Amrita School of Computing

LAB RECORD

23CSE111 – Object Oriented Programs

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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 programs Subject submitted by ***sk Dada Hussain-ch.sc.u4cse24144*** 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

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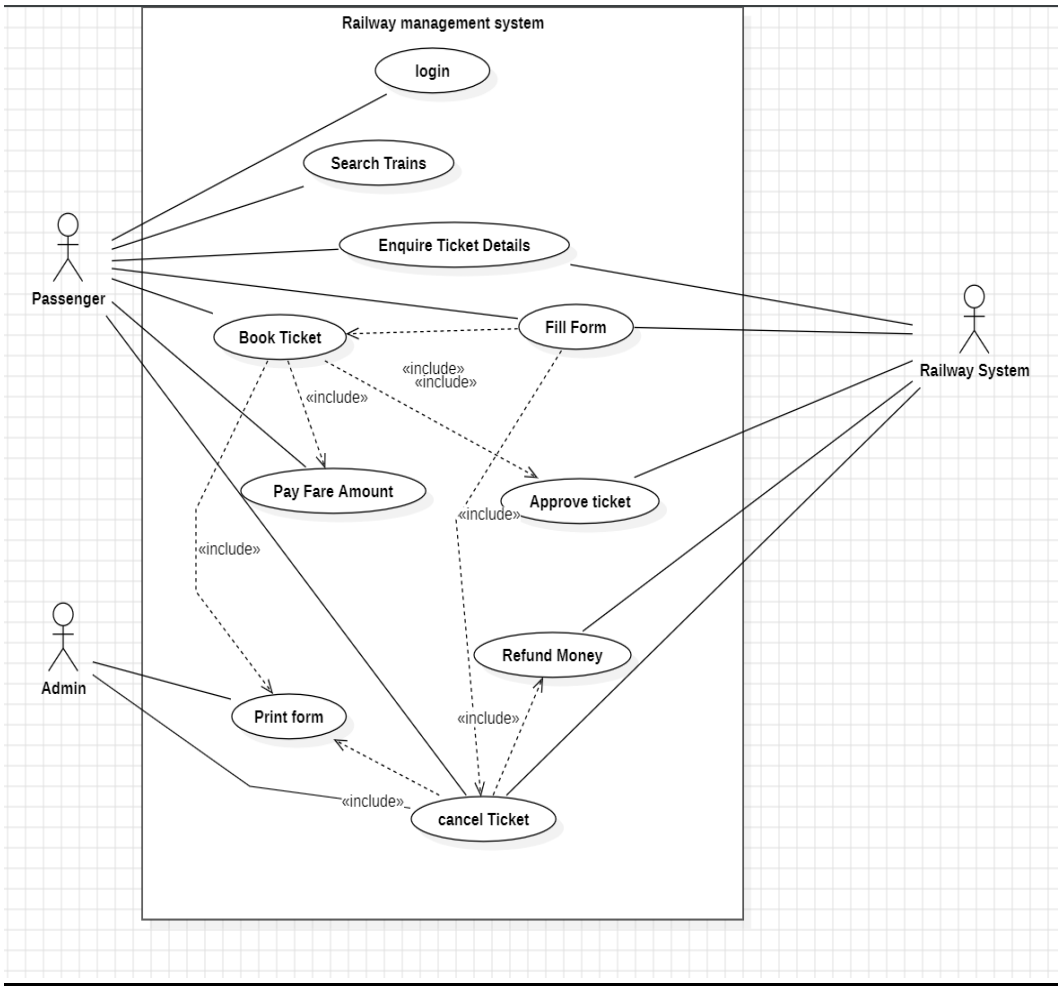
1	**Uml Diagram (Railway Management System)**	p.no :4 -8

a)

Aim : To Demonstrate use case Diagram of Railway Reservation System

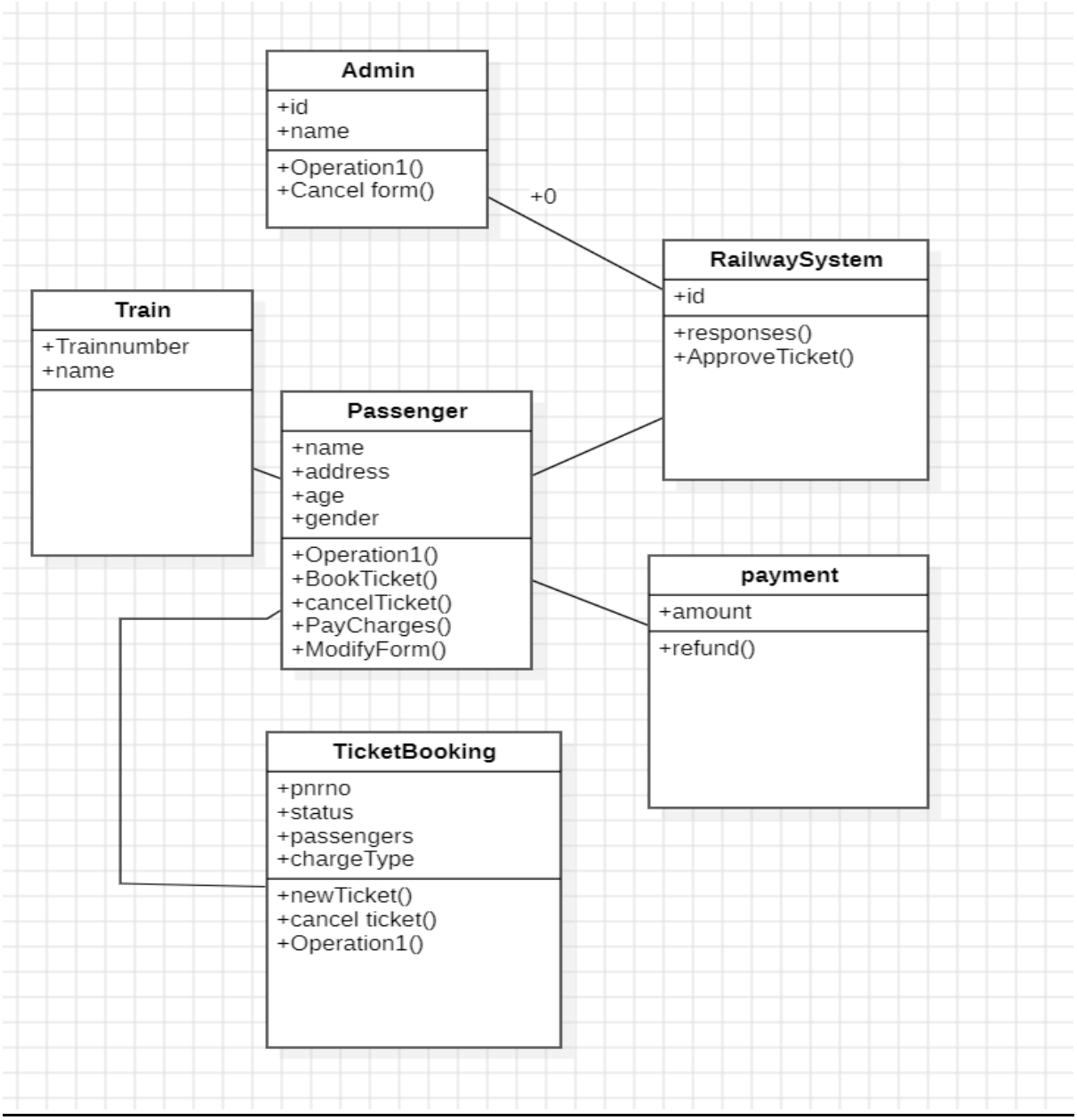
Diagram:



b)

Aim : To Demonstrate class Diagram of Railway Reservation System

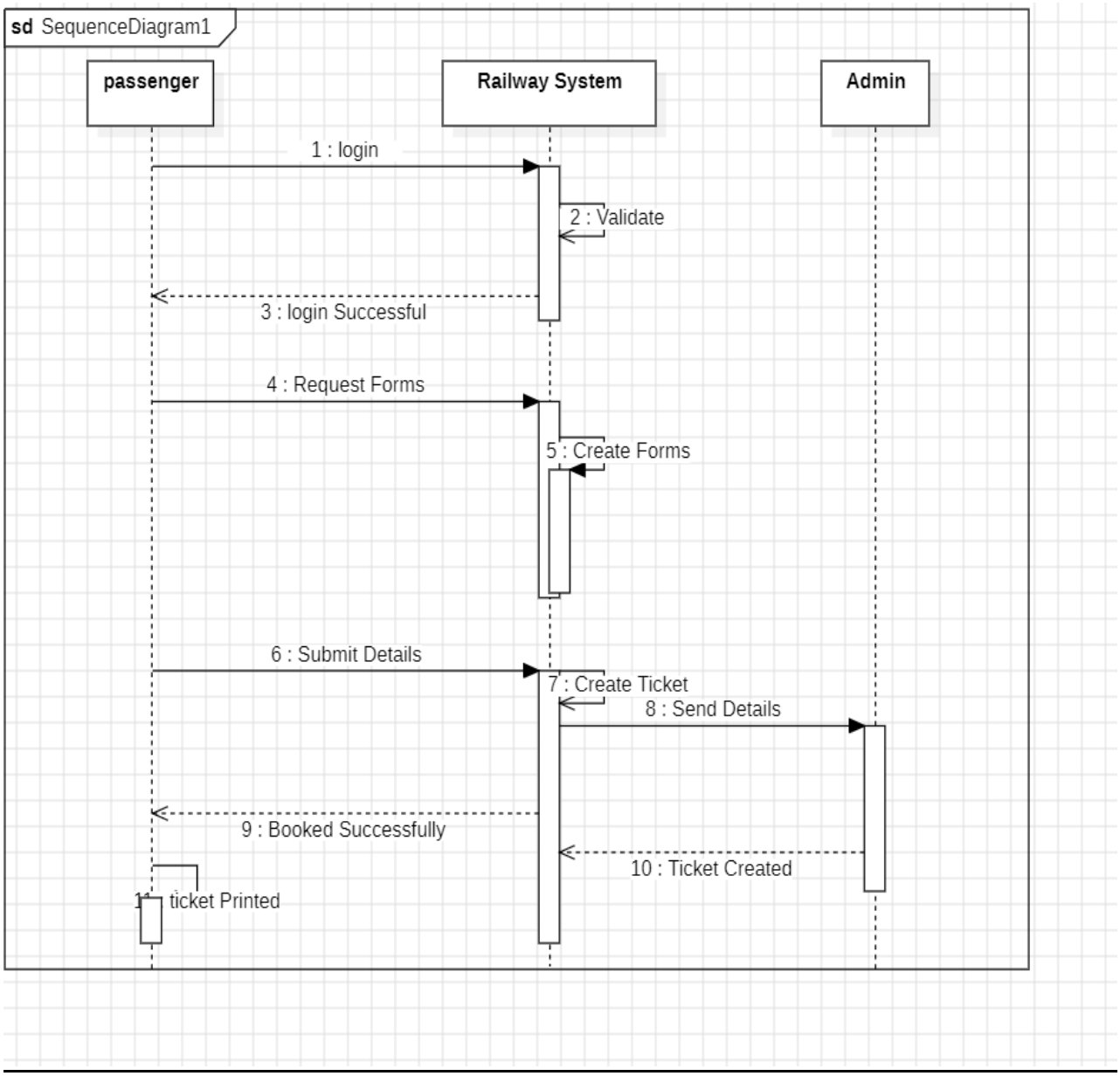
Diagram:



c)

Aim : To Demonstrate Sequence Diagram of Railway Reservation System

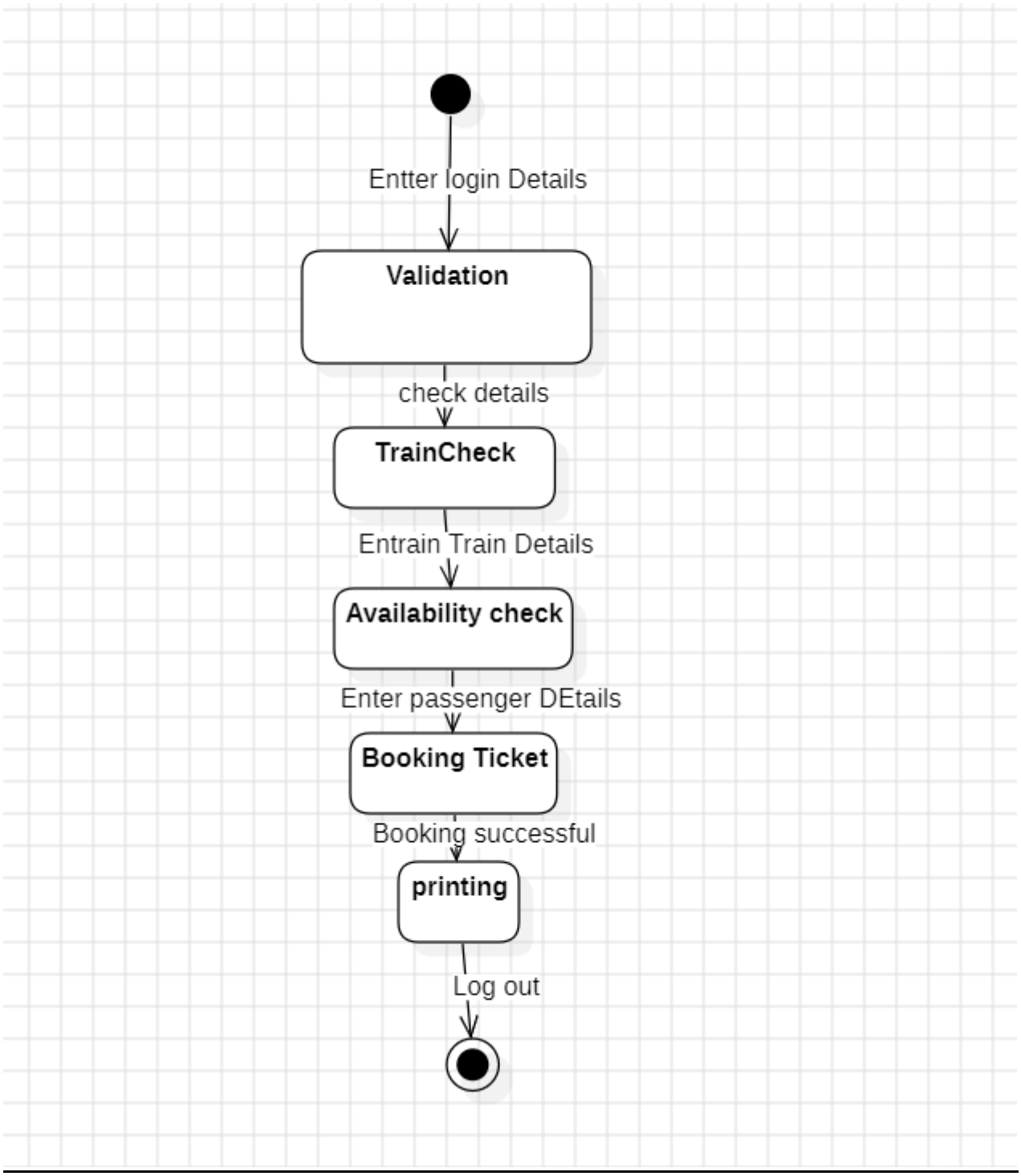
Diagram:



d)

Aim : To Demonstrate StateChart Diagram of Railway Reservation System

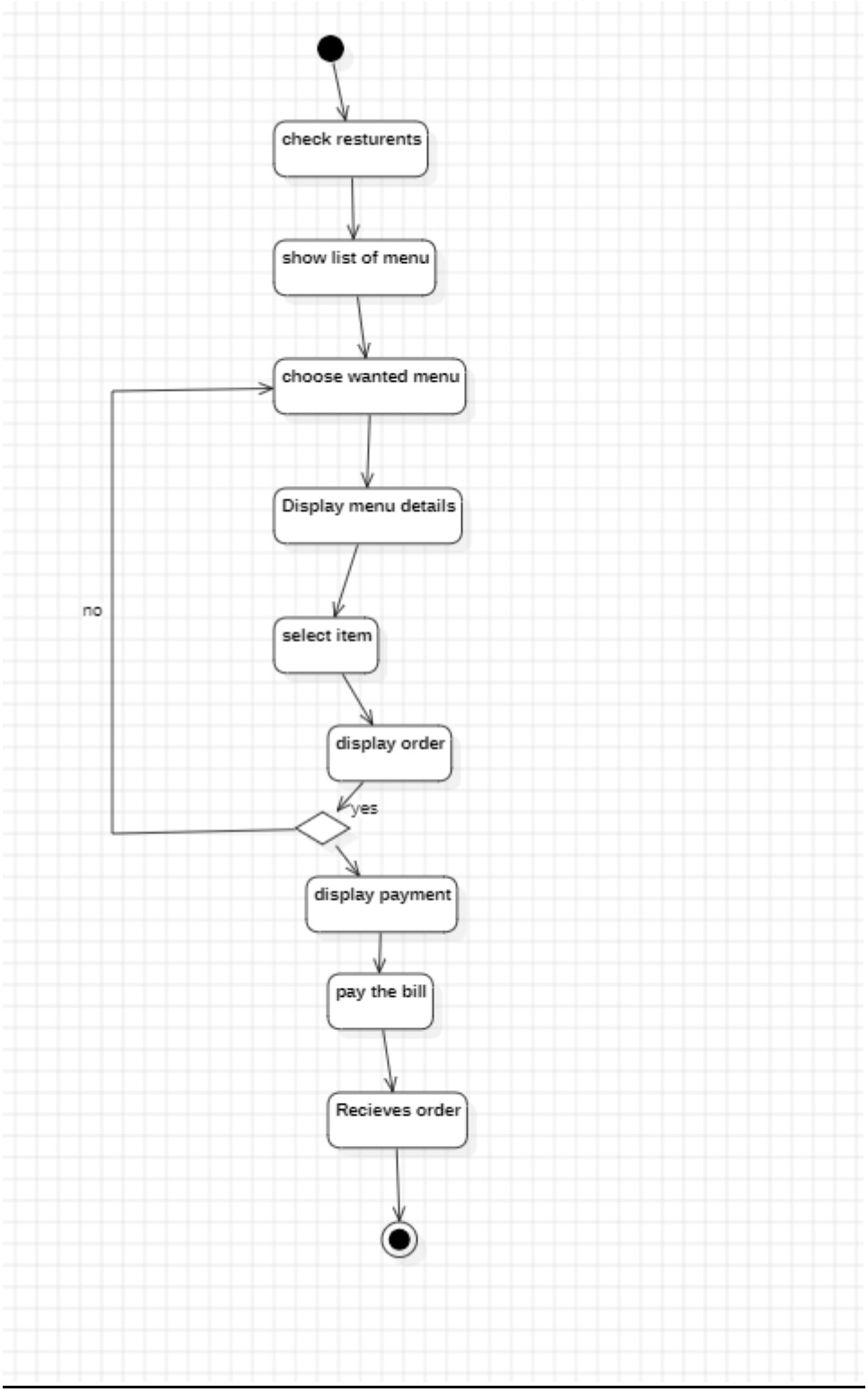
Diagram:



e)

Aim : To Demonstrate Activity Diagram of Railway Reservation System

Diagram:

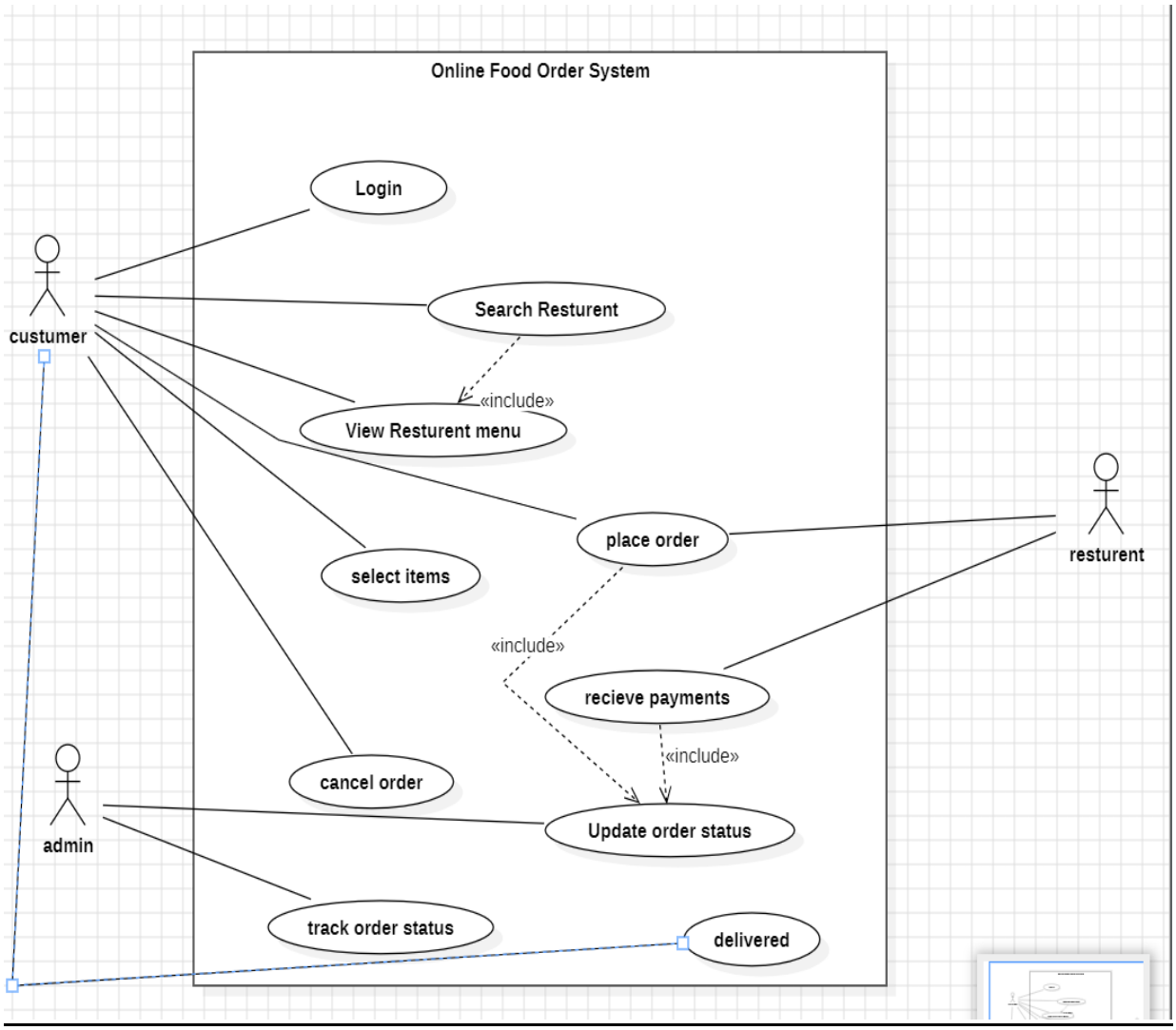


2	**Uml Diagram (online Food Ordering System)**	p.no : 9 -13

a)

Aim : To Demonstrate Use case Diagram of Online Food Order System

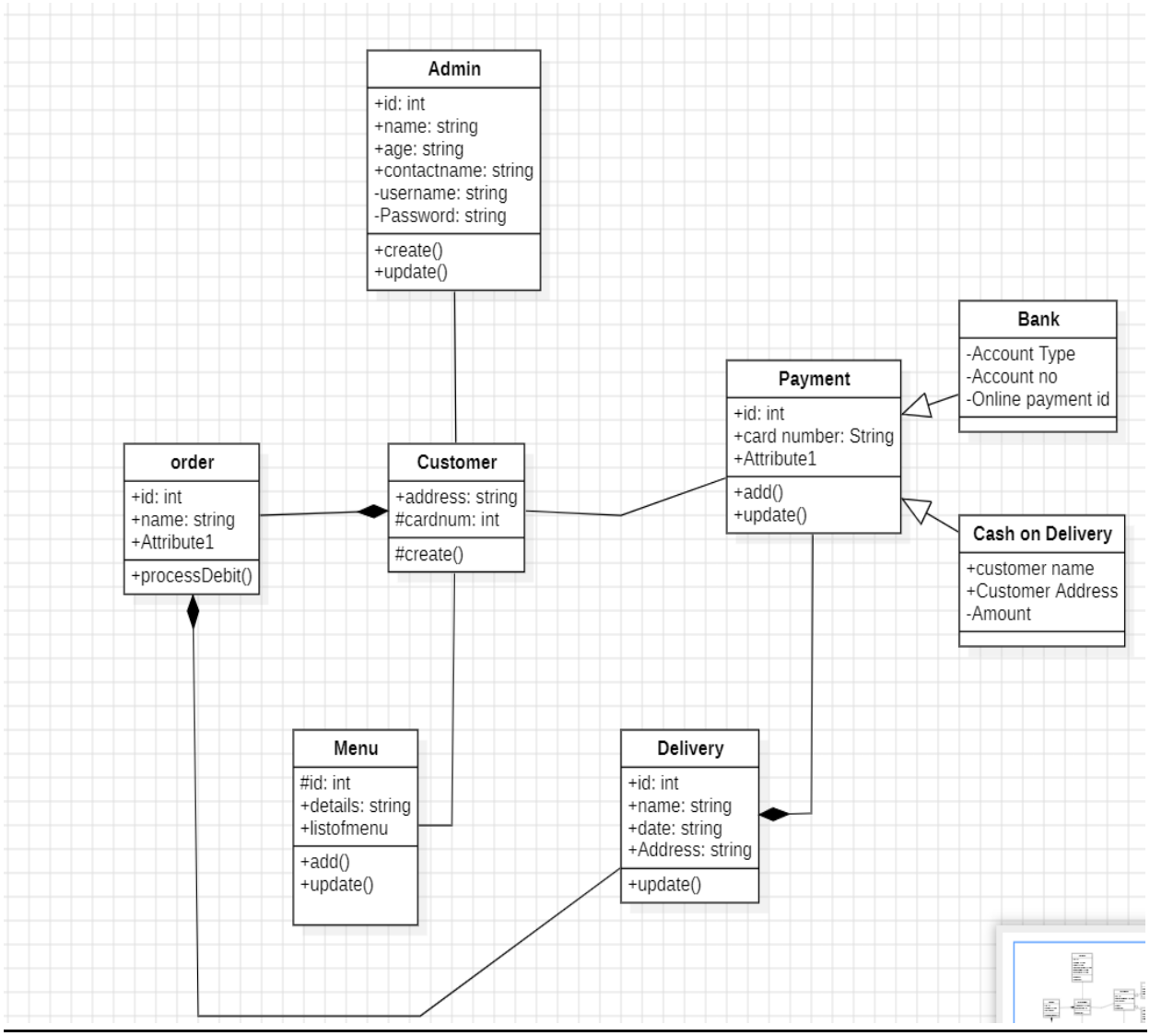
Diagram:



b)

Aim : To Demonstrate Class Diagram of Online Food Order System

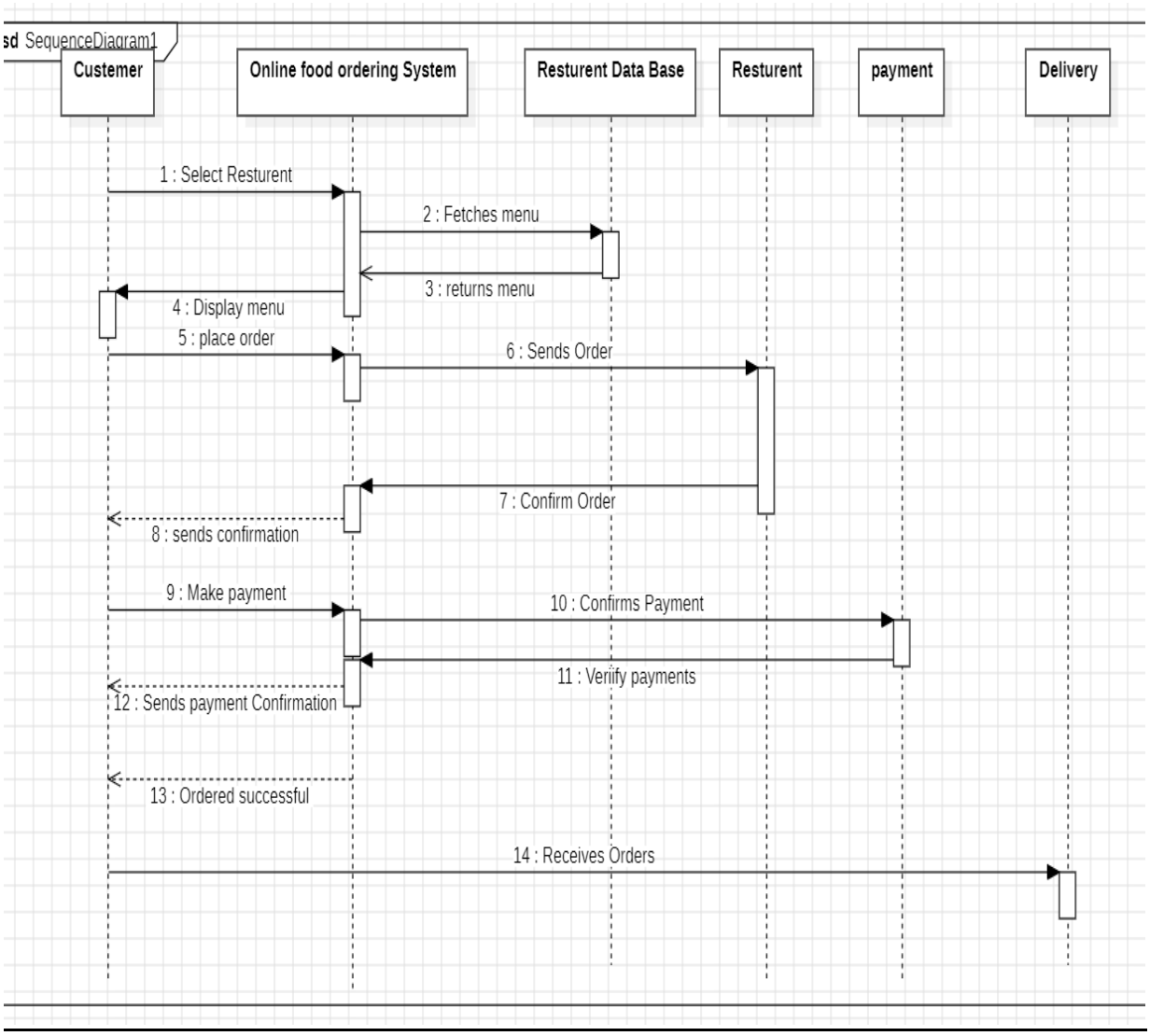
Diagram:



c)

Aim : To Demonstrate Sequence Diagram of Online Food Order System

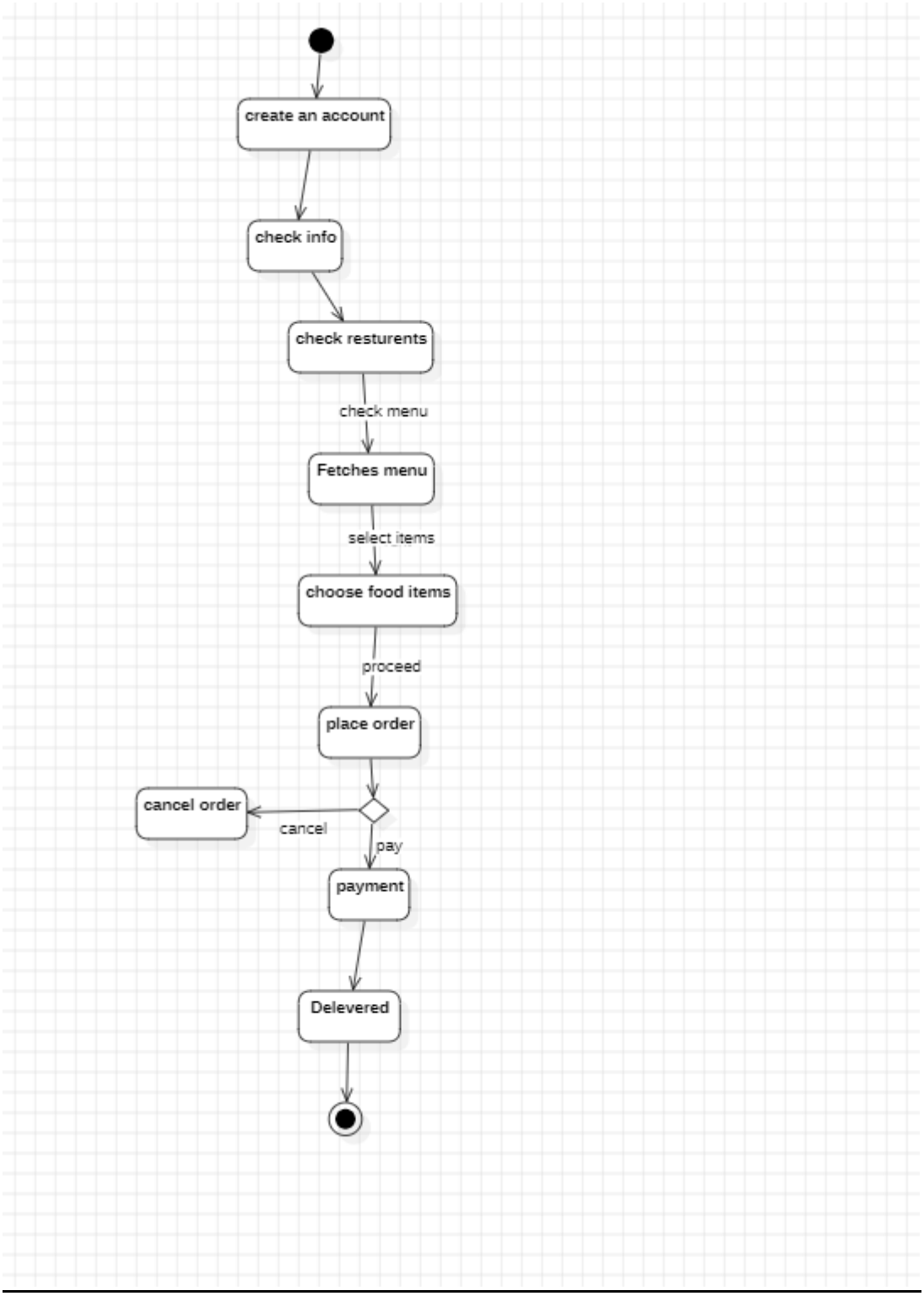
Diagram:



d)

Aim : To Demonstrate StateChart Diagram of Online Food Order System

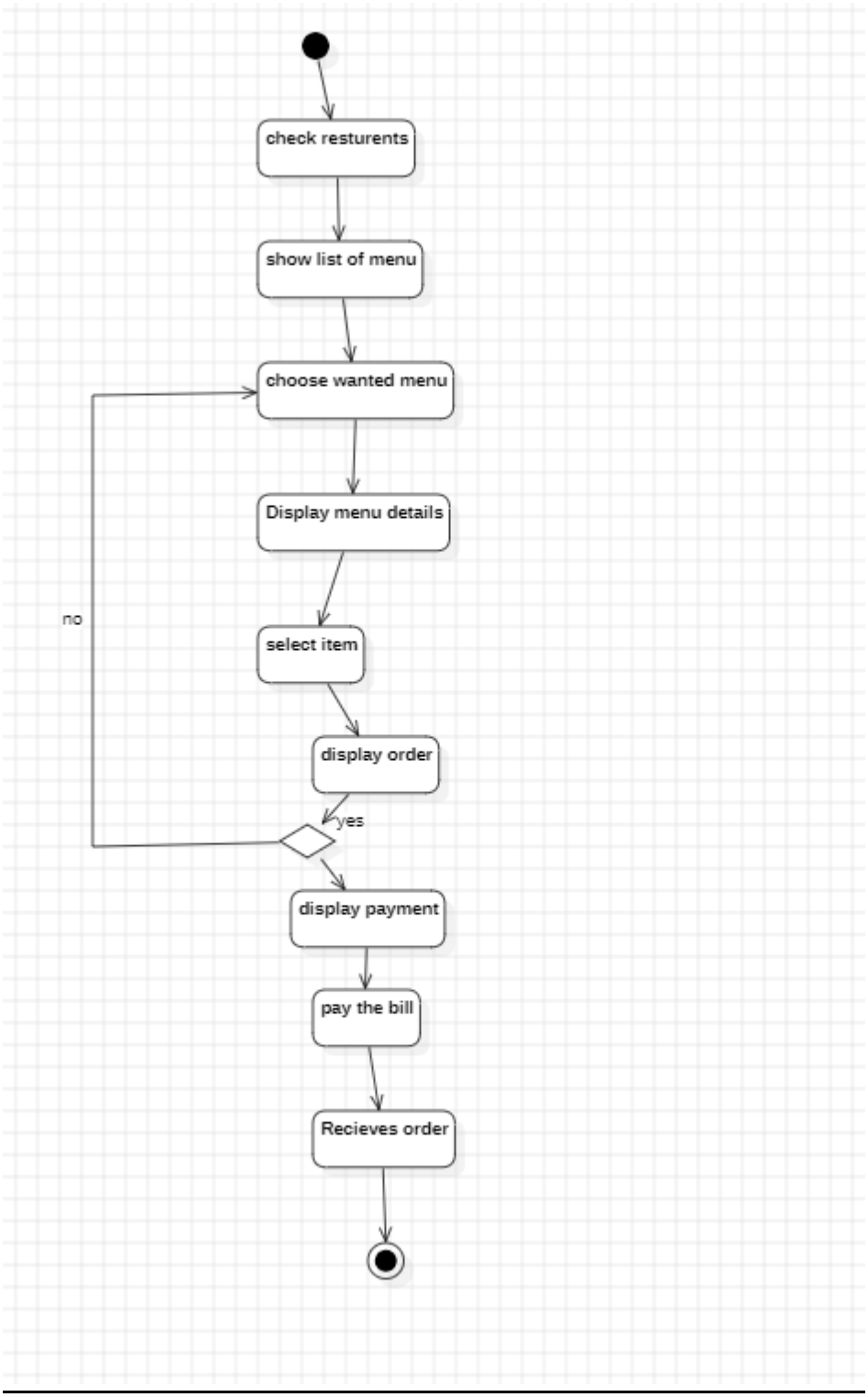
Diagram:



e)

Aim : To Demonstrate Activity Diagram of Online Food Order System

Diagram:



3	Basic Java programs	p.no :14 -22

a) Count numbers

Code:

```
public class CountDigits {
   public static void main(String[] args) {
      int num = 12345, count = 0;
      while (num != 0) {
         num /= 10;
         count++;
      }
      System.out.println("Number of digits: " + count);
   }
}
```

Output:

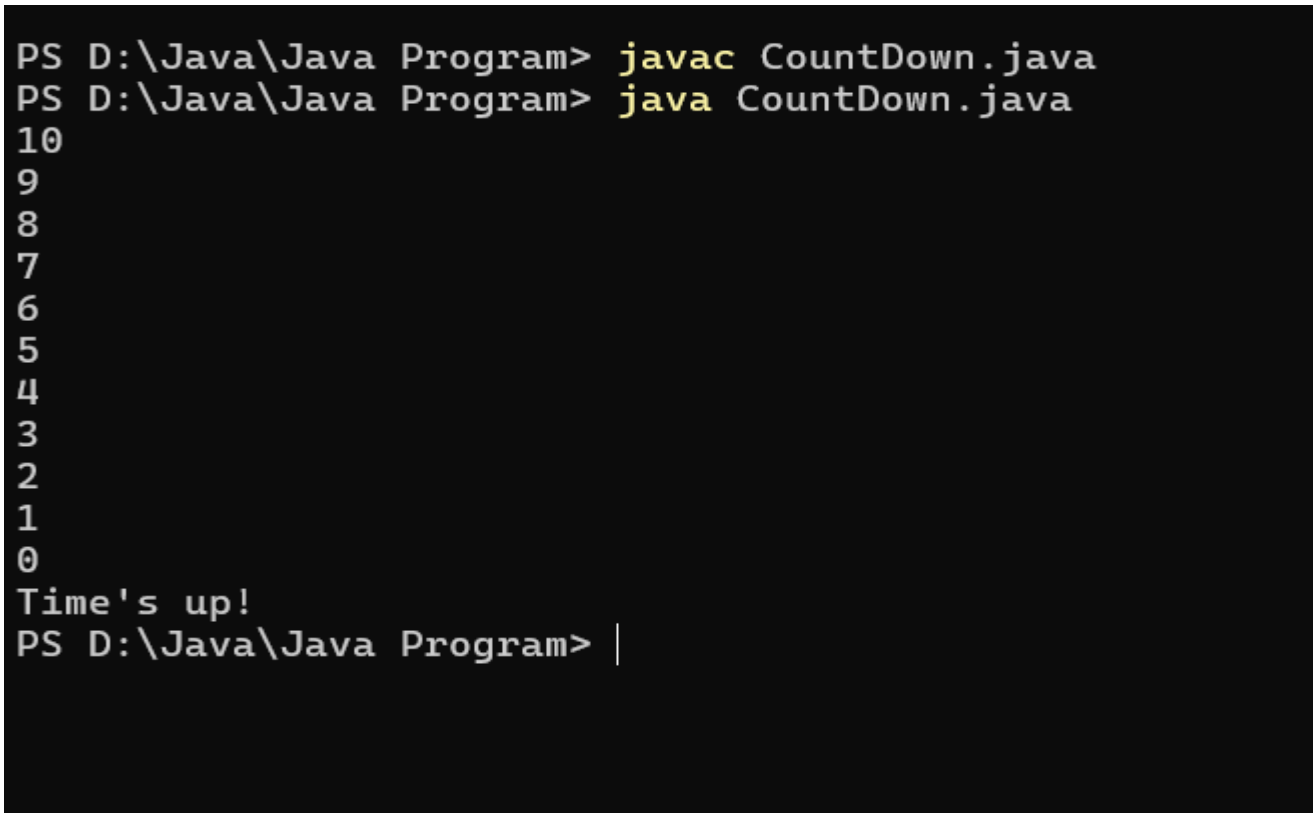
```
PS D:\Java\Java Program> java CountDigits.java
Number of digits: 5
PS D:\Java\Java Program>
```

b) Count Down

Code:

```
public class Countdown {
    public static void main(String[] args) throws InterruptedException {
        int start = 10;
        for (int i = start; i >= 0; i--) {
            System.out.println(i);
            Thread.sleep(1000); // Delay for 1 second
        }
        System.out.println("Time's up!");
    }
}
```

Output:



c) Even Odd

Code:

```
public class EvenOdd {
public static void main(String[] args) {
    int n = 20;
    System.out.println("Even numbers:");
    for (int i = 1; i <= n; i++) {
        if (i % 2 == 0) System.out.print(i + " ");
    }
    System.out.println("\nOdd numbers:");
    for (int i = 1; i <= n; i++) {
        if (i % 2 != 0) System.out.print(i + " ");
    }
}
}
```

Output:

```
PS D:\Java\Java Program> java EvenOdd.java
Even numbers:
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
Odd numbers:
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49
PS D:\Java\Java Program>
```

d) Hollow Square

Code:

```
public class HollowSquare {
   public static void main(String[] args) {
      int size = 5;
      for (int i = 1; i <= size; i++) {
         for (int j = 1; j <= size; j++) {
            if (i == 1 || i == size || j == 1 || j == size)
               System.out.print("* ");
            else
               System.out.print("  ");
         }
         System.out.println();
      }
   }
}
```

Output:

```
PS D:\Java\Java Program> java HollowSquare.java
* * * * *
*       *
*       *
*       *
* * * * *
PS D:\Java\Java Program>
```

e) LargestDigit

Code:

```
public class LargestDigit {
   public static void main(String[] args) {
      int num = 987123, max = 0;
      while (num > 0) {
         int digit = num % 10;
         if (digit > max) max = digit;
         num /= 10;
      }
      System.out.println("Largest digit: " + max);
   }
}
```

Output:

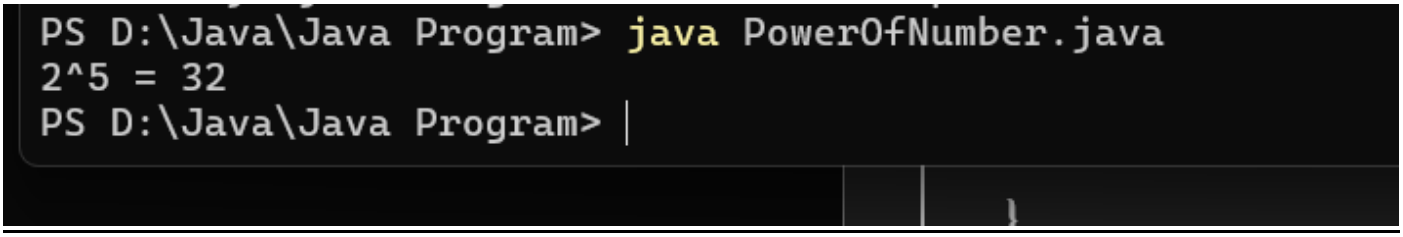
f) Power of Number

Code:

```
public class PowerOfNumber {
   public static void main(String[] args) {
      int base = 2, exp = 5, result = 1;
      for (int i = 0; i < exp; i++) {
         result *= base;
```

```
        }
        System.out.println(base + "^" + exp + " = " + result);
    }
}
```

Output:



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g) Reverse String

Code:

```
public class ReverseString {
    public static void main(String[] args) {
        String str = "Dadu", reversed = "";
        for (int i = str.length() - 1; i >= 0; i--) {
            reversed += str.charAt(i);
        }
        System.out.println("Reversed String: " + reversed);
    }
}
```

Output:

```
PS D:\Java\Java Program> java ReverseString.java
Reversed String: udaD
PS D:\Java\Java Program>
```

h) Right Angled Triangle

Code:

```
public class RightAngledTriangle {
    public static void main(String[] args) {
        int rows = 5;
        for (int i = 1; i <= rows; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

Output:

```
PS D:\Java\Java Program> java RightAngledTriangle.java
*
* *
* * *
* * * *
* * * * *
PS D:\Java\Java Program>
```

i) Simple Interest

Code:

```
public class SimpleInterest {
   public static void main(String[] args) {
      double p = 1000, r = 5, t = 3;
      double si = (p * r * t) / 100;
      System.out.println("Simple Interest: " + si);
   }
}
```

Output:

j) Sum of Natura Numbers

Code:

```
public class SumNaturalNumbers {
   public static void main(String[] args) {
      int n = 10, sum = 0;
      for (int i = 1; i <= n; i++) {
         sum += i;
      }
```

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

Output: