LAB RECORD

23CSE111 – OBJECT ORIENTED PROGRAMMING

Submitted by

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IN

COMPUTER SCIENCE AND ENGINEERING

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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.U4CSE24125 – M.SHESHANK*** 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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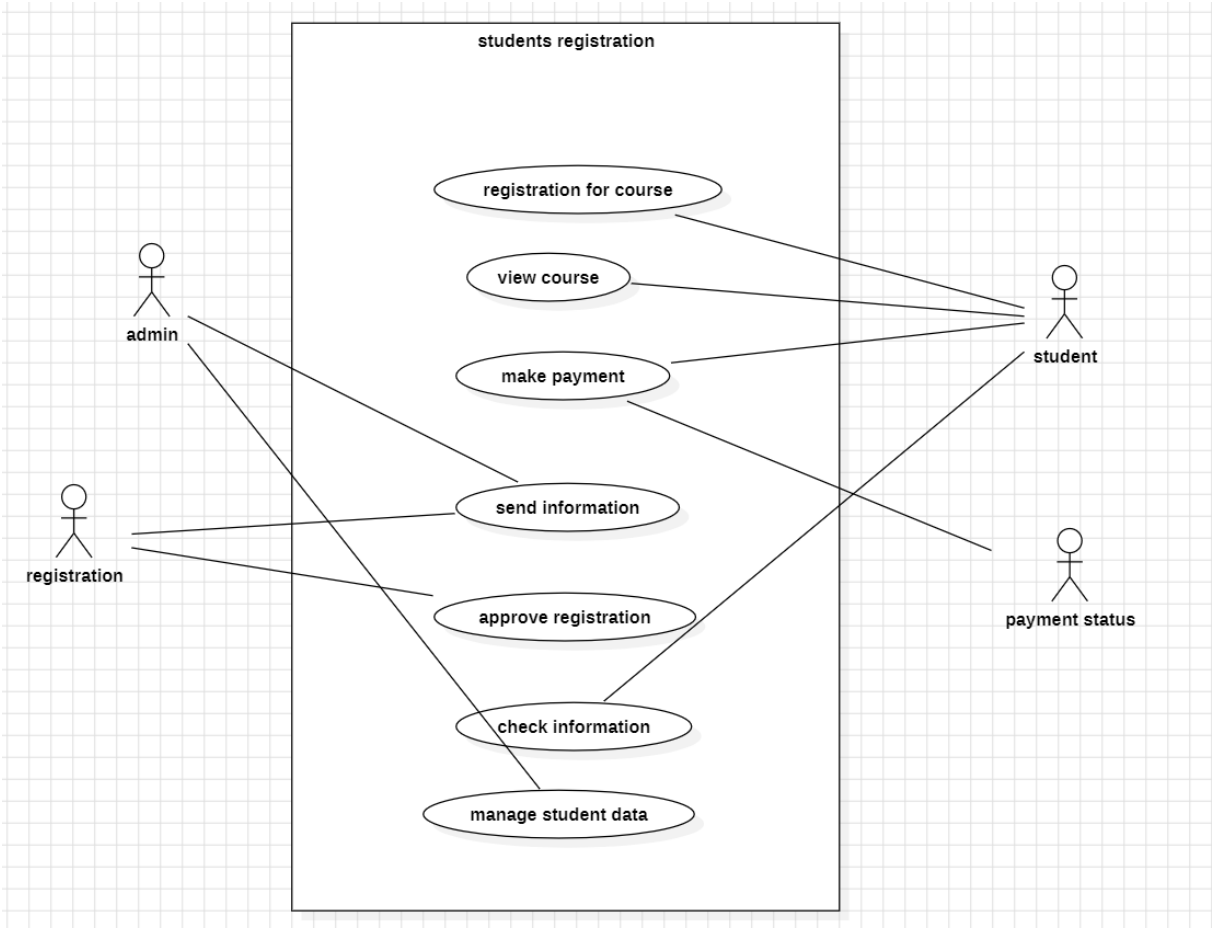
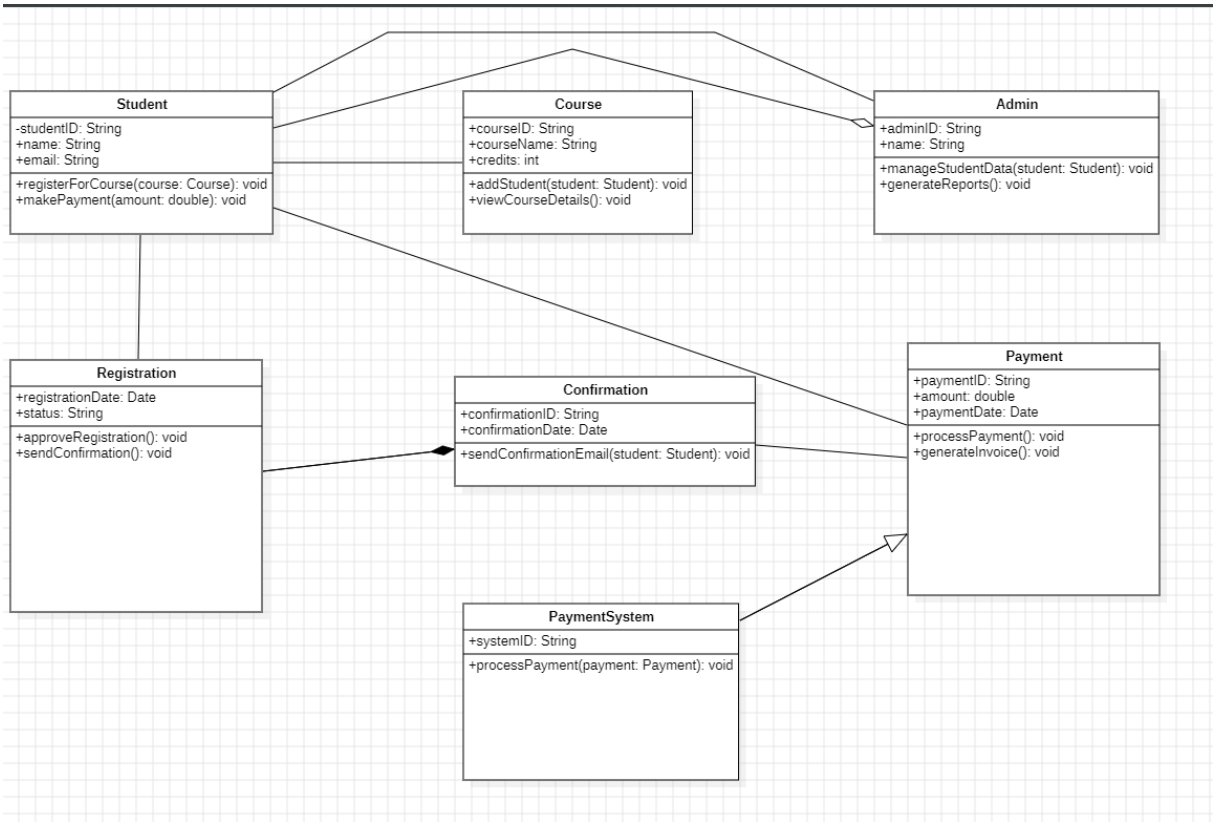
UML DIAGRAMS
STUDENT REGISTRATION

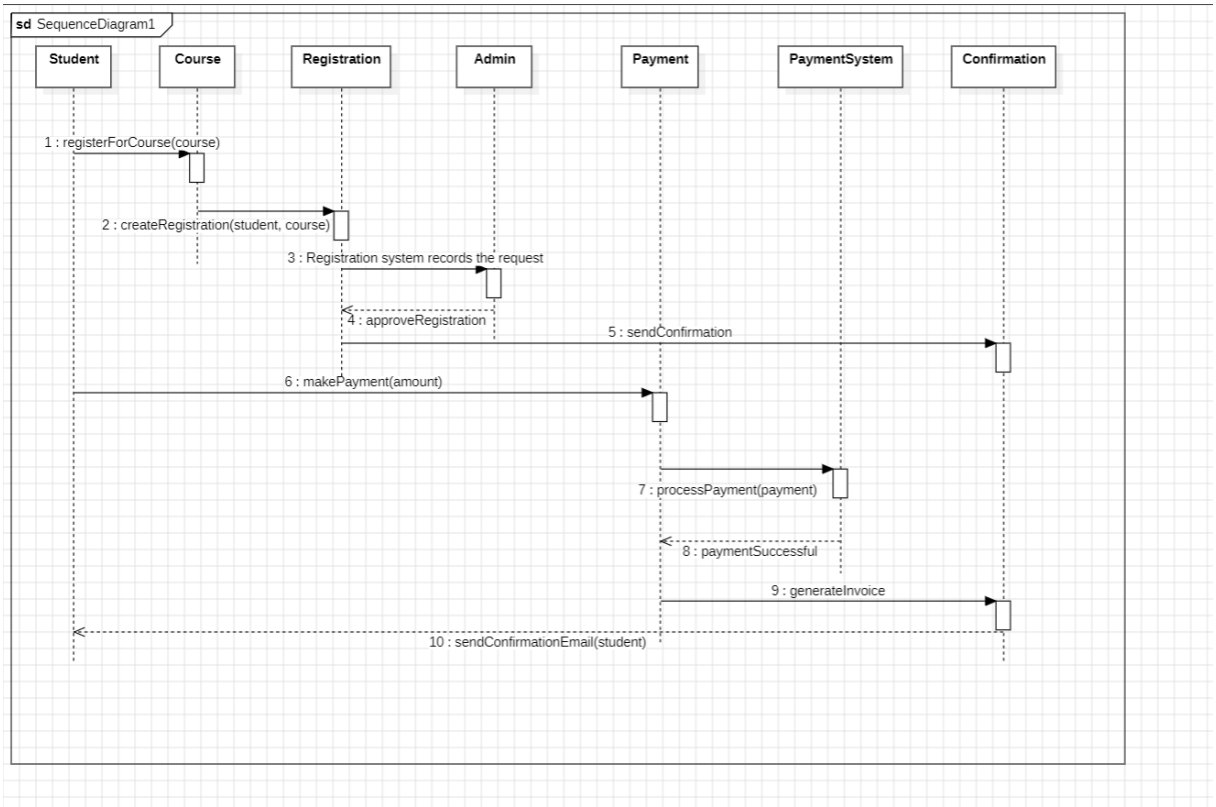
1A.USE CASE DIAGRAM



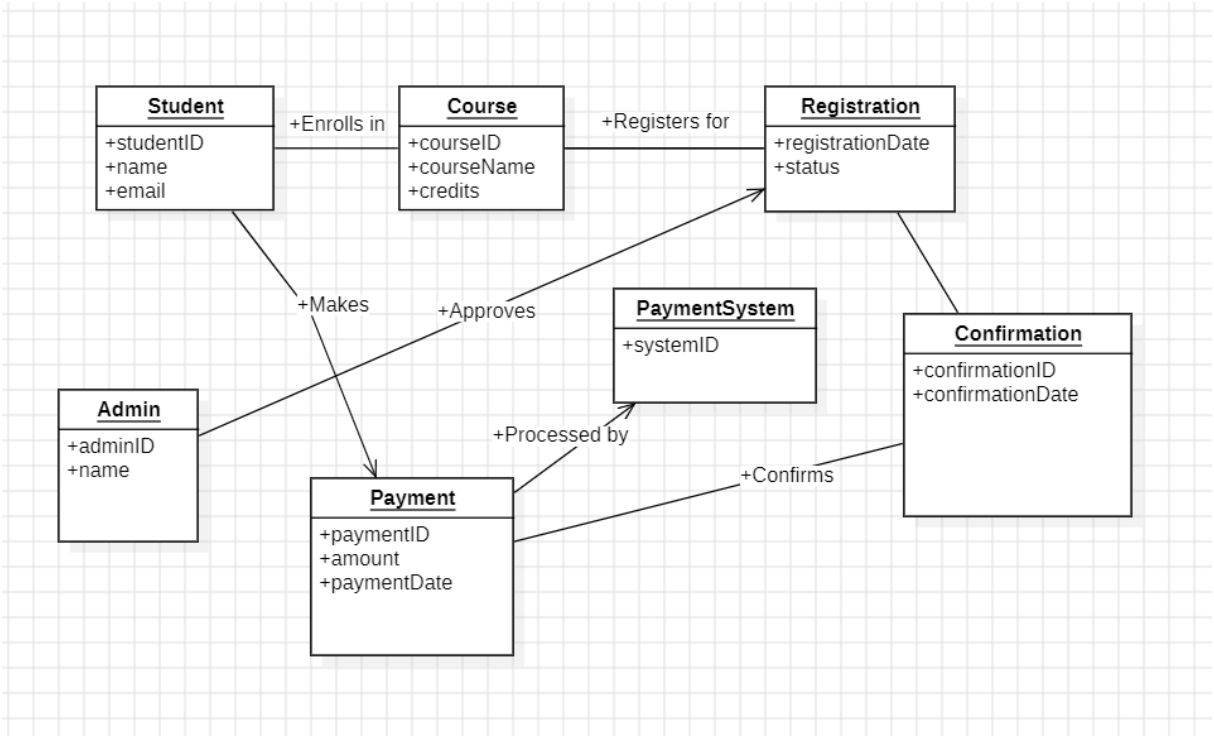
1B.CLASS DIAGRAM



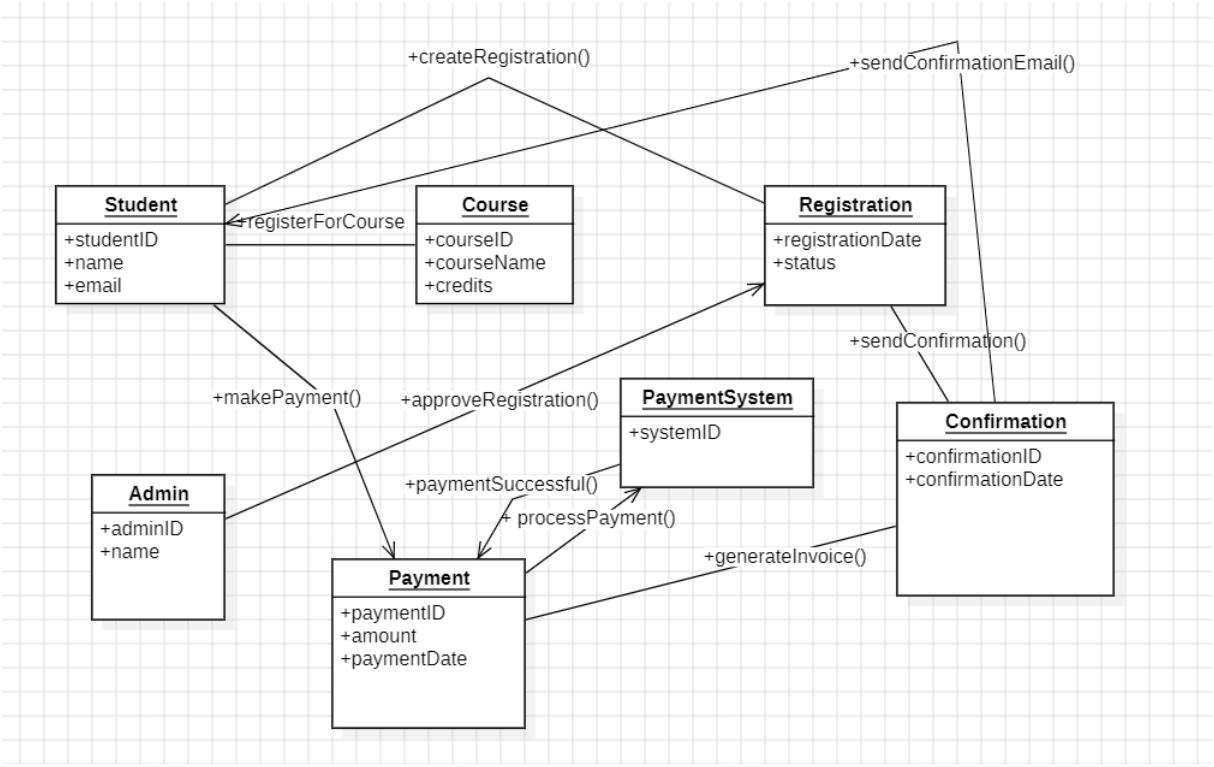
1C.SEQUENCE DIAGRAM:



1D.OBJECT DIAGRAM:

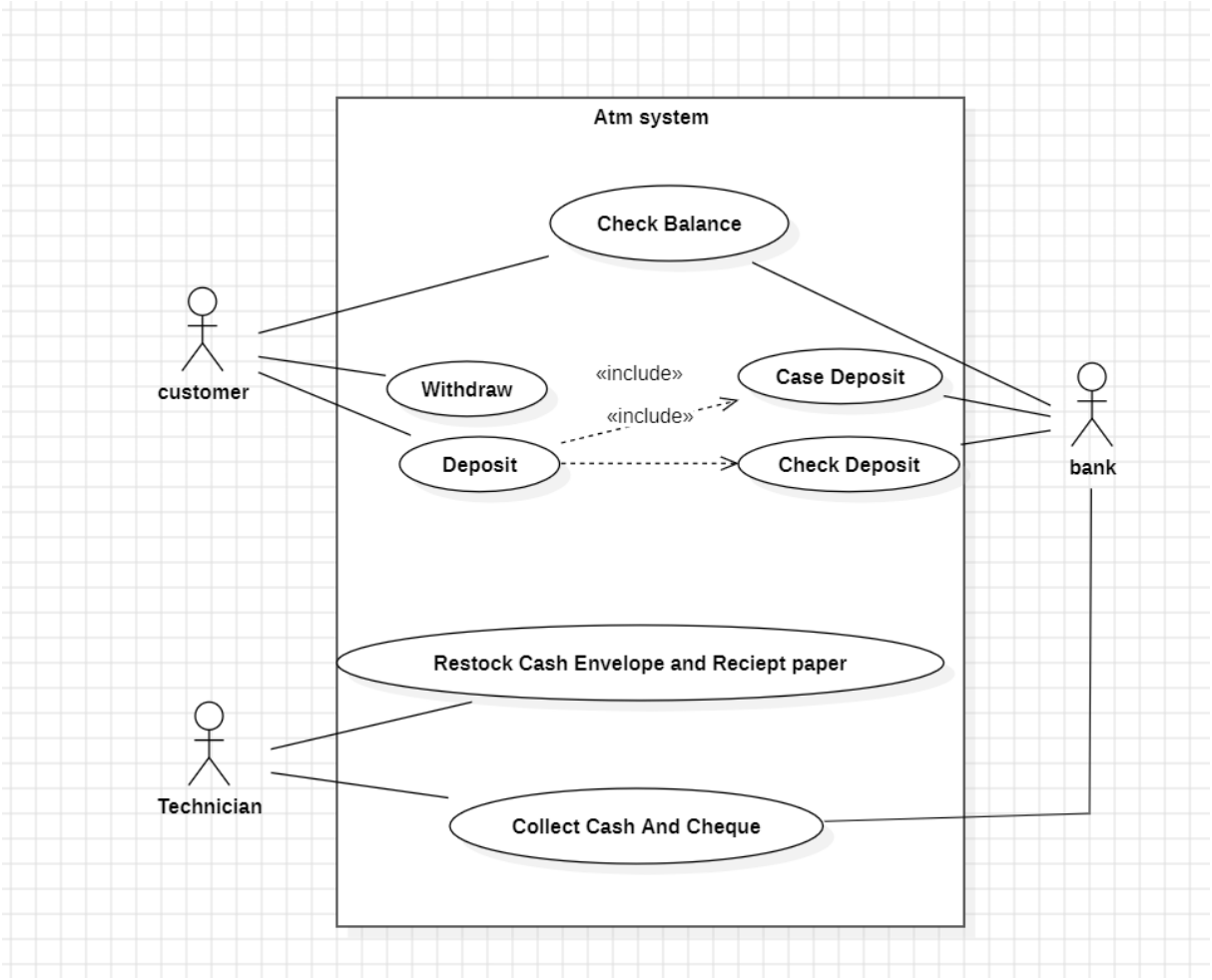


1E.COLLABORATION DIAGRAM:

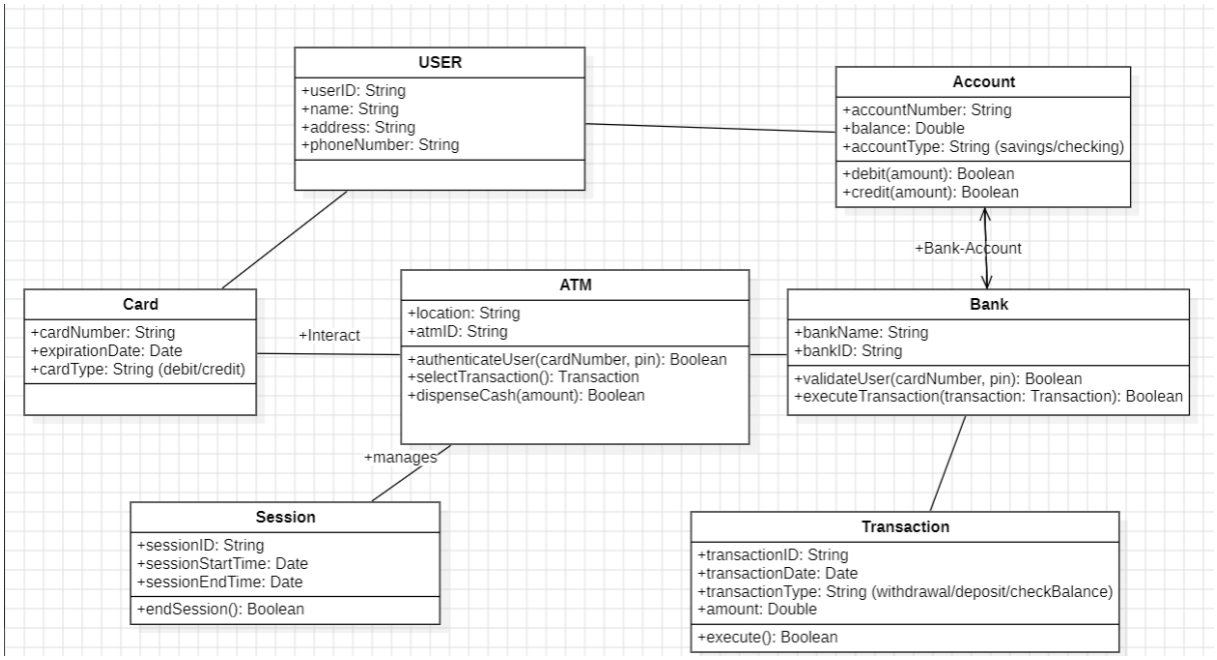


ATM

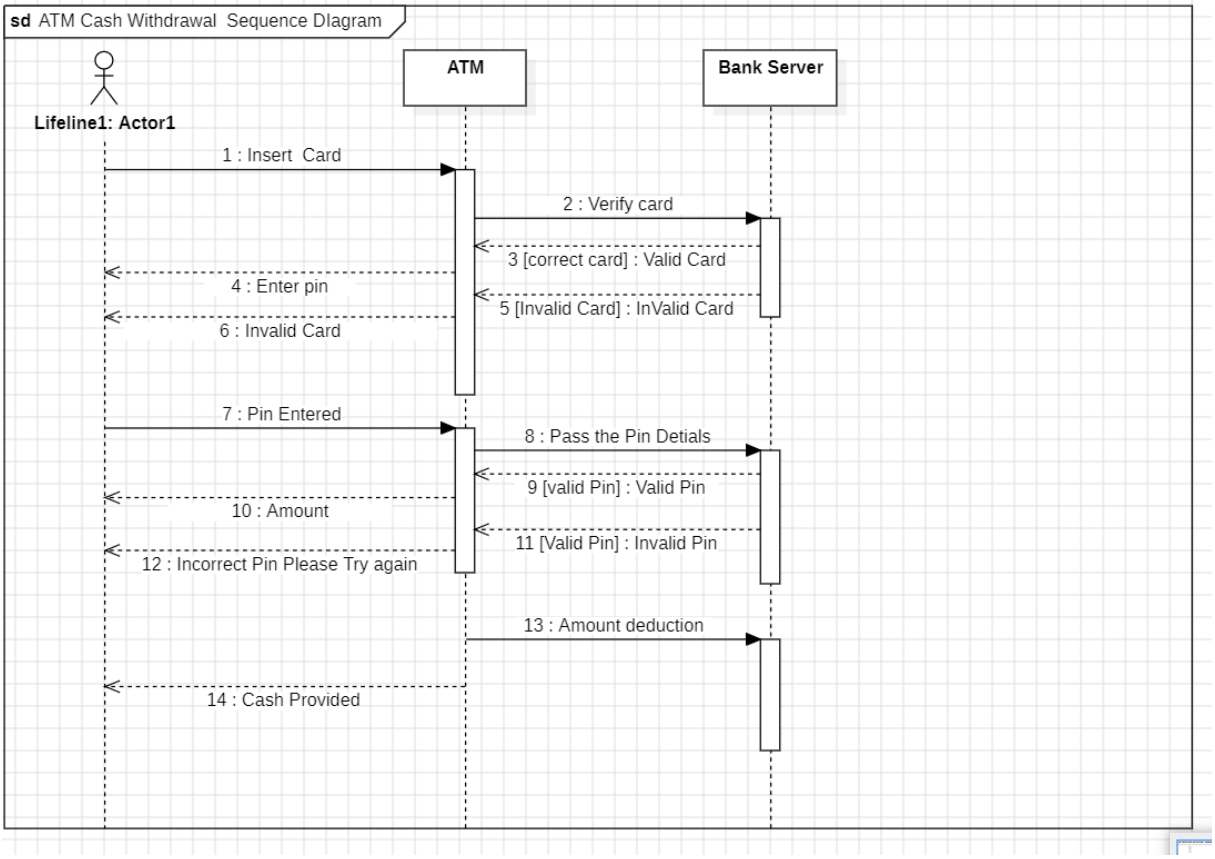
2A.USE CASE DIAGRAM.



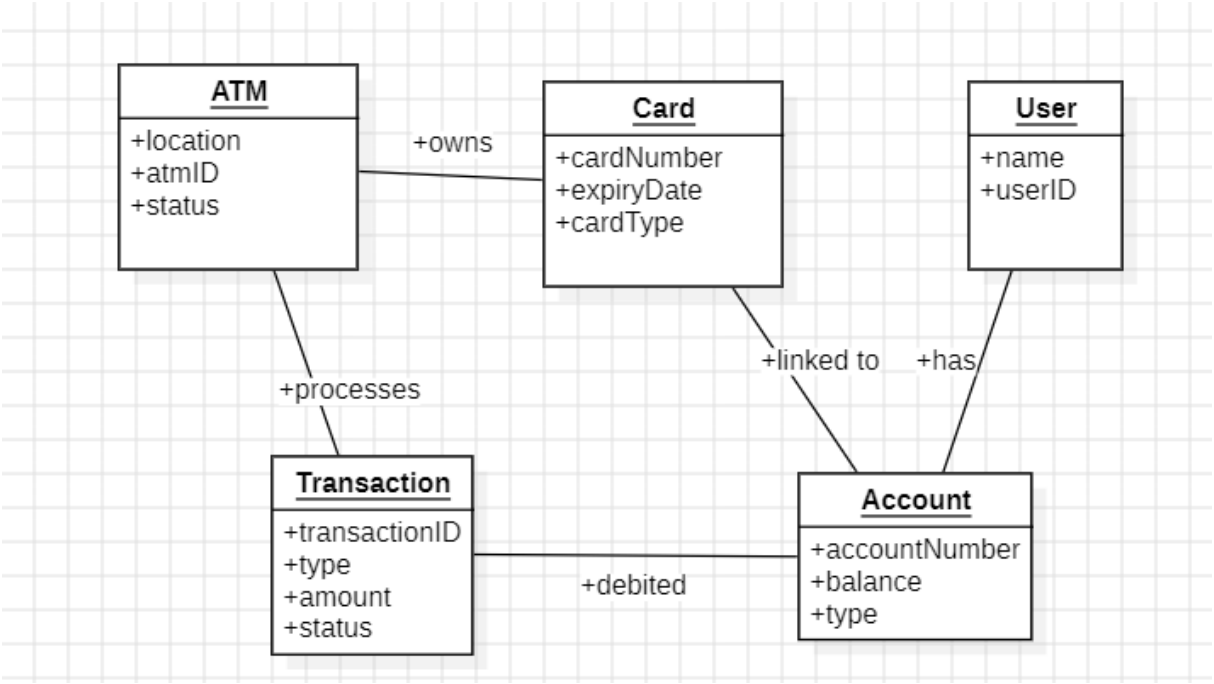
2B.CLASS DIAGRAM.



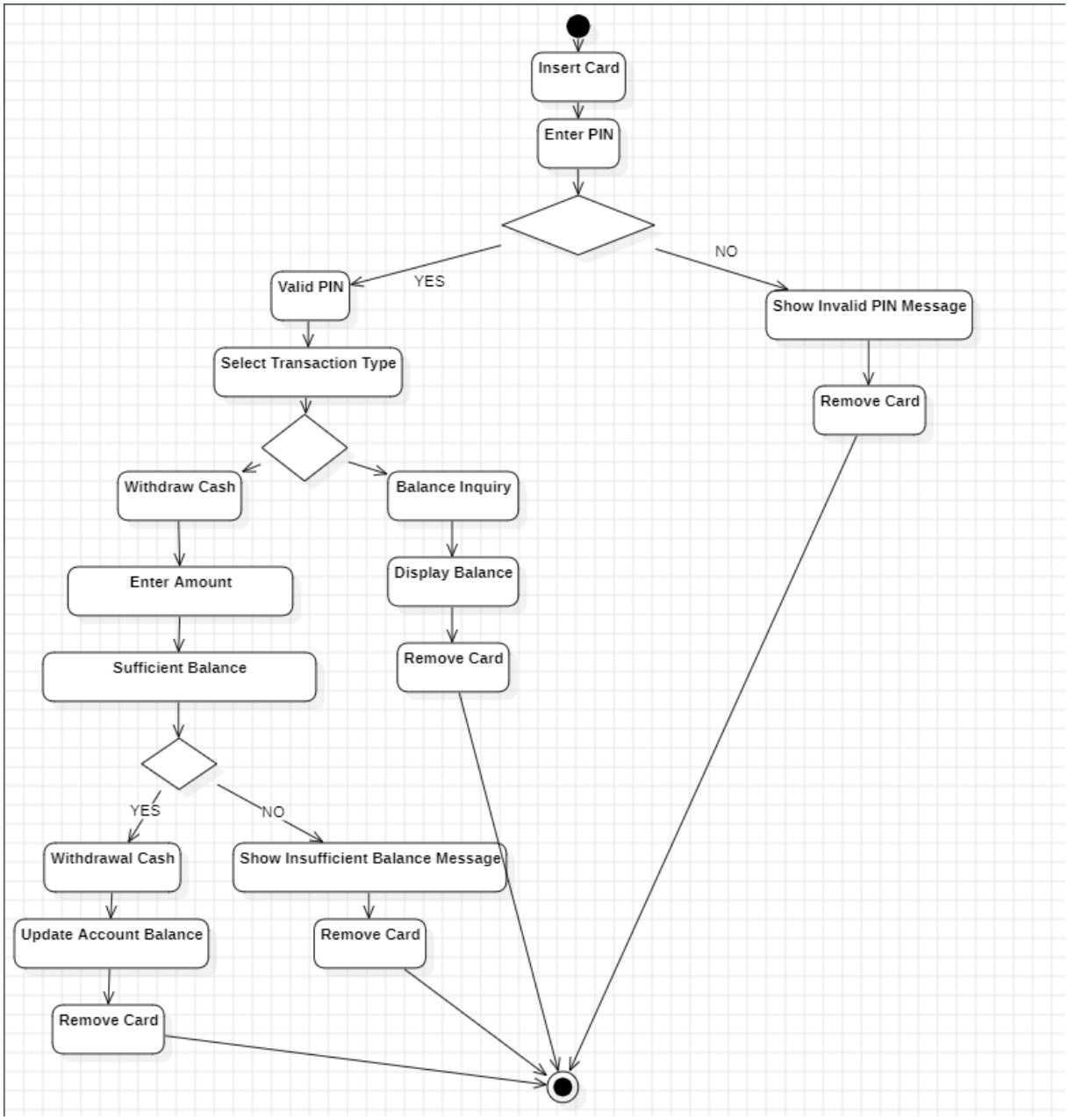
2C.SEQUENCE DIAGRAM.



2D.OBJECT DIAGRAM.



2E.ACTIVITY DIAGRAM.



BASIC JAVA PROGRAMS

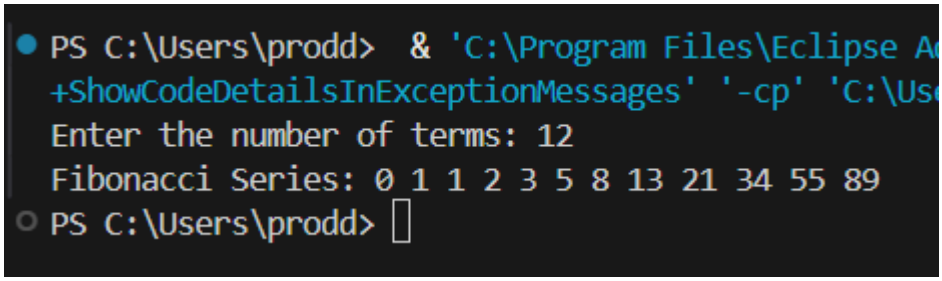
1)AIM: TO FIND FIBINOCCI SERIES.

CODE:

```
import java.util.Scanner;


public class FibonacciSeries {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the number of terms: ");
        int n = scanner.nextInt();
        int a = 0, b = 1;
        System.out.print("Fibonacci Series: " + a + " " + b + " ");
        for (int i = 2; i < n; i++) {
            int next = a + b;
            System.out.print(next + " ");
            a = b;
            b = next;
        }
        scanner.close();
    }
}
```

INPUT & OUTPUT:

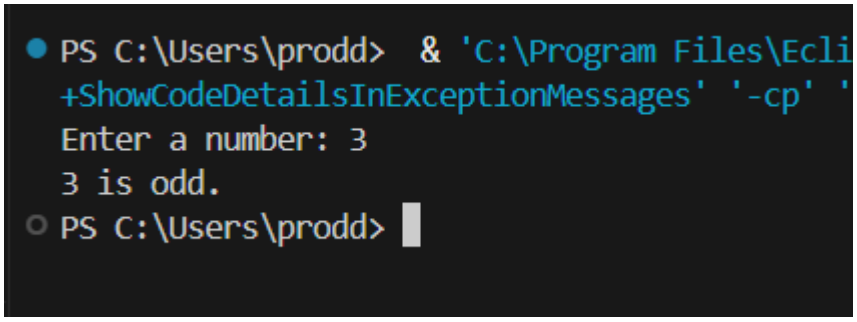


2)AIM:TO FIND THE GIVEN NUMBER IS EVEN OR ODD.

CODE:

```
import java.util.Scanner;
public class EvenOdd {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = sc.nextInt();
        if (num % 2 == 0) {
            System.out.println(num + " is even.");
        } else {
            System.out.println(num + " is odd.");
        }
        sc.close();
    }
}
```

INPUT&OUTPUT:

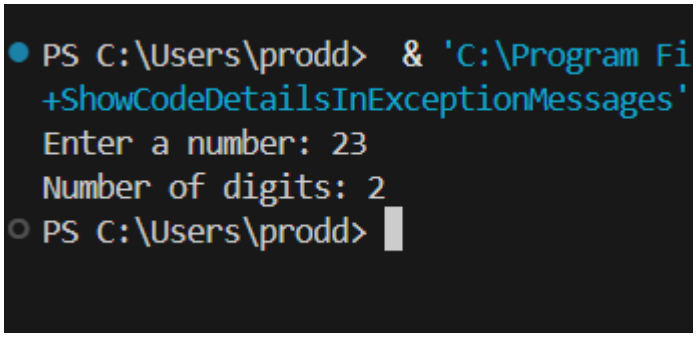


3)AIM:TO COUNT THE NUMBER OF DIGITS IN A NUMBER.

CODE:

```
import java.util.Scanner;
public class CountDigits {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        int count = 0;
        while (num != 0) {
            num /= 10;
            count++;
        }
        System.out.println("Number of digits: " + count);
        scanner.close();
    }
}
```

INPUT&OUTPUT:

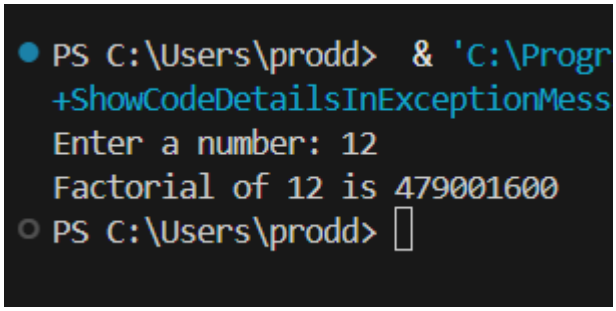


4)AIM:TO FIND THE FACTORIAL OF A NUMBER IN LOOP.

CODE:

```
import java.util.Scanner;
public class FactorialLoop {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        int factorial = 1;
        for (int i = 1; i <= num; i++) {
            factorial *= i;
        }
        System.out.println("Factorial of " + num + " is " + factorial);
        scanner.close();
    }
}
```

INPUT&OUTPUT:

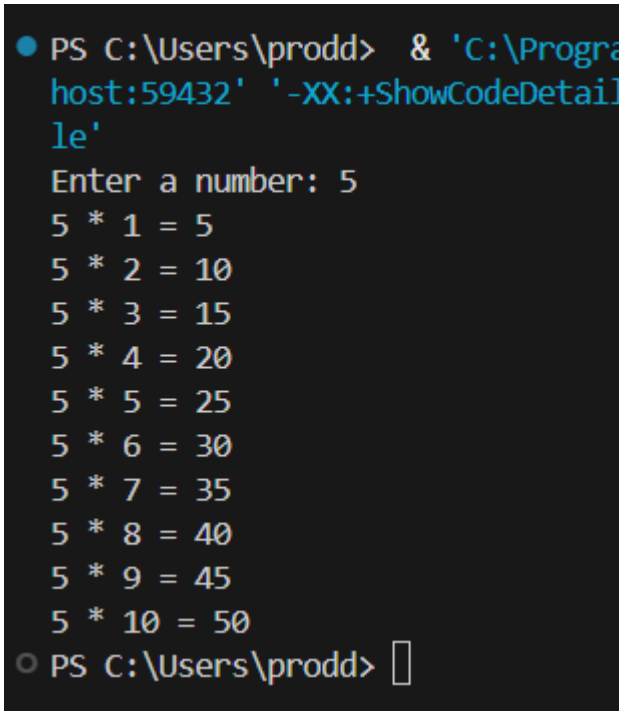


5)AIM:TO GET A MULTIPLICATION TABLE OF A GIVEN NUMBER.

CODE:

```
import java.util.Scanner;
public class MultiplicationTable {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        int i = 1;
        while (i <= 10) {
            System.out.printf("%d * %d = %d%n", num, i, num * i);
            i++;
        }
        scanner.close();
    }
}
```

INPUT&OUTPUT:

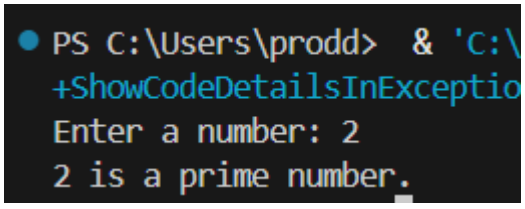


6)AIM:TO FIND THE GIVEN NUMBER IS PRIME OR NOT.

CODE:

```
import java.util.Scanner;
public class PrimeORNot {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter a number: ");
      int num = scanner.nextInt();
      boolean flag = false;
      if (num < 2) {
         flag = true;
      } else {
         for (int i = 2; i <= num / 2; ++i) {
            if (num % i == 0) {
               flag = true;
               break;
            }
         }
      }
      if (!flag)
         System.out.println(num + " is a prime number.");
      else
         System.out.println(num + " is not a prime number.");
      scanner.close();
   }
}
```

INPUT&OUTPUT:

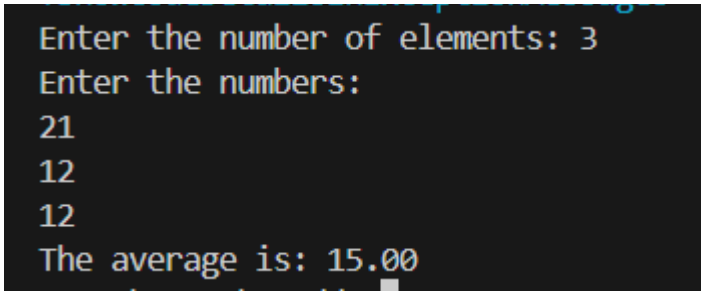


7)AIM:TO FIND AVERAGE OF NUMBERS.

CODE:

```
import java.util.Scanner;
public class Average {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the number of elements: ");
        int n = scanner.nextInt();
        double[] numArray = new double[n];
        double sum = 0.0;
        System.out.println("Enter the numbers:");
        for (int i = 0; i < n; i++) {
            numArray[i] = scanner.nextDouble();
            sum += numArray[i];
        }
        double average = sum / n;
        System.out.printf("The average is: %.2f%n", average);
        scanner.close();
    }
}
```

INPUT&OUTPUT:

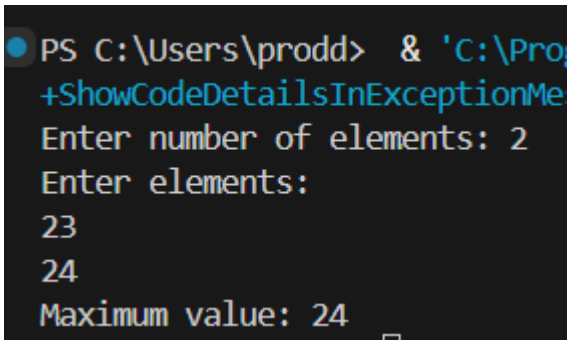


8)AIM:TO FIND THE LARGEST NUMBER FROM GIVEN NUMBERS.

CODE:

```
import java.util.Scanner;
public class Largest_Number {
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
System.out.print("Enter number of elements: ");
int n = scanner.nextInt();
int a[] = new int[n];
System.out.println("Enter elements: ");
for (int i = 0; i < n; i++) {
a[i] = scanner.nextInt();
}
int max = a[0];
for (int i = 0; i < n; i++) {
if (max < a[i]) {
max = a[i];
}
}
System.out.println("Maximum value: " + max);
}
}
```

INPUT&OUTPUT:

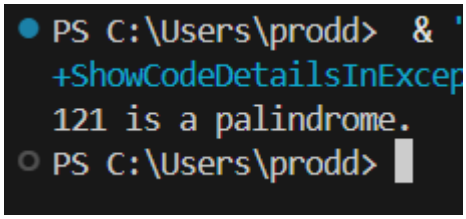


9)AIM:TO FIND GIVEN NUMBER IS PALINDROME.

CODE:

```
public class PalindromeCheck {
    public static void main(String[] args) {
        int num = 121; int original = num; int reversed = 0;
        while (num != 0) {
            int digit = num % 10;
            reversed = reversed * 10 + digit;
            num /= 10;
        }
        if (original == reversed) {
            System.out.println(original + " is a palindrome.");
        } else {
            System.out.println(original + " is not a palindrome.");
        }
    }
}
```

INPUT&OUTPUT:



10)AIM:TO CALCULATE THE BMI.

CODE:

```
import java.util.Scanner;
public class BMICalculator {
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
System.out.print("Enter weight in kilograms: ");
double weight = scanner.nextDouble();
System.out.print("Enter height in meters: ");
double height = scanner.nextDouble();
double bmi = weight / (height * height);
System.out.printf("Your BMI is: %.2f\n", bmi);
if (bmi < 18.5) {
System.out.println("Category: Underweight");
} else if (bmi < 24.9) {
System.out.println("Category: Normal weight");
} else if (bmi < 29.9) {
System.out.println("Category: Overweight");
} else {
System.out.println("Category: Obese");
}
scanner.close();
}
}
```

INPUT&OUTPUT: