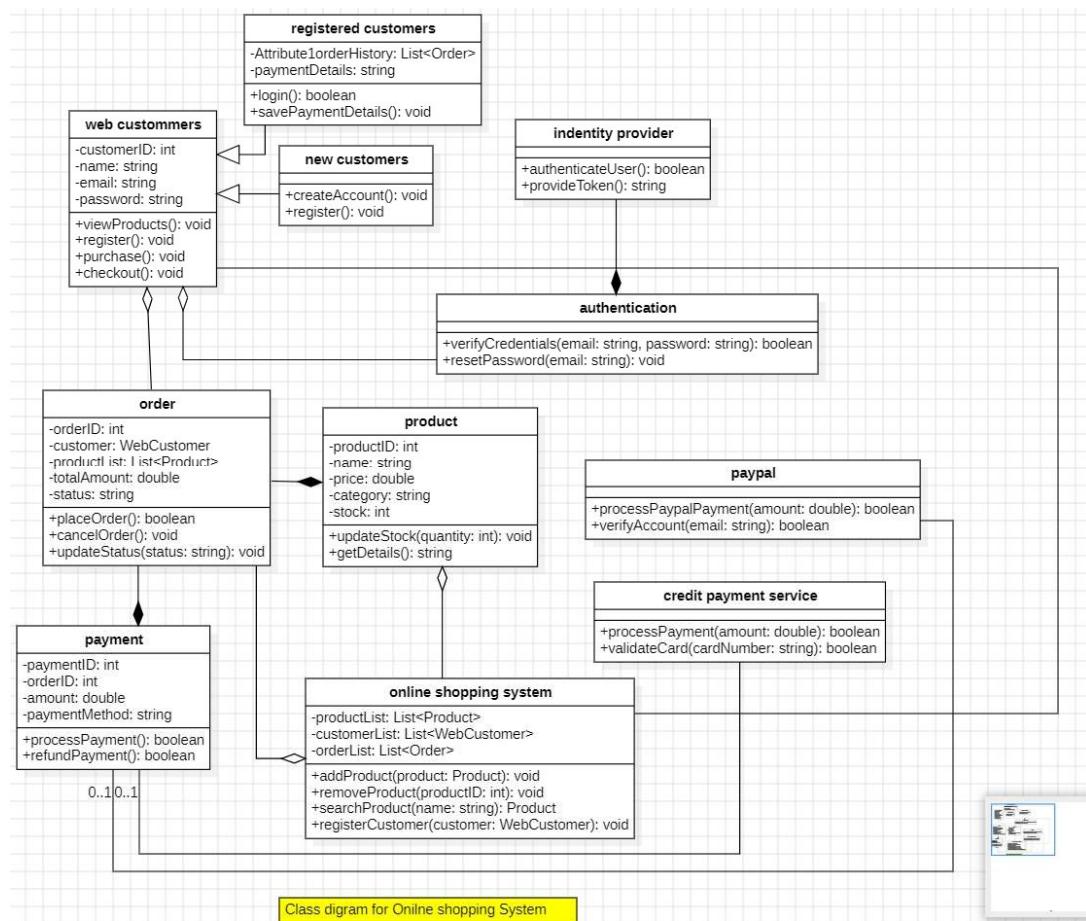
## UML DIAGRAMS

### 1. ONLINE SHOPPING MANAGEMENT SYSTEM

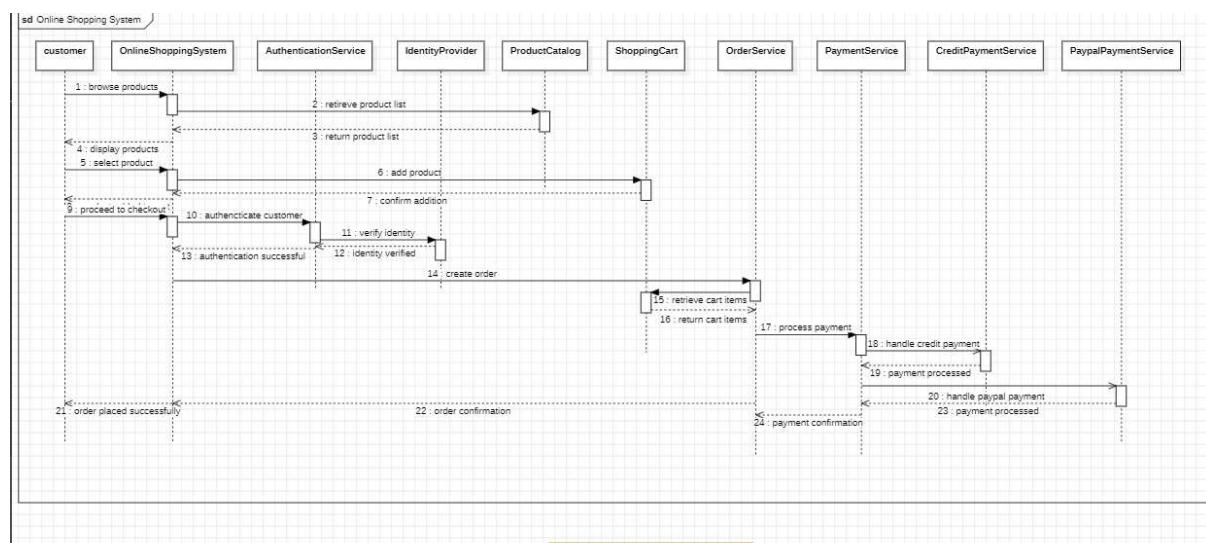
#### 1.a) Use Case Diagram:



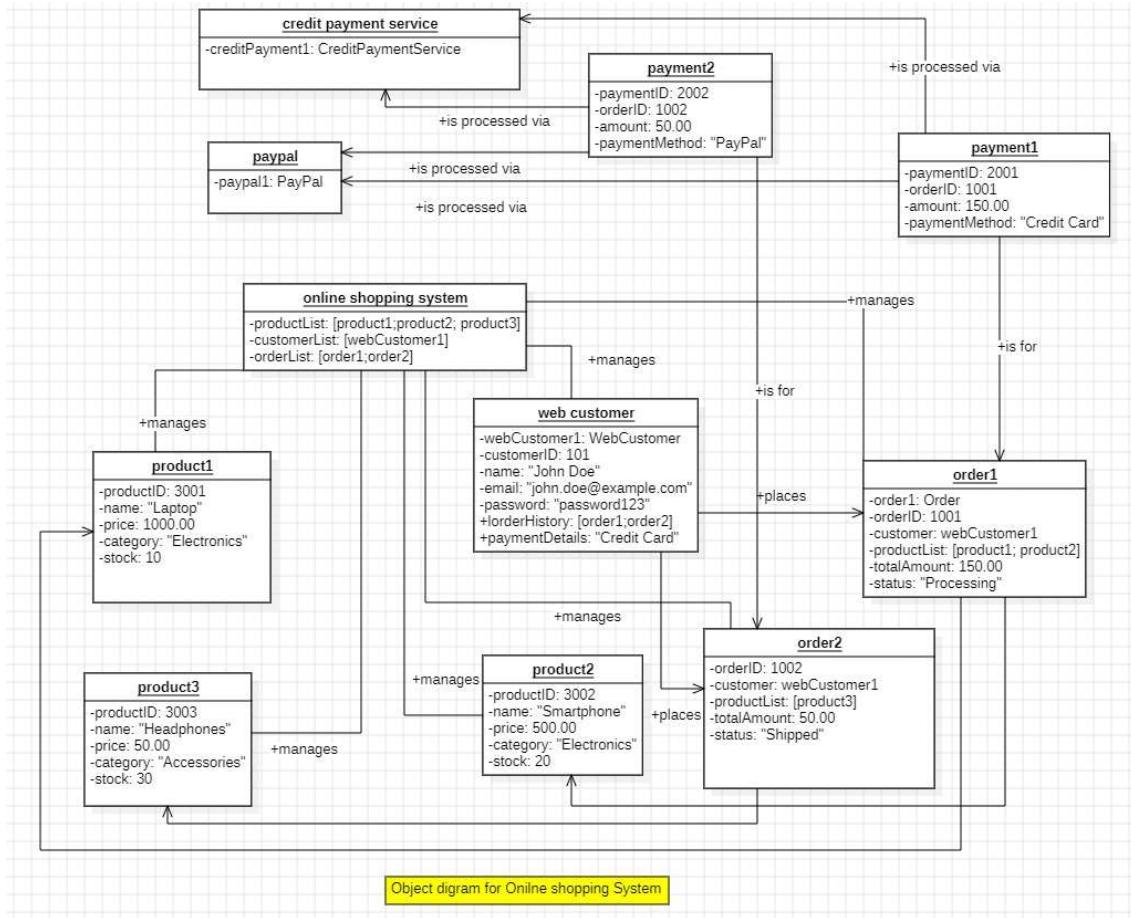
### 1. b) Class Diagram:



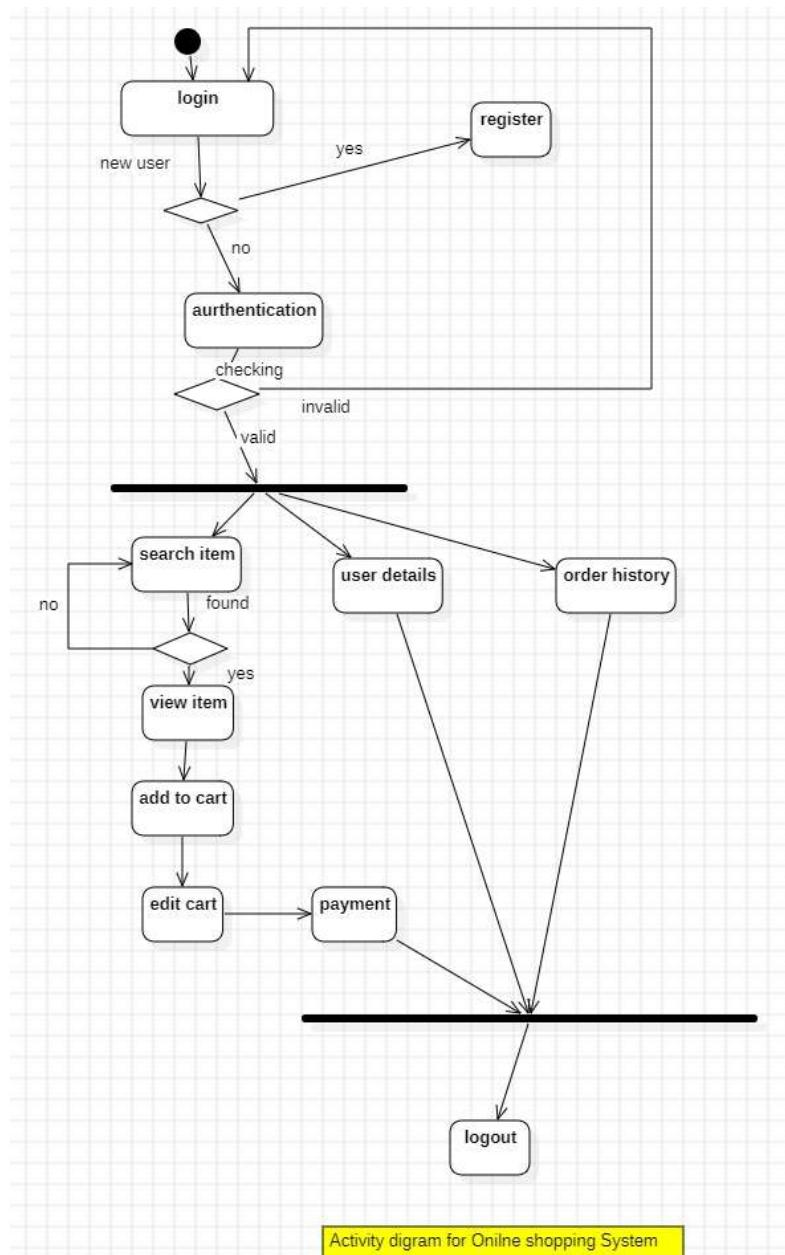
### 1.c) Sequence Diagram:



### 1.d) Object Diagram:



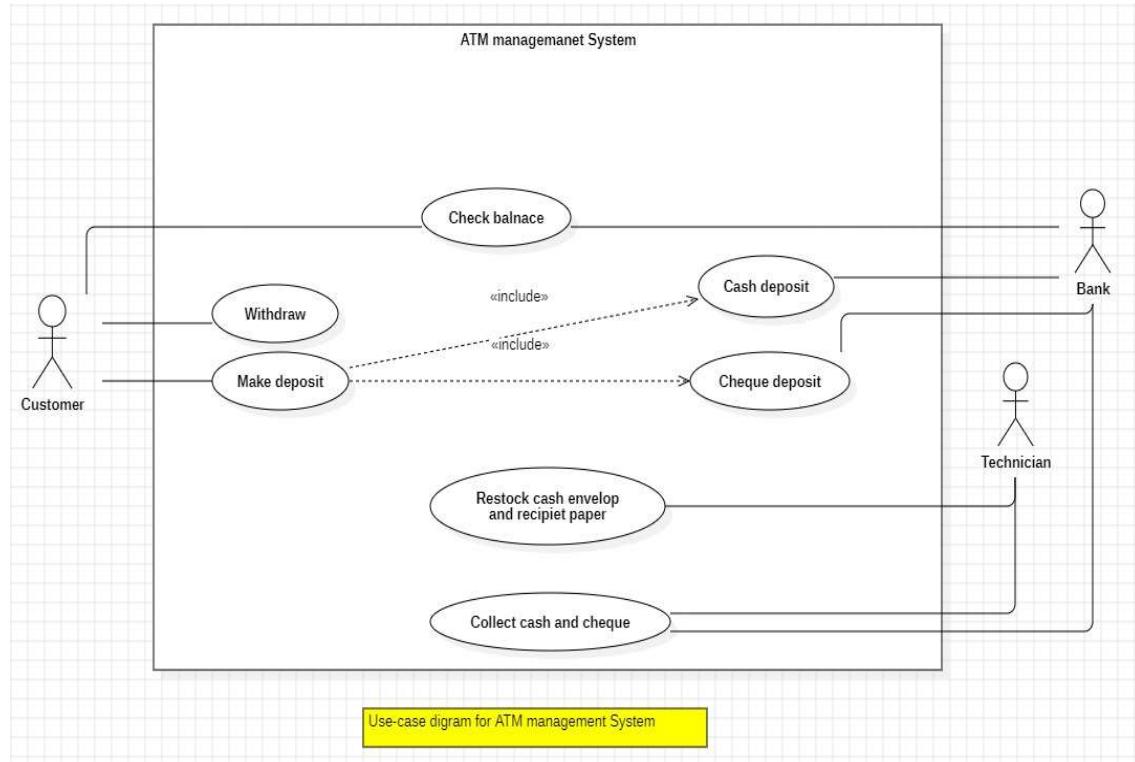
### 1.e) Activity Diagram:



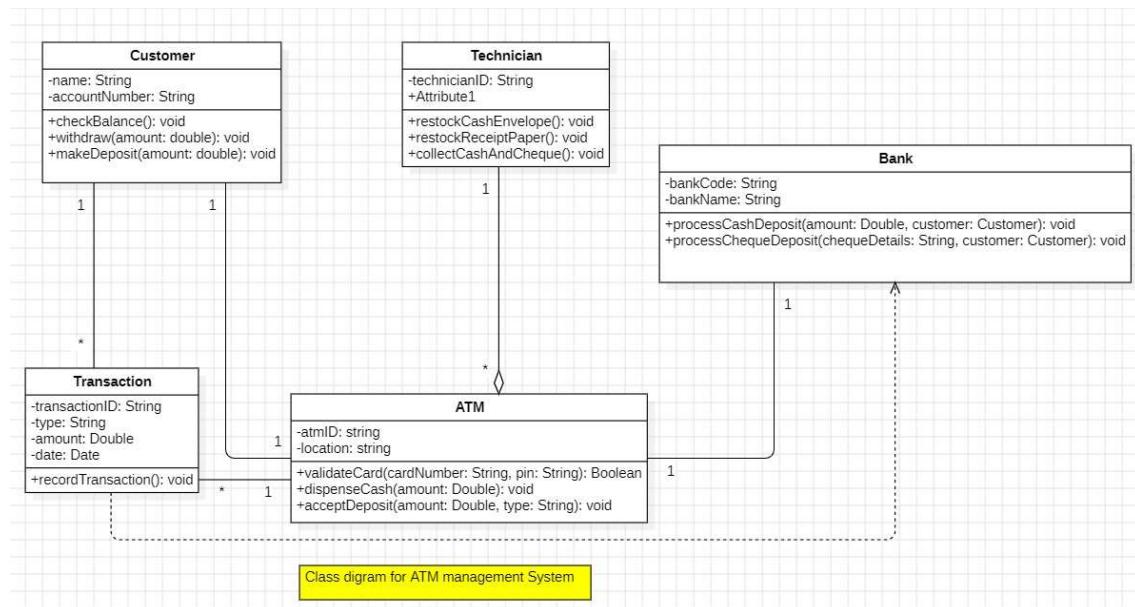
Activity diagram for Online shopping System

## 2. ATM MANAGEMENT SYSTEM

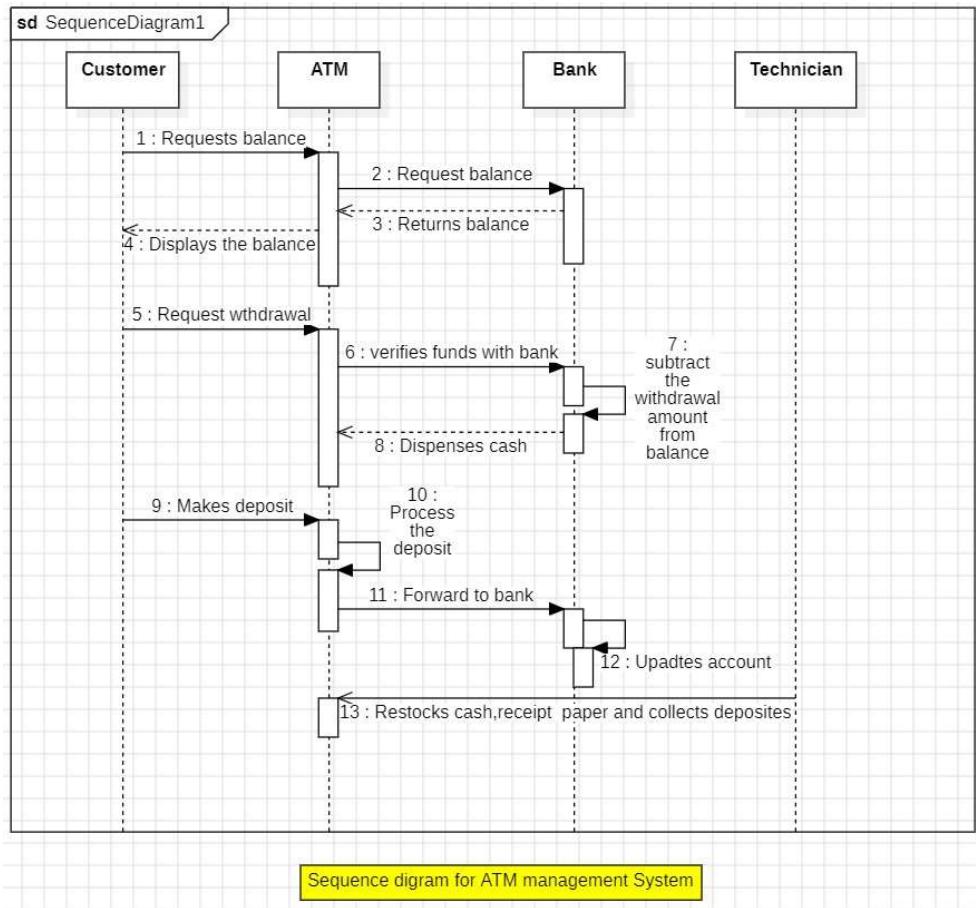
### 2. a) Use Case Diagram:



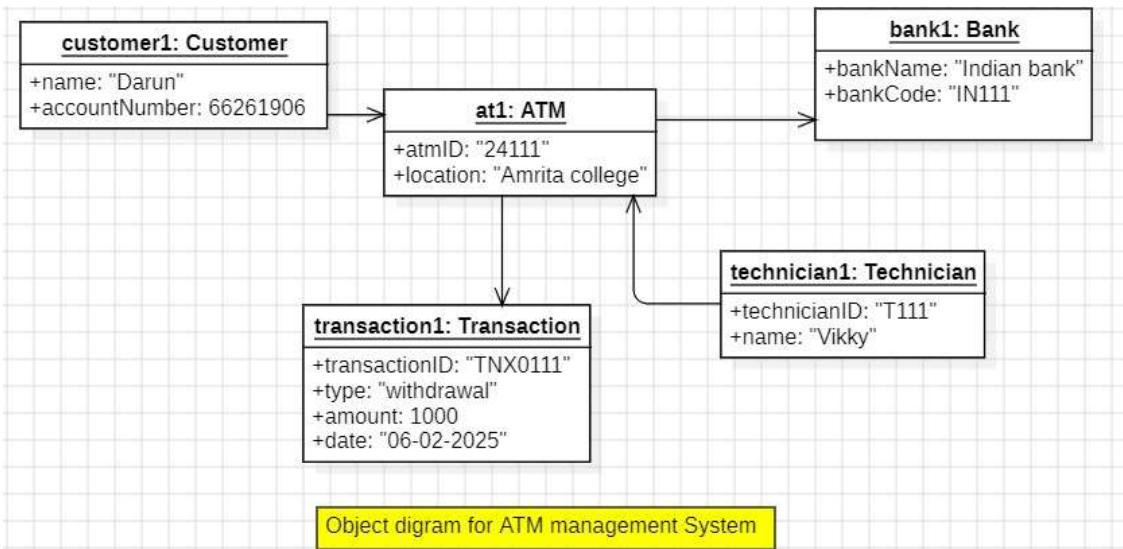
### 3. b) Class Diagram:



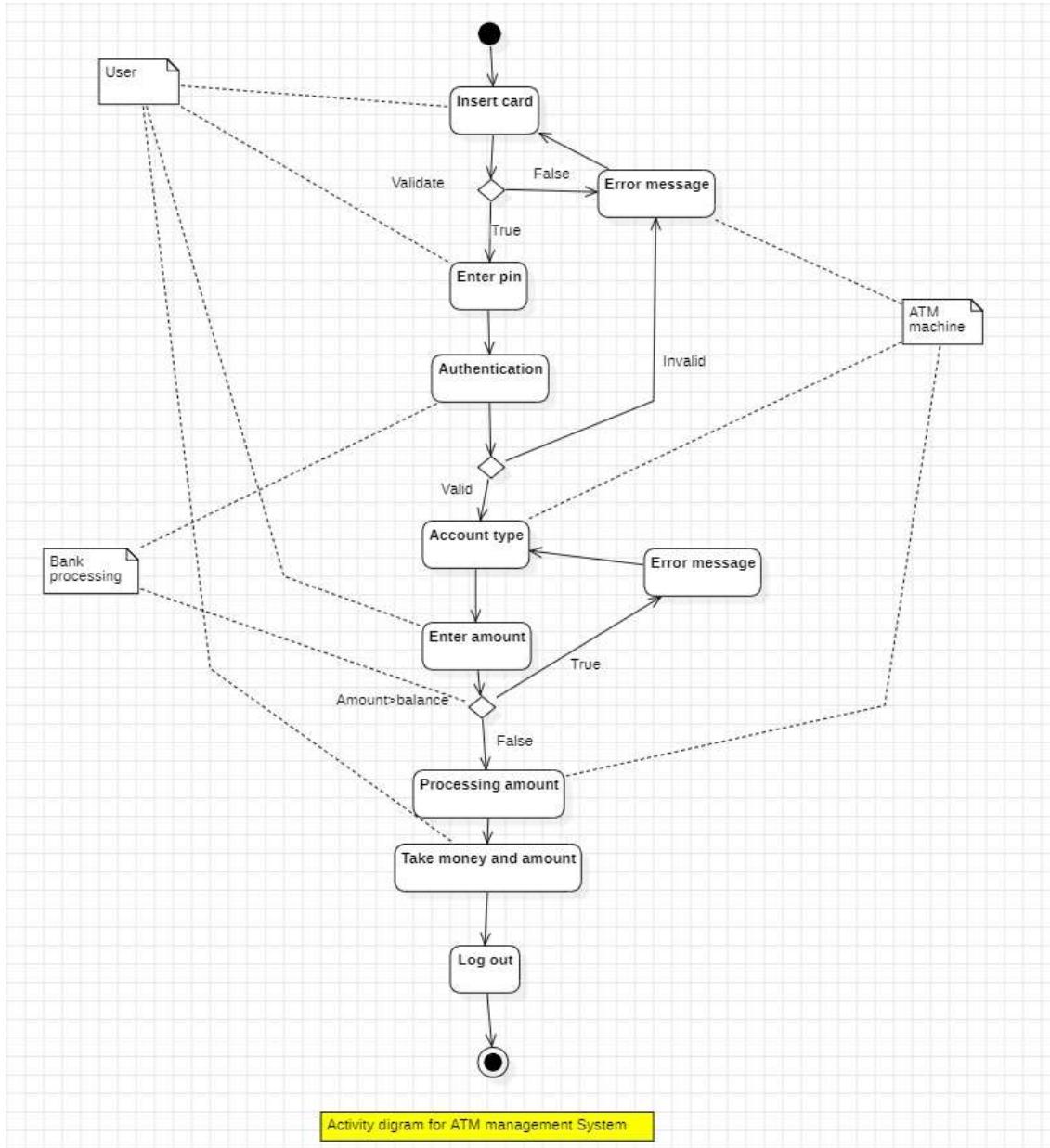
## 2. c) Sequence Diagram:



## 2.d) Object Diagram:



### 2.e) Activity Diagram:



### 3.Basic Java Programs

#### 3.a) ATM management System:

**Code:**

```
import java.util.Scanner;

public class ATM {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        double balance = 10000;
        int choice;

        do {
            System.out.println("\nATM Menu:\n1. Check Balance\n2.
Deposit\n3. Withdraw\n4. Exit");

            System.out.print("Enter choice: ");
            choice = sc.nextInt();

            switch (choice) {
                case 1:
                    System.out.println("Your Balance: $" + balance);
                    break;
                case 2:
                    System.out.print("Enter deposit amount: ");
                    double deposit = sc.nextDouble();
                    balance += deposit;
                    System.out.println("New Balance: $" + balance);
                    break;
            }
        } while (choice != 4);
    }
}
```

```
case 3:  
    System.out.print("Enter withdrawal amount: ");  
    double withdraw = sc.nextDouble();  
    if (withdraw > balance) System.out.println("Insufficient  
funds!");  
    else {  
        balance -= withdraw;  
        System.out.println("Withdrawal successful! New  
Balance: $" + balance);  
    }  
    break;  
  
case 4:  
    System.out.println("Exiting ATM. Thank you!");  
    break;  
  
default:  
    System.out.println("Invalid choice!");  
}  
}  
}  
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac ATM.java
C:\Users\halit\OneDrive\Documents\java\basic>java ATM

ATM Menu:
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 1
Your Balance: $10000.0

ATM Menu:
1. Check Balance
2. Deposit
3. Withdraw
4. Exit
Enter choice: 2
Enter deposit amount: 2000
New Balance: $12000.0
```

### 3.b) Hotelbilling system

**Code:**

```
import java.util.Scanner;

public class HotelBilling {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int choice, qty;
        double bill = 0;

        do {
            System.out.println("\nMenu:\n1. Pizza - $8\n2. Burger - $5\n3.
Coffee - $3\n4. Exit & Pay");

            System.out.print("Enter choice: ");
            choice = sc.nextInt();

            if (choice >= 1 && choice <= 3) {
                System.out.print("Enter quantity: ");
                qty = sc.nextInt();
                switch (choice) {
```

```
        case 1 -> bill += qty * 8;
        case 2 -> bill += qty * 5;
        case 3 -> bill += qty * 3;
    }
} else if (choice != 4) System.out.println("Invalid choice!");

} while (choice != 4);

System.out.println("Total Bill: $" + bill);
}

}
```

### Output:

```
C:\Users\halit\OneDrive\Documents\java\basic>javac HotelBilling.java
C:\Users\halit\OneDrive\Documents\java\basic>java HotelBilling

Menu:
1. Pizza - $8
2. Burger - $5
3. Coffee - $3
4. Exit & Pay
Enter choice: 1
Enter quantity: 3

Menu:
1. Pizza - $8
2. Burger - $5
3. Coffee - $3
4. Exit & Pay
Enter choice: 3
Enter quantity: 2

Menu:
1. Pizza - $8
2. Burger - $5
3. Coffee - $3
4. Exit & Pay
Enter choice: 4
Total Bill: $30.0
```

### 3.c) Salary slip

**Code:**

```
import java.util.Scanner;

public class SalarySlip {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter employee salary: ");

        double salary = sc.nextDouble(), tax, netSalary;

        if (salary <= 30000) tax = salary * 0.05;
        else if (salary <= 50000) tax = salary * 0.10;
        else tax = salary * 0.20;

        netSalary = salary - tax;

        System.out.println("Gross Salary: $" + salary);
        System.out.println("Tax Deducted: $" + tax);
        System.out.println("Net Salary: $" + netSalary);
    }
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac SalarySlip.java
C:\Users\halit\OneDrive\Documents\java\basic>java SalarySlip
Enter employee salary: 2000
Gross Salary: $2000.0
Tax Deducted: $100.0
Net Salary: $1900.0
```

**3.d) Train Ticket Booking System****Code:**

```
import java.util.Scanner;
public class TrainTicket {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Select Train Type:\n1. AC First Class ($100)\n2. Sleeper ($50)\n3. General ($20)");
        int choice = sc.nextInt();
        System.out.print("Enter number of tickets: ");
        int tickets = sc.nextInt();
        double cost = switch (choice) {
            case 1 -> tickets * 100;
            case 2 -> tickets * 50;
            case 3 -> tickets * 20;
            default -> 0;
        };
        if (cost == 0) System.out.println("Invalid choice!");
        else System.out.println("Total Cost: $" + cost);
    }
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac TrainTicket.java
C:\Users\halit\OneDrive\Documents\java\basic>java TrainTicket
Select Train Type:
1. AC First Class ($100)
2. Sleeper ($50)
3. General ($20)
1
Enter number of tickets: 5
Total Cost: $500.0
```

### 3.e Number Guessing Game

**Code:**

```
import java.util.Scanner;
import java.util.Random;

public class NumberGuessGame {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Random rand = new Random();
        int target = rand.nextInt(100) + 1, guess, attempts = 0;

        do {
            System.out.print("Guess the number (1-100): ");
            guess = sc.nextInt();
            attempts++;

            if (guess > target) System.out.println("Too high! Try again.");
            else if (guess < target) System.out.println("Too low! Try again.");

        } while (guess != target);

        System.out.println("Correct! You guessed it in " + attempts + " attempts.");
    }
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac NumberGuessGame.java
C:\Users\halit\OneDrive\Documents\java\basic>java NumberGuessGame
Guess the number (1-100): 19
Too low! Try again.
Guess the number (1-100): 26
Too low! Try again.
Guess the number (1-100): 70
Too high! Try again.
Guess the number (1-100): 50
Too low! Try again.
Guess the number (1-100): 40
Too low! Try again.
Guess the number (1-100): 60
Too high! Try again.
Guess the number (1-100): 55
Too high! Try again.
Guess the number (1-100): 54
Correct! You guessed it in 8 attempts.
```

### 3.f) Taxi Fare Calculator

**Code:**

```
import java.util.Scanner;
public class TaxiFare {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        double fare = 0;
        int distance;

        System.out.print("Enter distance traveled (km): ");
        distance = sc.nextInt();

        while (distance > 0) {
            fare += (distance > 5) ? 10 : 5;
            distance--;
        }
        System.out.println("Total Fare: $" + fare);
    }
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac TaxiFare.java  
C:\Users\halit\OneDrive\Documents\java\basic>java TaxiFare  
Enter distance traveled (km): 619  
Total Fare: $6165.0
```

### 3.g) Parking Lot System

#### Code:

```
import java.util.Scanner;  
public class ParkingLot {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        int choice;  
        double totalCharge = 0;  
  
        while (true) {  
            System.out.println("\n1. Car - $10\n2. Bike - $5\n3. Truck - $15\n4. Exit");  
            System.out.print("Enter vehicle type: ");  
            choice = sc.nextInt();  
  
            switch (choice) {  
                case 1 -> totalCharge += 10;  
                case 2 -> totalCharge += 5;  
                case 3 -> totalCharge += 15;  
                case 4 -> {  
                    System.out.println("Total Parking Charge: $" + totalCharge);  
                    return;  
                }  
                default -> System.out.println("Invalid choice!");  
            }  
        }  
    }  
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac ParkingLot.java
C:\Users\halit\OneDrive\Documents\java\basic>java ParkingLot
1. Car - $10
2. Bike - $5
3. Truck - $15
4. Exit
Enter vehicle type: 2

1. Car - $10
2. Bike - $5
3. Truck - $15
4. Exit
Enter vehicle type: 2

1. Car - $10
2. Bike - $5
3. Truck - $15
4. Exit
Enter vehicle type: 3

1. Car - $10
2. Bike - $5
3. Truck - $15
4. Exit
Enter vehicle type: 4
Total Parking Charge: $25.0
```

### 3.h) Quiz System

#### Code:

```
import java.util.Scanner;
public class QuizSystem {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int score = 0, choice;

        do {
            System.out.println("\nWhat is the capital of France?");
            System.out.println("1. Berlin 2. Madrid 3. Paris 4. Rome");
            System.out.print("Enter your choice: ");
            choice = sc.nextInt();

            if (choice == 3) {
                System.out.println("Correct!");
                score++;
            } else {
                System.out.println("Wrong! The correct answer is Paris.");
            }

            System.out.print("Do you want to play again? (1. Yes / 2. No): ");
        } while (sc.nextInt() == 1);

        System.out.println("Final Score: " + score);
    }
}
```

#### Output:

```
C:\Users\halit\OneDrive\Documents\java\basic>javac QuizSystem.java
C:\Users\halit\OneDrive\Documents\java\basic>java QuizSystem

What is the capital of France?
1. Berlin 2. Madrid 3. Paris 4. Rome
Enter your choice: 3
Correct!
Do you want to play again? (1. Yes / 2. No): 1

What is the capital of France?
1. Berlin 2. Madrid 3. Paris 4. Rome
Enter your choice: 2
Wrong! The correct answer is Paris.
Do you want to play again? (1. Yes / 2. No): 2
Final Score: 1
```

### 3.i) Elevator

#### Code:

```
import java.util.Scanner;
public class Elevator {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int currentFloor = 1, targetFloor;

        do {
            System.out.print("Enter floor (1-10) or 0 to exit: ");
            targetFloor = sc.nextInt();

            if (targetFloor > 0 && targetFloor <= 10) {
                System.out.println("Moving from Floor " + currentFloor + " to " + targetFloor);
                currentFloor = targetFloor;
            } else if (targetFloor != 0) {
                System.out.println("Invalid Floor!");
            }
        } while (targetFloor != 0);

        System.out.println("Elevator stopped.");
    }
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac Elevator.java
C:\Users\halit\OneDrive\Documents\java\basic>java Elevator
Enter floor (1-10) or 0 to exit: 8
Moving from Floor 1 to 8
Enter floor (1-10) or 0 to exit: 6
Moving from Floor 8 to 6
Enter floor (1-10) or 0 to exit: 2
Moving from Floor 6 to 2
Enter floor (1-10) or 0 to exit: 0
Elevator stopped.
```

**3.j) reverse a number****Code:**

```
import java.util.Scanner;
public class ReverseNumber {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        int reversed = 0;

        while (num != 0) {
            reversed = reversed * 10 + num % 10;
            num /= 10;
        }

        System.out.println("Reversed Number: " + reversed);
    }
}
```

**Output:**

```
C:\Users\halit\OneDrive\Documents\java\basic>javac ReverseNumber.java
C:\Users\halit\OneDrive\Documents\java\basic>java ReverseNumber
Enter a number: 24157
Reversed Number: 75142
```