



SCHOOL OF
COMPUTING

LAB RECORD

23CSE111- Object Oriented Programming

Submitted by

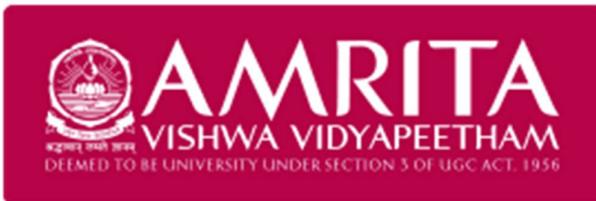
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BACHELOR OF TECHNOLOGY
IN
COMPUTER SCIENCE AND
ENGINEERING

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March - 2025



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BONAFIDE CERTIFICATE

This is to certify that the Lab Record work for 23CSE111- Object Oriented Programming Subject submitted by **CH.SC.U4CSE24111 – Darunkumar. J** 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

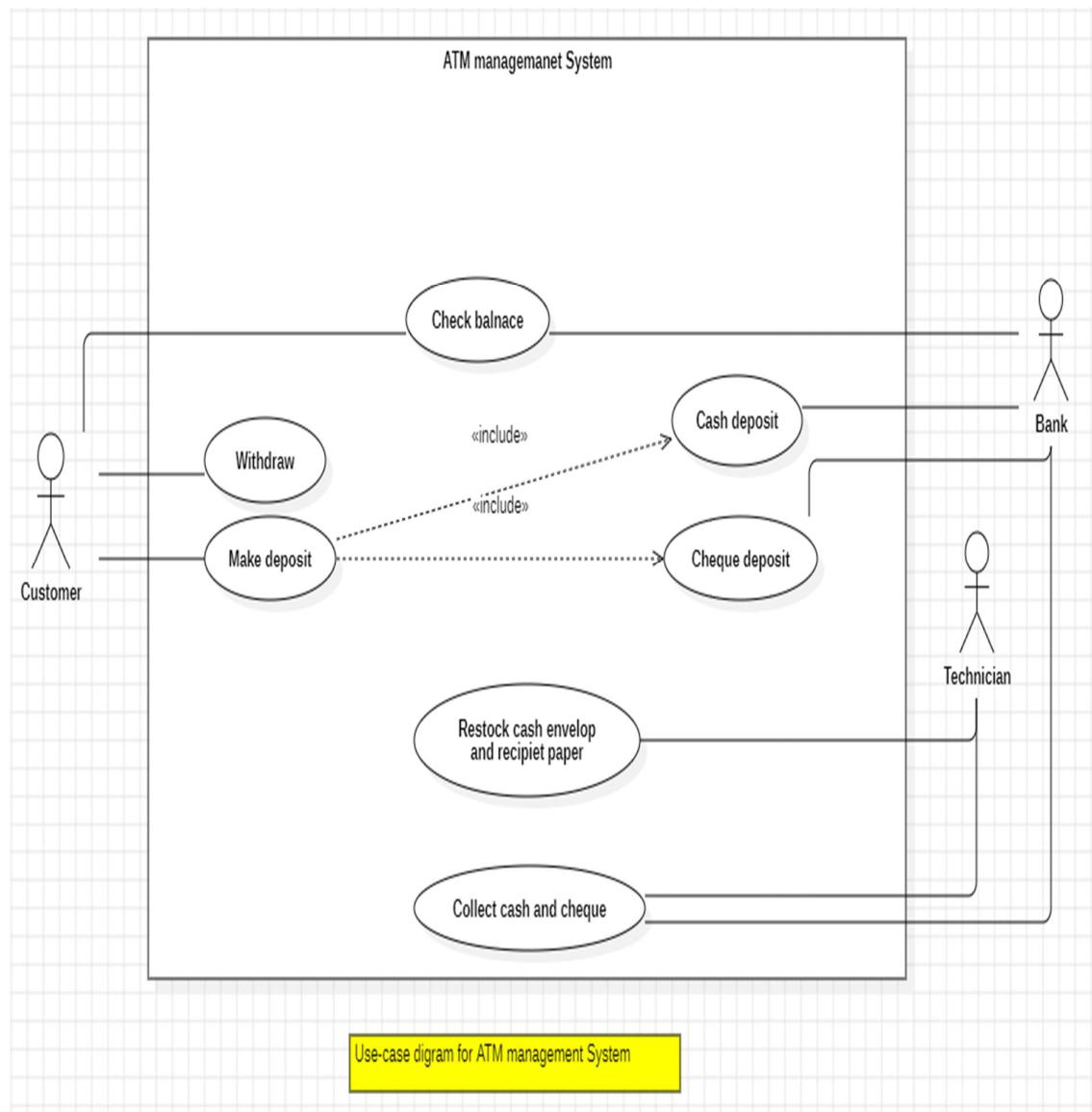
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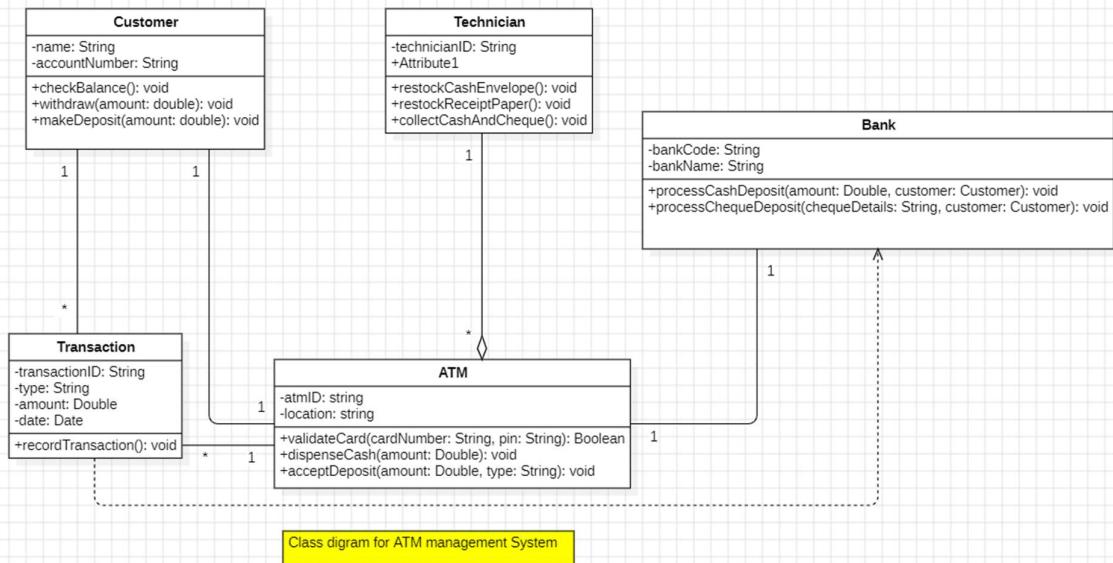
UML DIAGRAMS

1. ATM MANAGEMENT SYSTEM

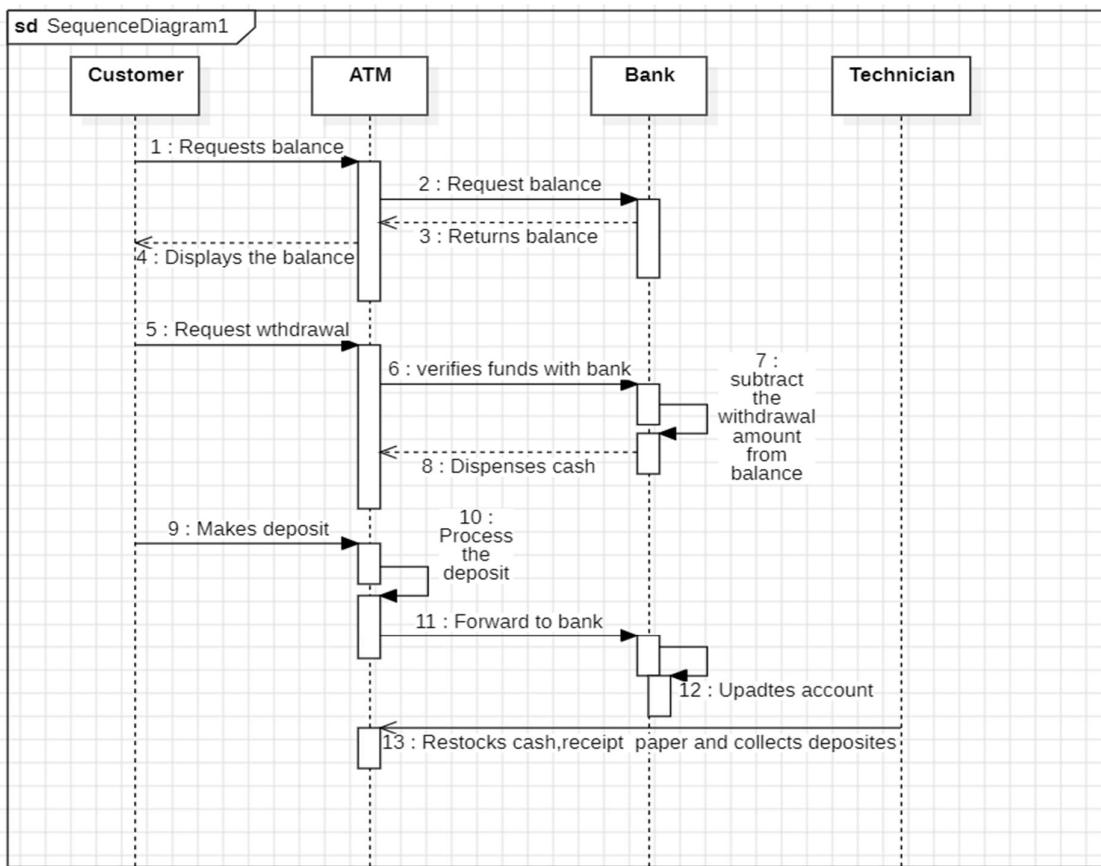
1.a) Use Case Diagram:



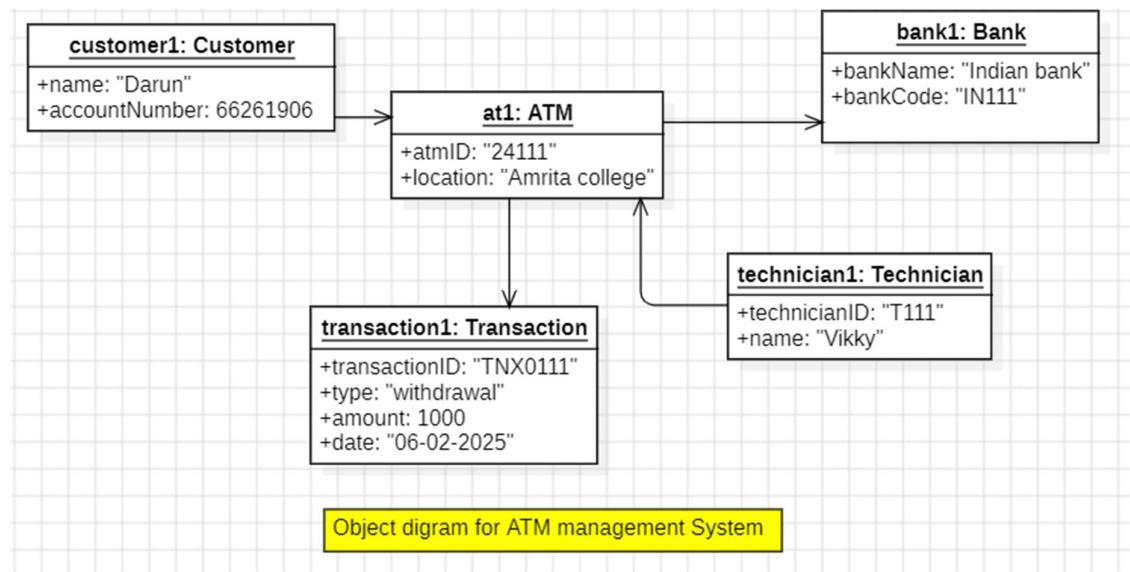
1. b) Class Diagram:



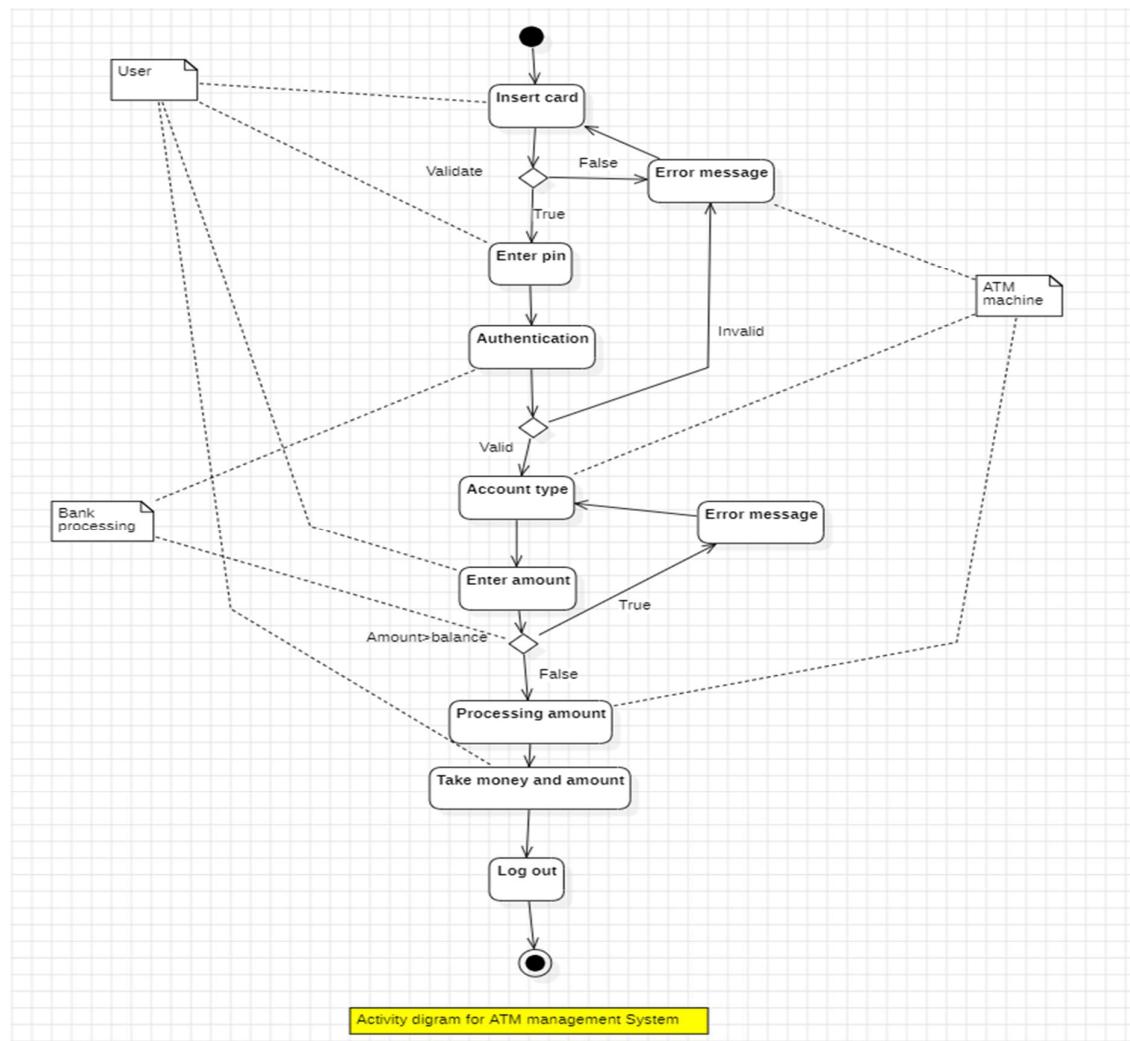
1.c) Sequence Diagram:



1.d) Object Diagram:

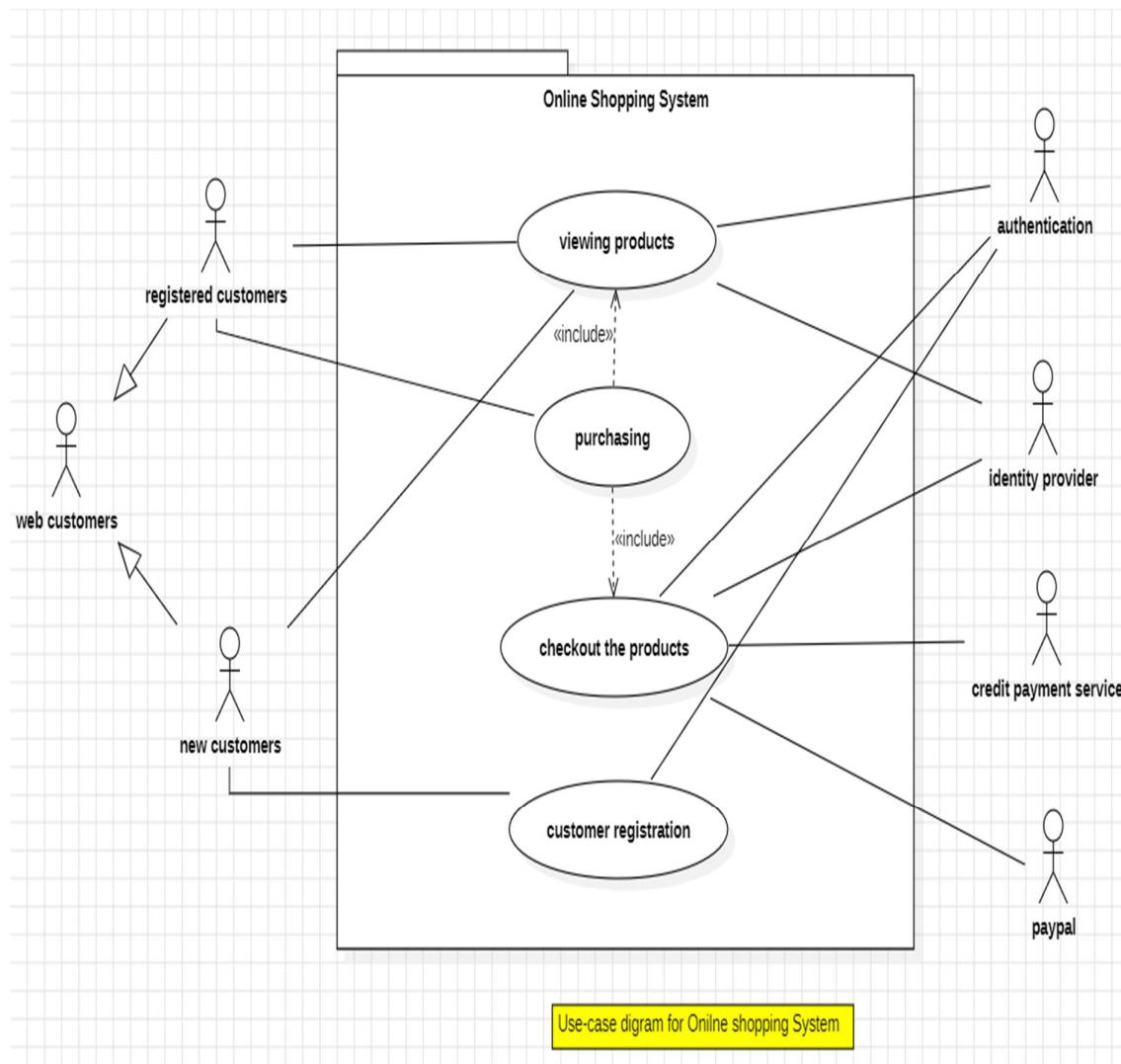


1.e) Activity Diagram:

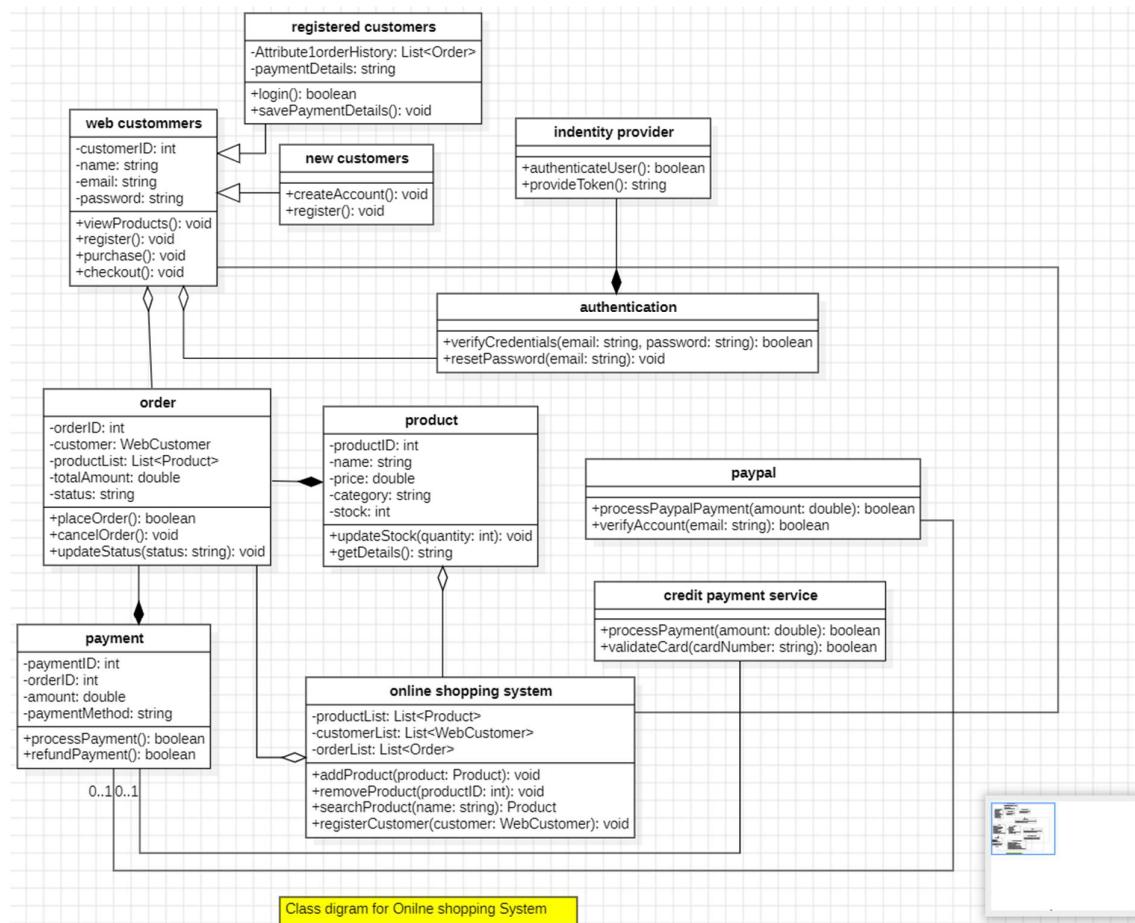


2. ONLINE SHOPPING SYSTEM

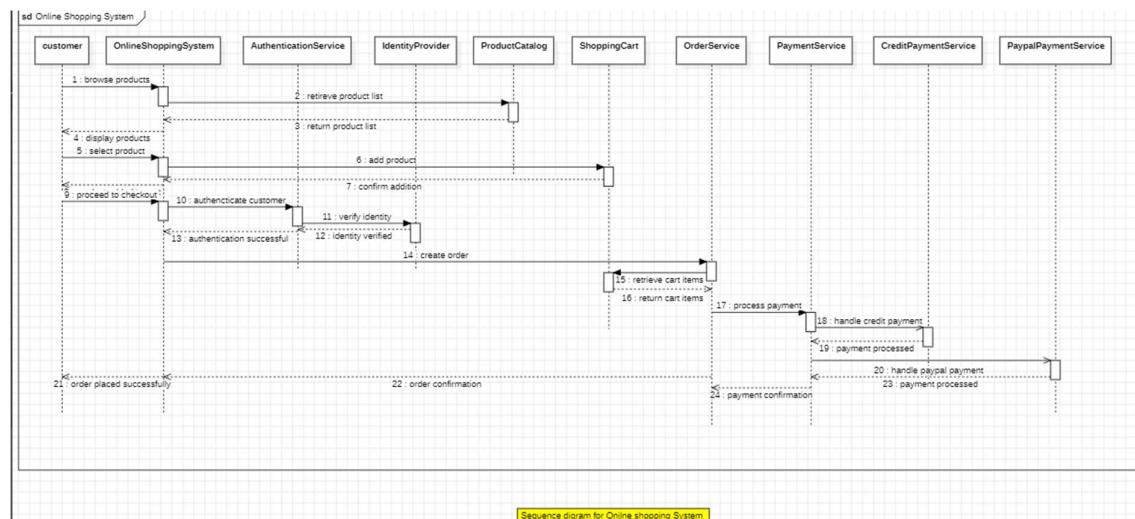
2. a) Use Case Diagram:



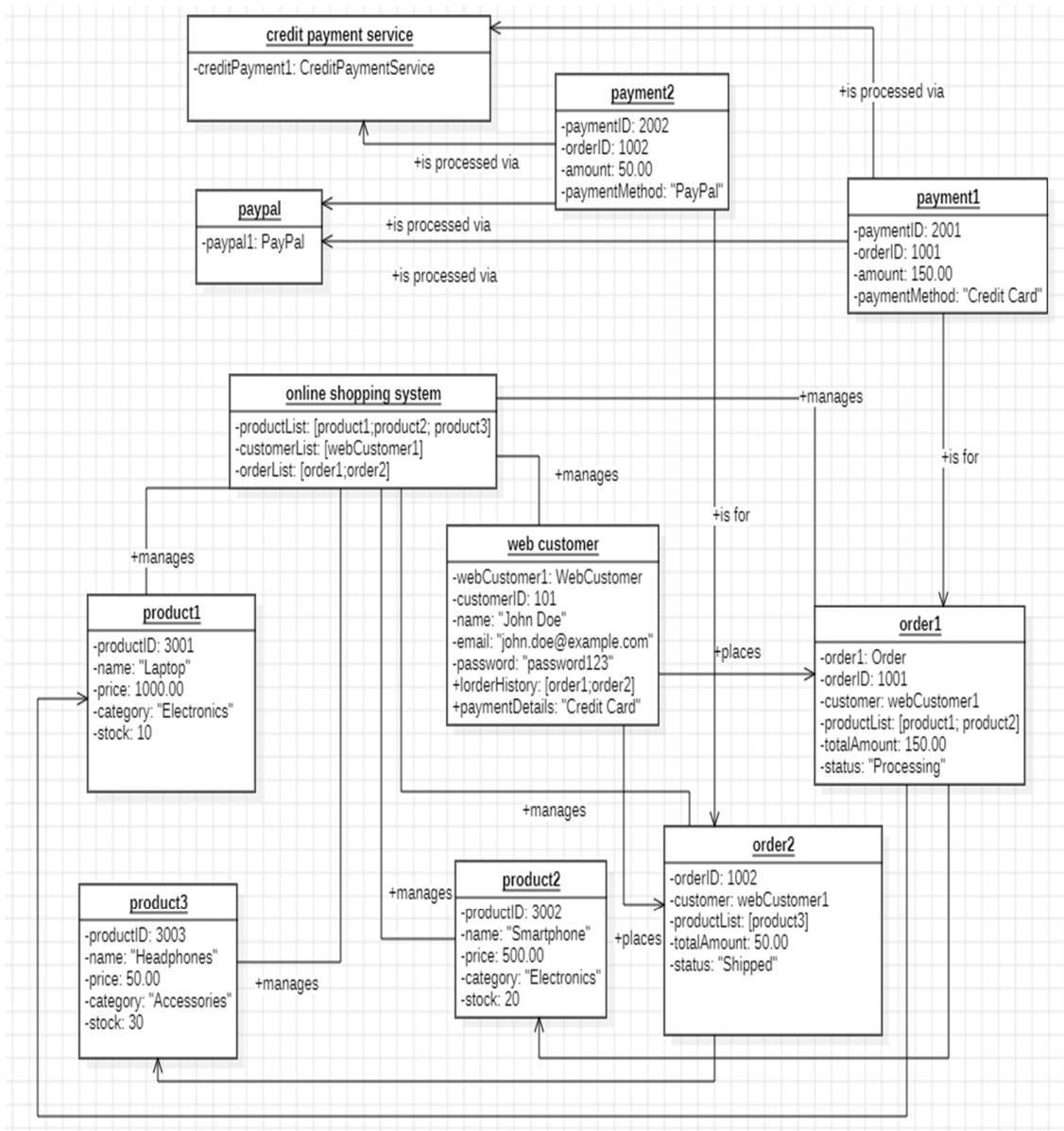
2. b) Class Diagram:



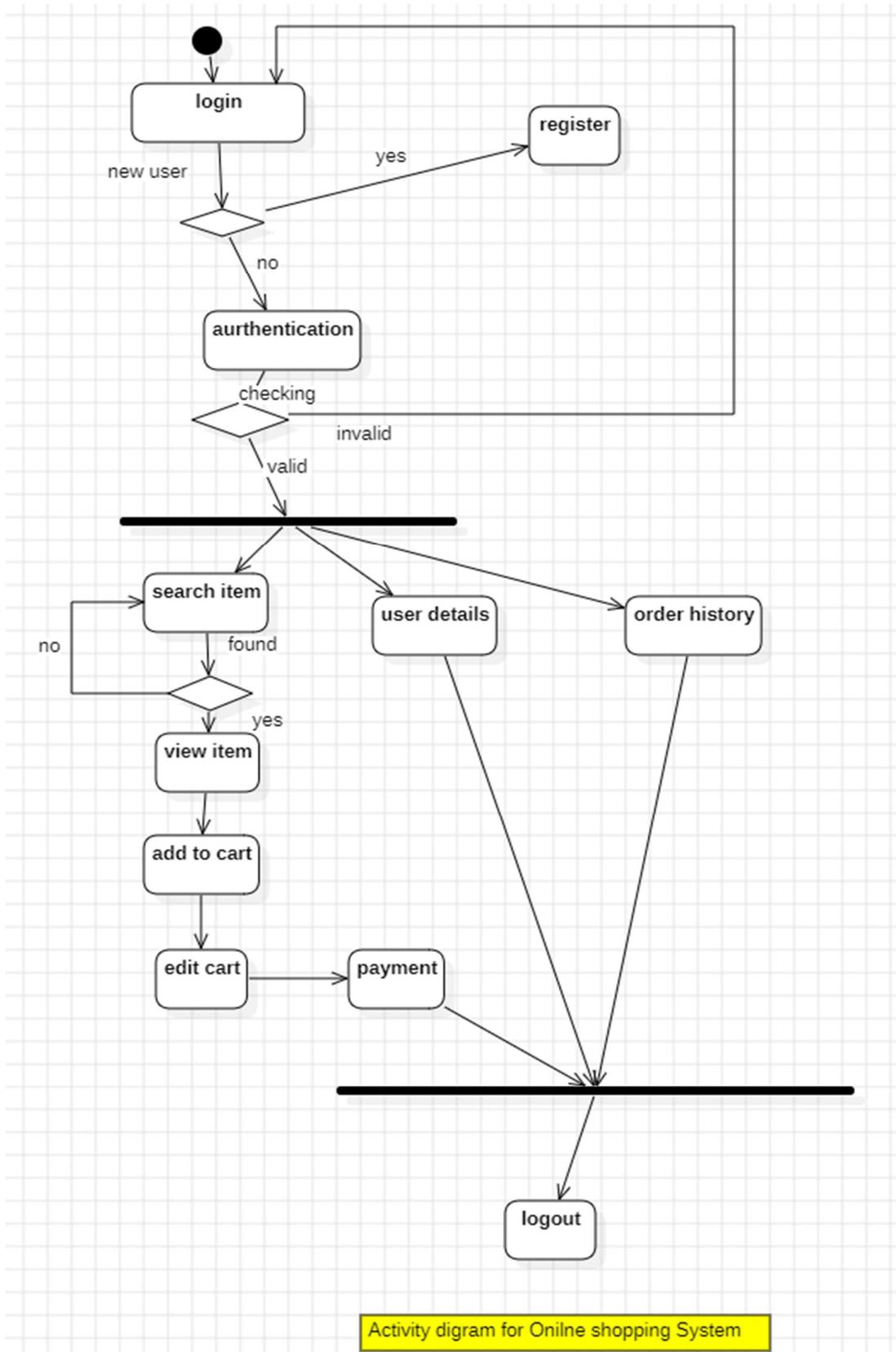
2. c) Sequence Diagram:



2.d) Object Diagram:



2.e) Activity Diagram:



Activity diagram for Online shopping System

3.Basic Java Programs

3.a) Even or odd:

Code:

```
import java.util.Scanner;

public class EvenOdd {
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter a number:");
        int n=input.nextInt();
        if (n%2==0){
            System.out.println(n+" is even");
        }

        else{
            System.out.println(n+" is odd");
        }
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac EvenOdd.java

C:\Sem-2\OOP\Basic java programs>java EvenOdd.java
Enter a number:10
10 is even
```

3.b) Factorial:**Code:**

```
import java.util.Scanner;

public class Factorial {
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter a number:");
        int n=input.nextInt();
        long f=1;
        for (int i = 1; i <= n; i++) {
            f*=i;
        }
        System.out.println("Factorial:" + f);
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac Factorial.java
C:\Sem-2\OOP\Basic java programs>java Factorial.java
Enter a number:10
Factorial:3628800
```

3.c) Grade:

Code:

```
import java.util.Scanner;

public class Grade {
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);

        System.out.print("Enter student's marks (0-100): ");
        int marks=input.nextInt();

        char grade;
        if (marks >= 90 && marks <= 100) {
            grade = 'A';
        }
        else if (marks >= 80) {
            grade = 'B';
        }
        else if (marks >= 70) {
            grade = 'C';
        }
        else if (marks >= 60) {
            grade = 'D';
        }
        else {
            grade = 'F';
        }

        System.out.println("Student's grade is " + grade);
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac Grade.java

C:\Sem-2\OOP\Basic java programs>java Grade.java
Enter student's marks (0-100): 99
Student's grade is A
```

3.d) Maximum of three numbers:**Code:**

```
import java.util.Scanner;

public class Max{
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print(s:"Enter the first number:");
        int a=input.nextInt();
        System.out.print(s:"Enter the second number:");
        int b=input.nextInt();
        System.out.print(s:"Enter the third number:");
        int c=input.nextInt();
        if(a>b && a>c){
            System.out.println("The largest number is "+a);
        }

        else if(b>a && b>c){
            System.out.println("The largest number is "+b);
        }

        else{
            System.out.println("The largest number is "+c);
        }
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac Max.java

C:\Sem-2\OOP\Basic java programs>java Max.java
Enter the first number:3
Enter the second number:7
Enter the third number:26
The largest number is 26
```

3.e) Reverse a string:**Code:**

```
import java.util.Scanner;

public class Reverse{
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter a string:");
        String s=input.nextLine();
        String reverse=new StringBuilder(s).reverse().toString();
        System.out.println("The reversed String is " + reverse);
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac Reverse.java

C:\Sem-2\OOP\Basic java programs>java Reverse.java
Enter a string:Darun
The reversed String is nuraD
```

3.f) Simple Interest:

Code:

```
import java.util.Scanner;

public class SimpleInterest {
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter Principal: ");
        double principal=input.nextDouble();
        System.out.print("Enter Rate of Interest: ");
        double rate=input.nextDouble();
        System.out.print("Enter Time (in years): ");
        double time=input.nextDouble();

        double interest=(principal * rate * time)/100;
        System.out.println("The simple interest is "+interest);
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac SimpleInterest.java
C:\Sem-2\OOP\Basic java programs>java SimpleInterest.java
Enter Principal: 1000
Enter Rate of Interest: 10
Enter Time (in years): 1
The simple interest is 100.0
```

3.g) Sum of two numbers:**Code:**

```
import java.util.Scanner;

public class Sum {
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter the first number:");
        int a=input.nextInt();
        System.out.print("Enter the second number:");
        int b=input.nextInt();
        System.out.println("The sum of the two numbers is "+(a+b));
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac Sum.java

C:\Sem-2\OOP\Basic java programs>java Sum.java
Enter the first number:26
Enter the second number:28
The sum of the two numbers is 54
```

3.h) Sum of digits:

Code:

```
import java.util.Scanner;

public class SumOfDigits{
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num=input.nextInt();
        int sum=0;

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

        System.out.println("Sum of Digits: " + sum);
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac SumOfDigits.java
C:\Sem-2\OOP\Basic java programs>java SumOfDigits.java
Enter a number: 24157
Sum of Digits:19
```

3.i) Swapping two numbers:

Code:

```
import java.util.Scanner;

public class Swap{
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter the first number:");
        int a=input.nextInt();
        System.out.print("Enter the second number:");
        int b=input.nextInt();
        int temp=a;
        a=b;
        b=temp;
        System.out.println("The first number is:"+a);
        System.out.println("The second number is:"+b);
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac Swap.java

C:\Sem-2\OOP\Basic java programs>java Swap.java
Enter the first number:19
Enter the second number:06
The first number is:6
The second number is:19
```

3.j) Temperature converter:**Code:**

```
import java.util.Scanner;

public class TemperatureConverter{
    Run | Debug
    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        System.out.print("Enter temperature in Celsius:");
        double c=input.nextDouble();
        double f=(c*9/5)+32;
        System.out.println("Temperature in Fahrenheit: "+f);
    }
}
```

Output:

```
C:\Sem-2\OOP\Basic java programs>javac TemperatureConverter.java
C:\Sem-2\OOP\Basic java programs>java TemperatureConverter.java
Enter temperature in Celsius:36
Temperature in Fahrenheit: 96.8
```