SCHOOL OF
COMPUTING

NAGARAMPALLI

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CH.SC.U4CSE24130

OBJECT ORIENTED PROGRAMMING (23CSE111)

LAB RECORD

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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.U4CSE24130 – NAGARAMPALLI SARVAN KUMAR*** 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

Internal Examiner 1 Internal Examiner 2

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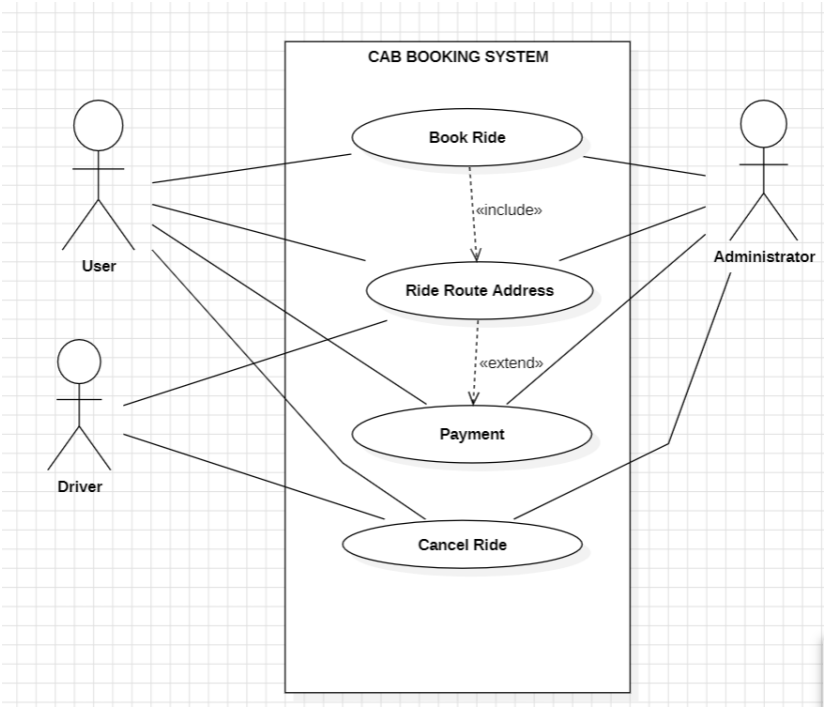
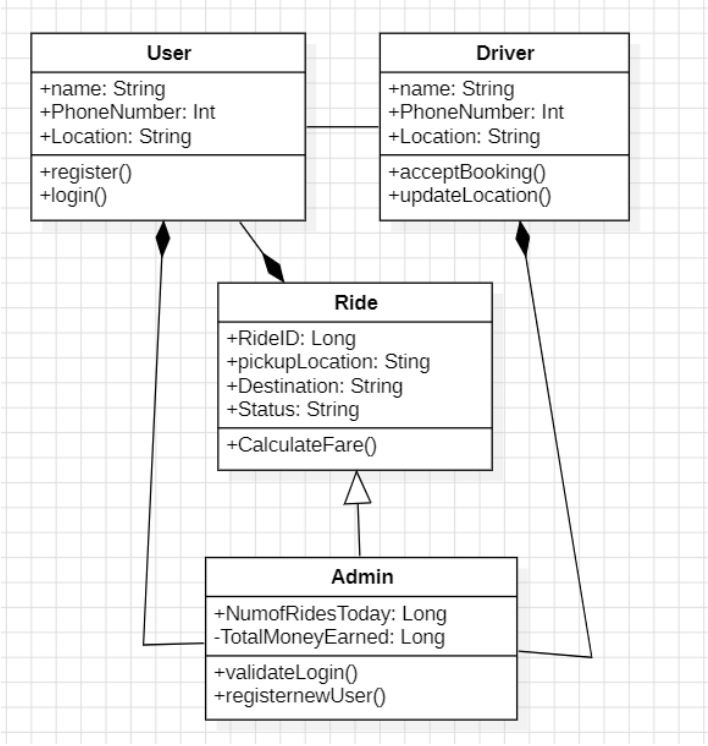
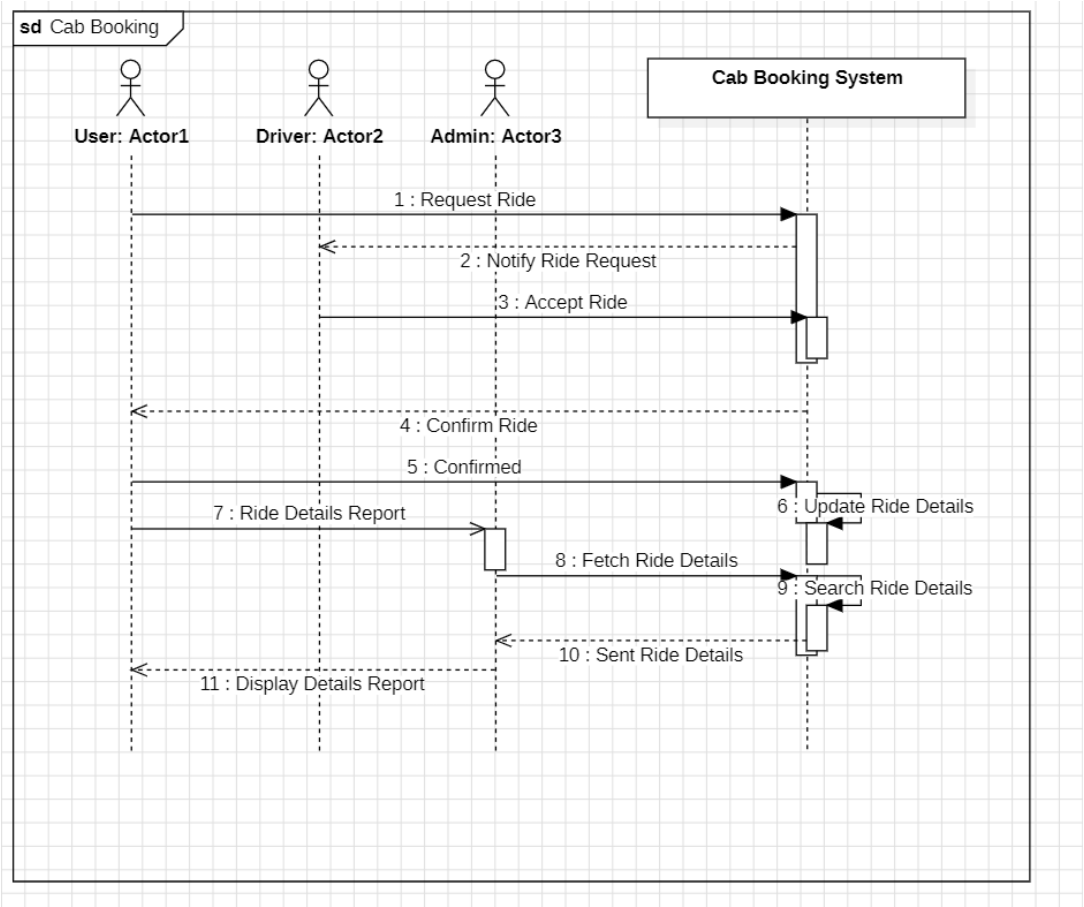
1.a) Use Case Diagram:



1.b) Class Diagram:



1.c) Sequence Diagram:



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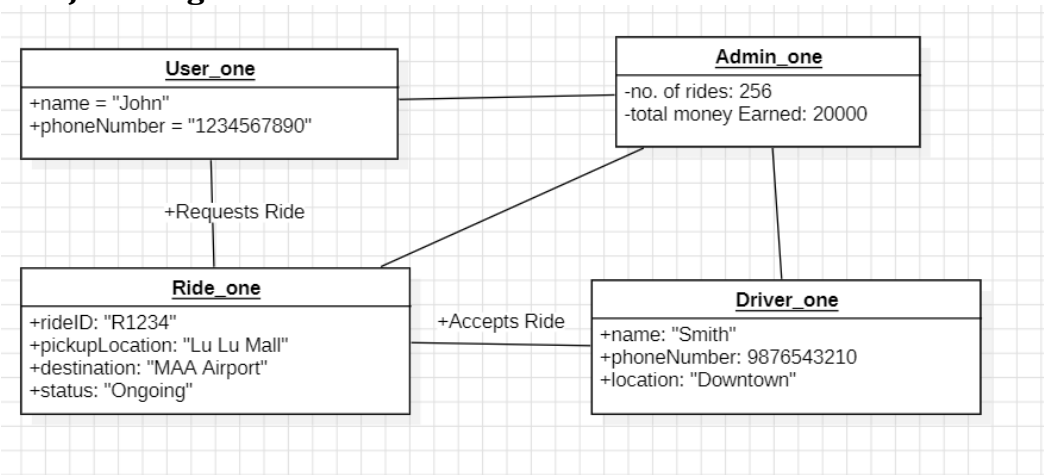
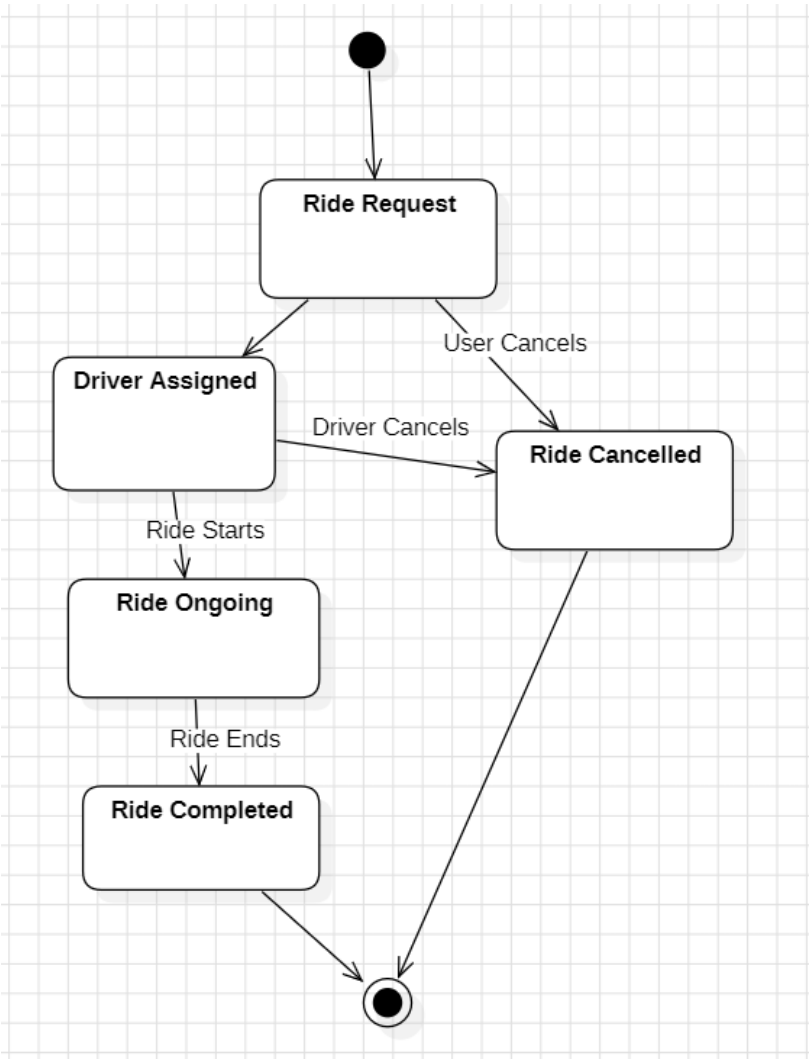
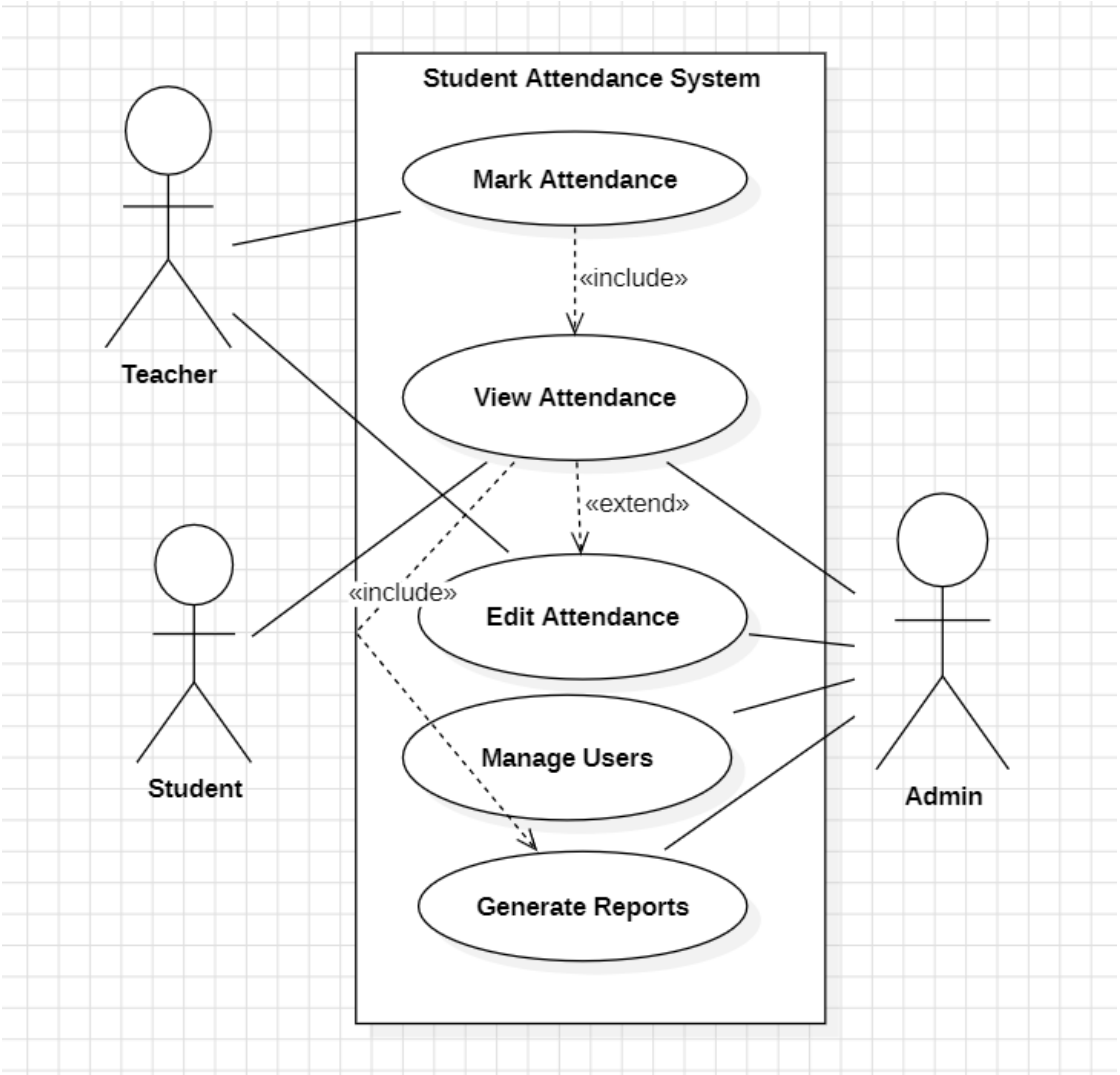


1.e) State-Activity Diagram:



2. STUDENT ATTENDANCE SYSTEM

2.a) Use Case Diagram:



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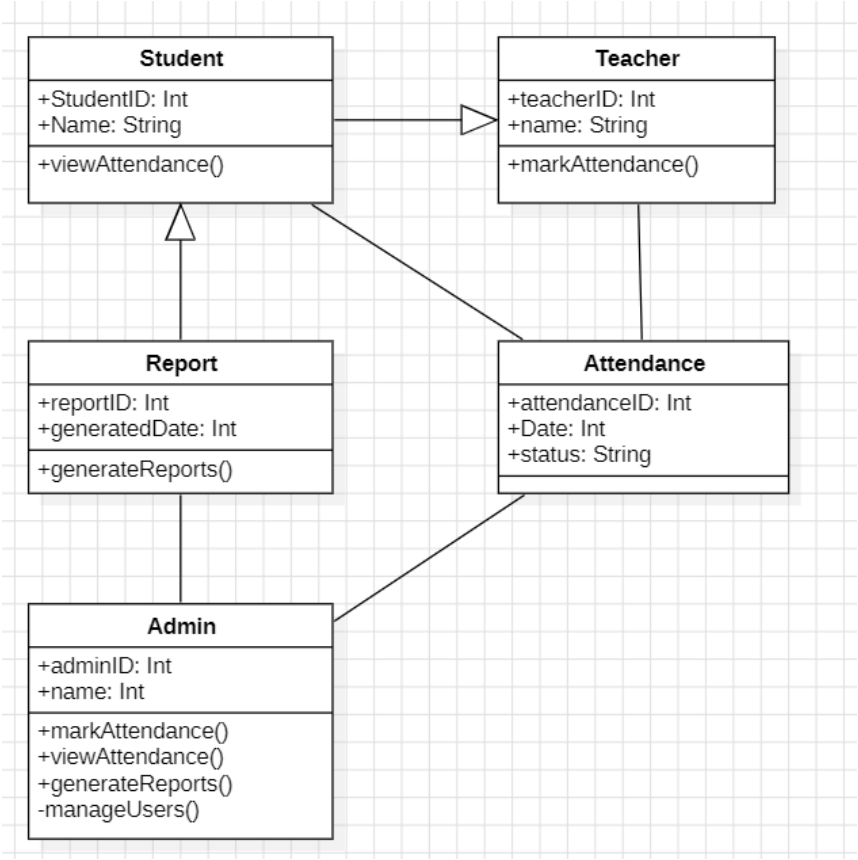
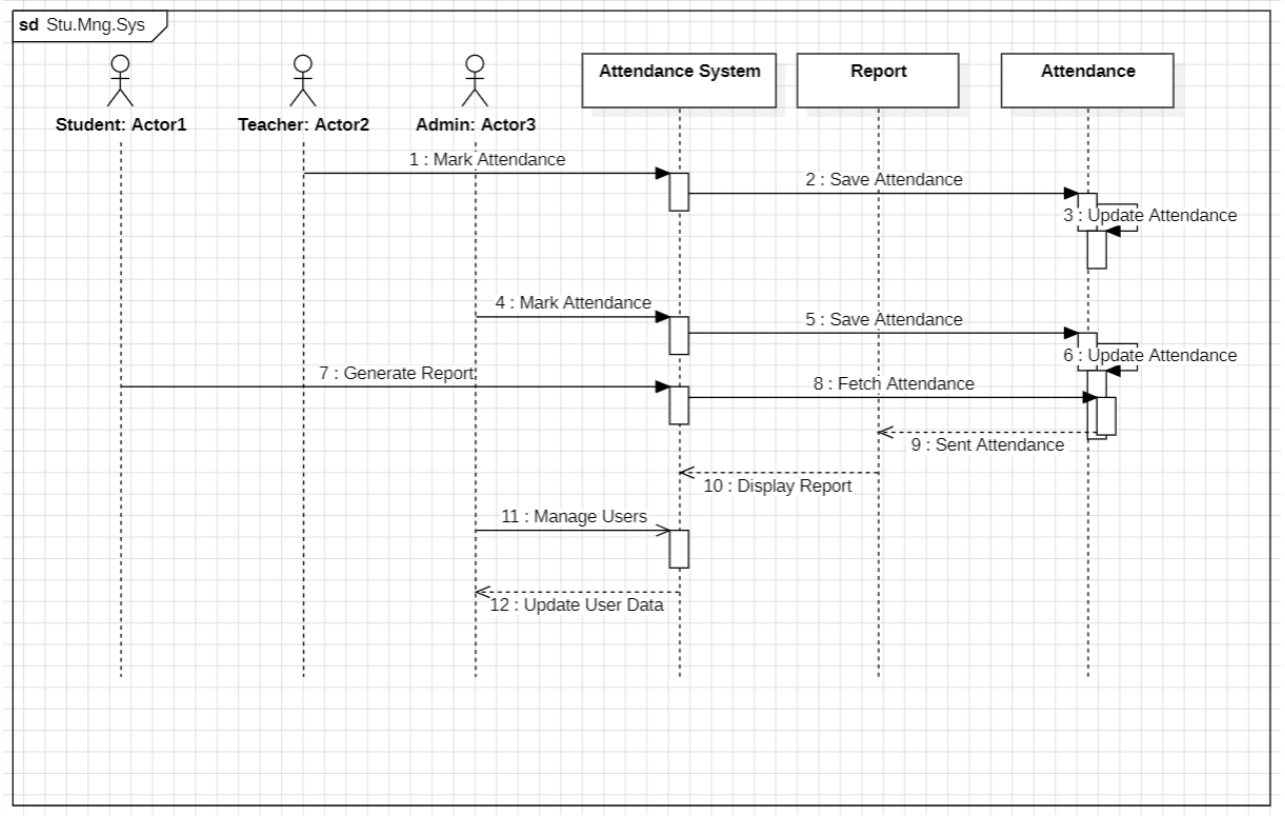


2.c) Sequence Diagram:



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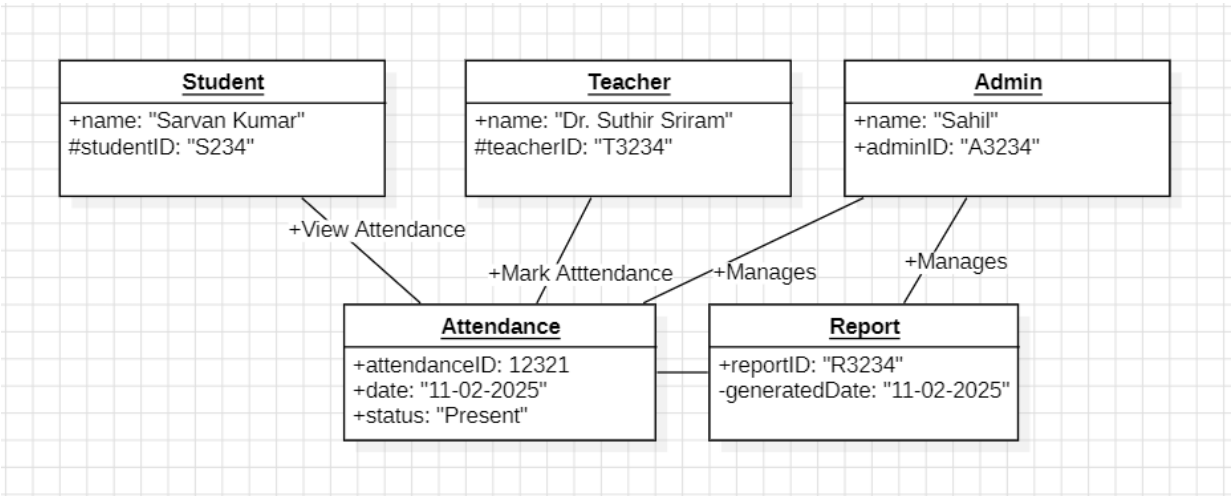
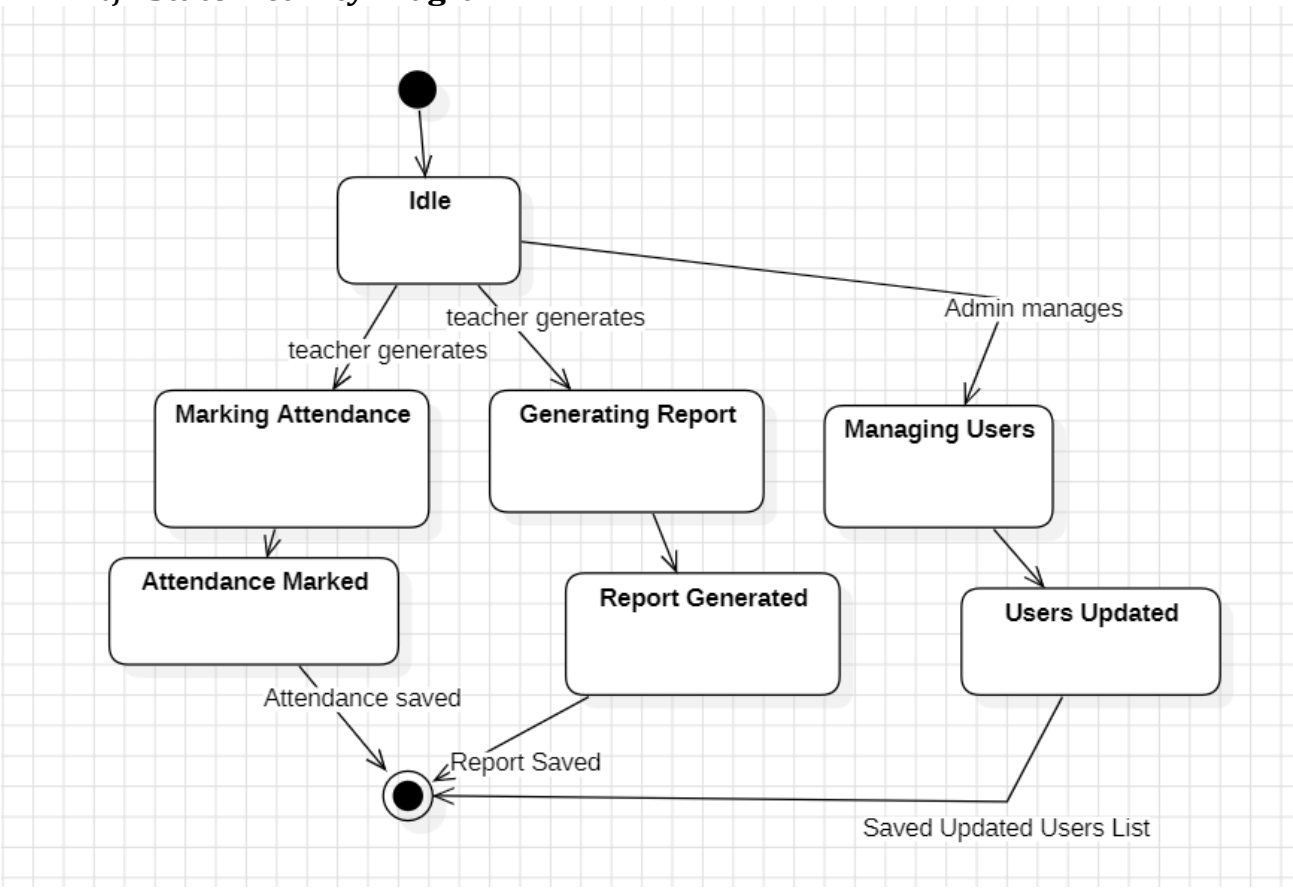


2.e) State-Activity Diagram:



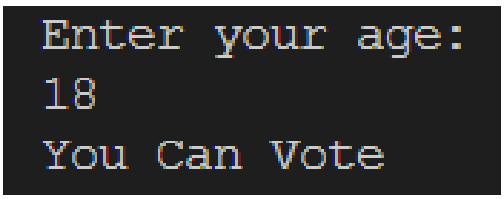
3. Basic Java Programs

3.a) Voting System:

Code:

```
import java.util.*;
public class voting{
    public static void main(String[] args){
        Scanner tool = new Scanner(System.in);
        System.out.println("Enter your age: ");
        int age = tool.nextInt();
        if (age>=18){
            System.out.println("You Can Vote");
        } else{
            System.out.println("You Cannot Vote");
        }
        tool.close();
        }
}
```

Output:

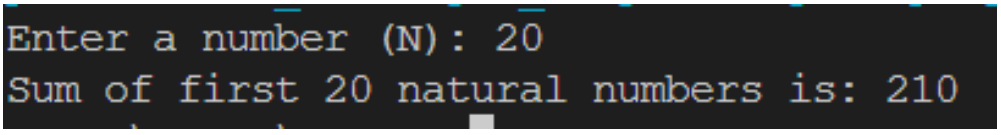


3.b) Sum of first n Natural Numbers:

Code:

```
import java.util.Scanner;

public class SumNaturalNumbers {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number (N): ");
        int n = sc.nextInt();

        int sum = 0, i = 1;
        while (i <= n) {
            sum += i;
            i++;
        }

        System.out.println("Sum of first " + n + "
natural numbers is: " + sum);
        sc.close();
    }
}
```

Output:

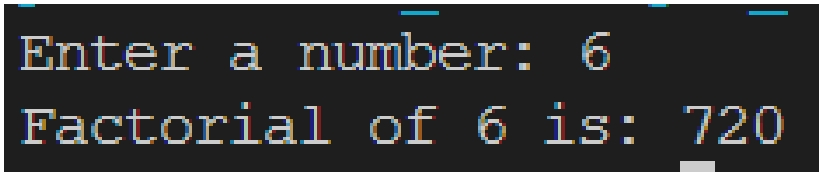


3.c) Factorial:

Code:

```
import java.util.Scanner;

public class Factorial {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int n = sc.nextInt();

        long fact = 1;
        for (int i = 1; i <= n; i++) {
            fact *= i;
        }

        System.out.println("Factorial of " + n + " is: "
+ fact);
        sc.close();
    }
}
```

Output:

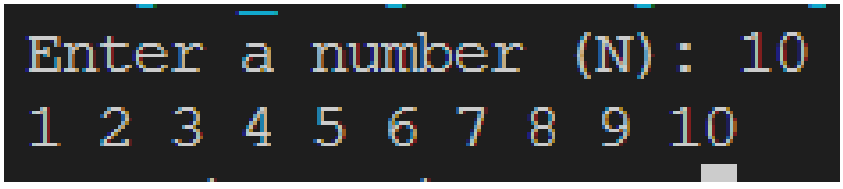


3.d) Print numbers from 1 to n:

Code:

```
import java.util.Scanner;

public class PrintNumbers {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number (N): ");
        int n = sc.nextInt();

        for (int i = 1; i <= n; i++) {
            System.out.print(i + " ");
        }
        sc.close();
    }
}
```

Output;

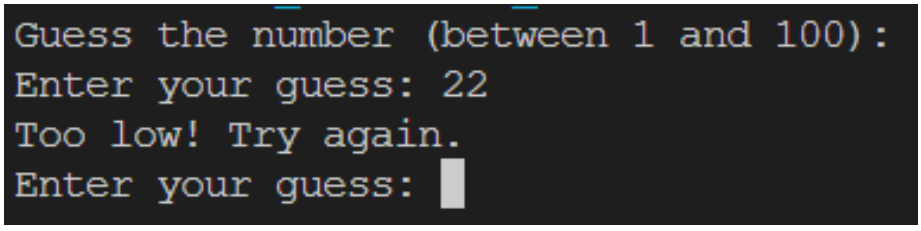


3.e) Number Guessing Game:

Code:

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

public class NumberGuessingGame {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Random rand = new Random();

        int numberToGuess = rand.nextInt(100) + 1; // Random number
between 1 and 100
        int attempts = 0, guess;

        System.out.println("Guess the number (between 1 and 100): ");

        do {
            System.out.print("Enter your guess: ");
            guess = sc.nextInt();
            attempts++;

            if (guess < numberToGuess) {
                System.out.println("Too low! Try again.");
            } else if (guess > numberToGuess) {
                System.out.println("Too high! Try again.");
            } else {
                System.out.println("Congratulations! You guessed it in
" + attempts + " attempts.");
            }
        } while (guess != numberToGuess);

        sc.close();
    }
}
```

Output:



3.f) Largest of Three Numbers:

Code:

```
import java.util.Scanner;

public class LargestNumber {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter three numbers: ");
        int a = sc.nextInt();
        int b = sc.nextInt();
        int c = sc.nextInt();

        int max = (a > b) ? (a > c ? a : c) : (b > c ? b
: c);
        System.out.println("Largest number is: " + max);
        sc.close();
    }
}
```

Output:

```
Enter three numbers: 1
2
3
Largest number is: 3
```

3.g) Greet the User:

Code:

```
import java.util.Scanner;

public class Greeting {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter your name: ");
        String name = scanner.nextLine();

        System.out.println("Hello, " + name + "!");

        scanner.close();
    }
}
```

Output:

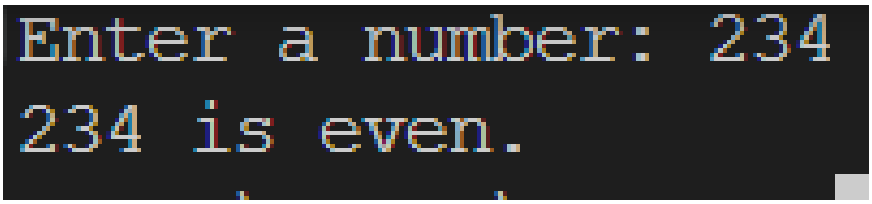
```
Enter your name: Sarvan
Hello, Sarvan!
```

3.h) Even or Odd Checker:

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();
    }
}
```

Output:



3.i) Volume of the Cube:

Code:

```
import java.util.*;
public class cubeVol{
    public static void main(String[] args) {
        Scanner tool = new Scanner(System.in);
        System.out.println("Enter the length of cube:
");
        double length = tool.nextDouble();
        double volume = (length*length*length);
        System.out.println("The volume of Cube is: "
+volume);
        tool.close();
    }
}
```

Output:

```
Enter the length of cube:
6
The volume of Cube is: 216.0
```

3.j) Circle :

Code:

```
import java.util.Scanner;

public class circle {
    public static void main(String[] args) {
    Scanner tool = new Scanner(System.in);
    System.out.println("Enter the Radius of Circle:
");
    double radius = tool.nextInt();
    double area = (3.14*radius*radius);
    System.out.println("The Area is: "+ area);
    tool.close();
}
}
```

Output: