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CH.SC.U4CSE24164

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.U4CSE24164 – Jeeviteswara Reddy*** 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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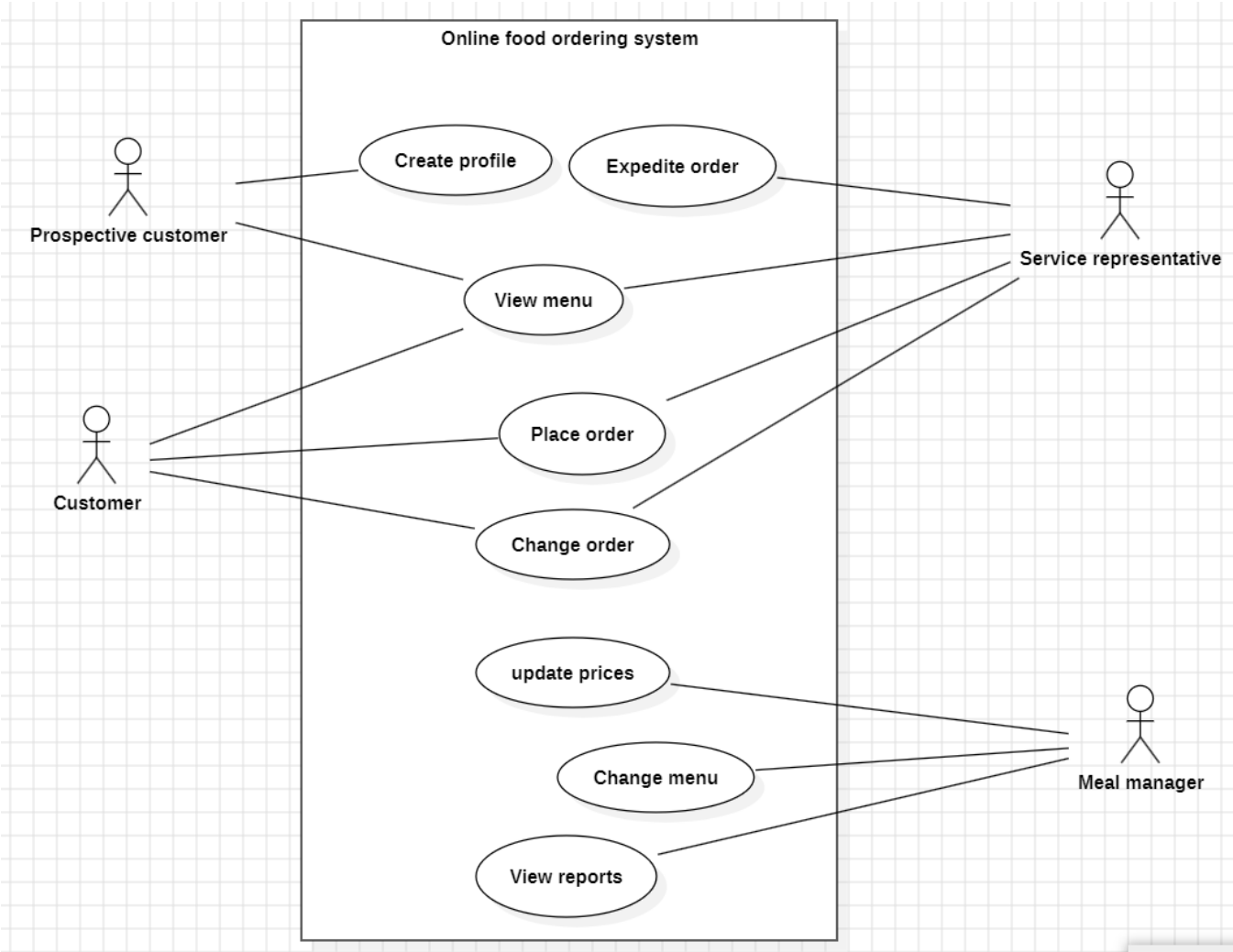
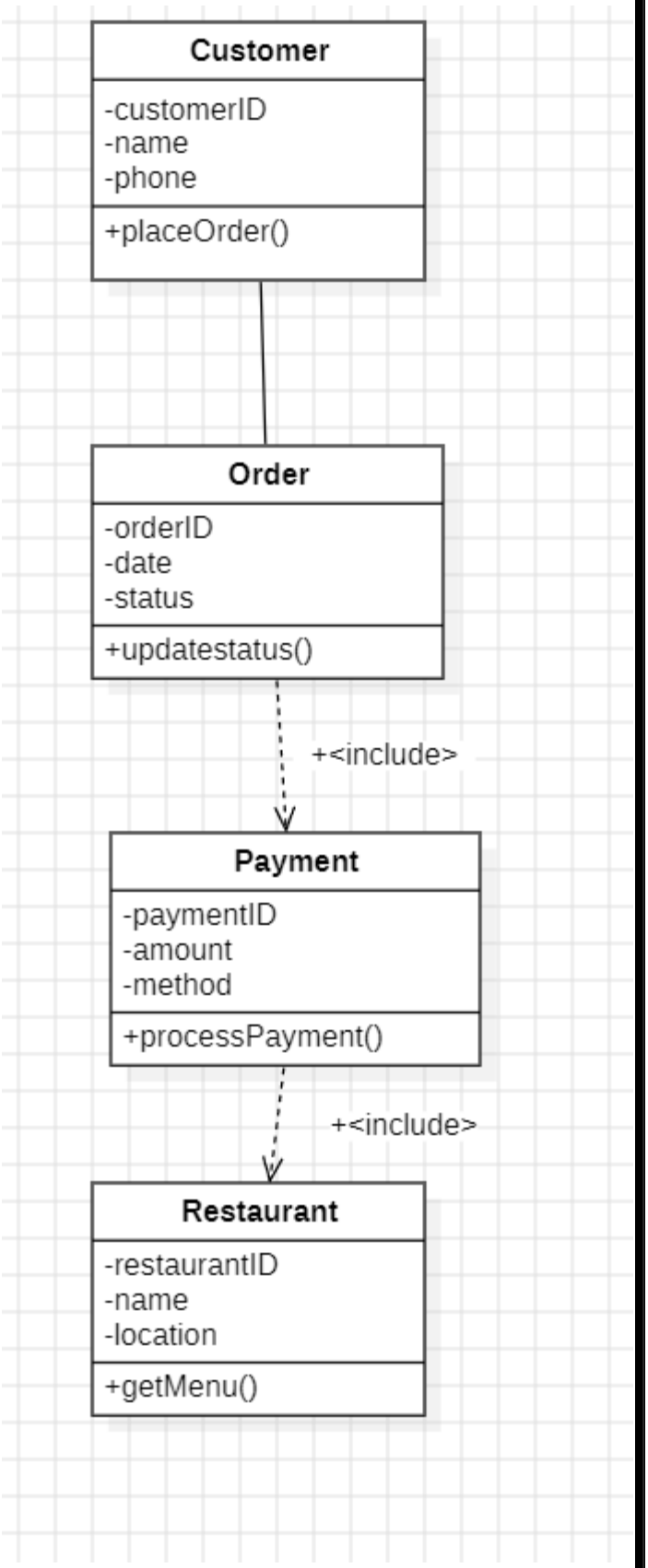
UML DIAGRAMS

1. Online food ordering system

1 A)Use Case Diagram:



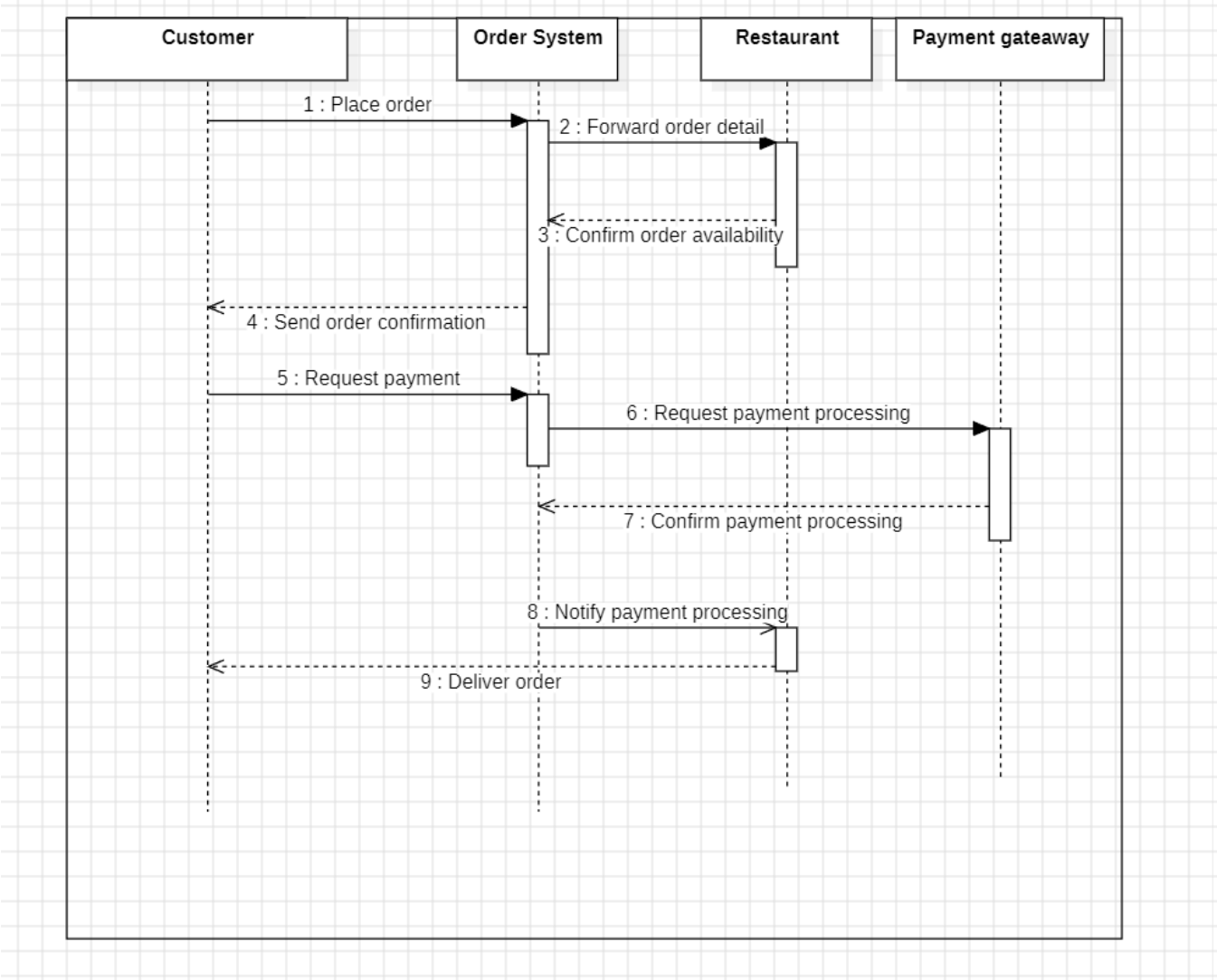
1.a) Class Diagram:



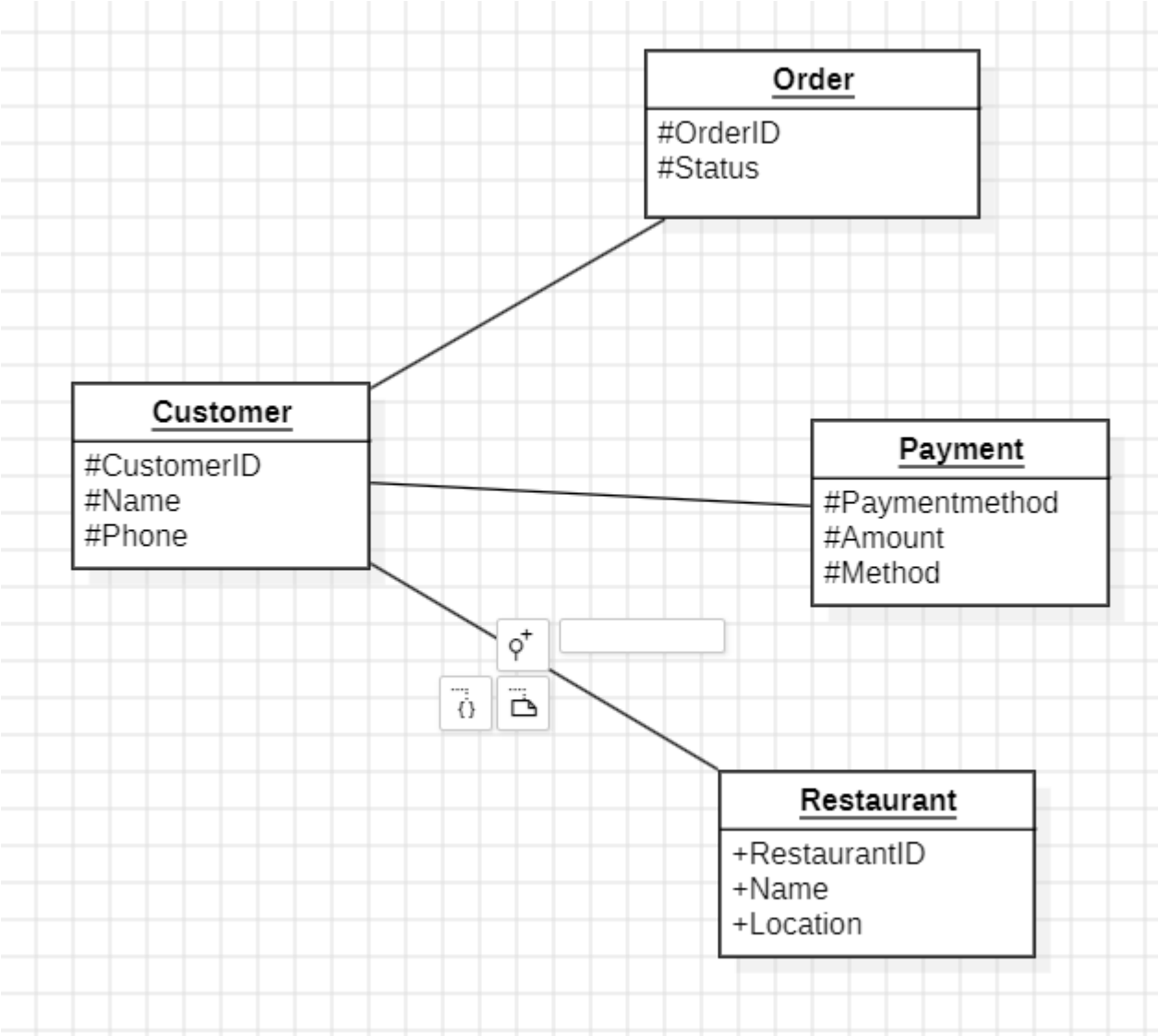
2.

2.a) Sequence Diagram:

3.

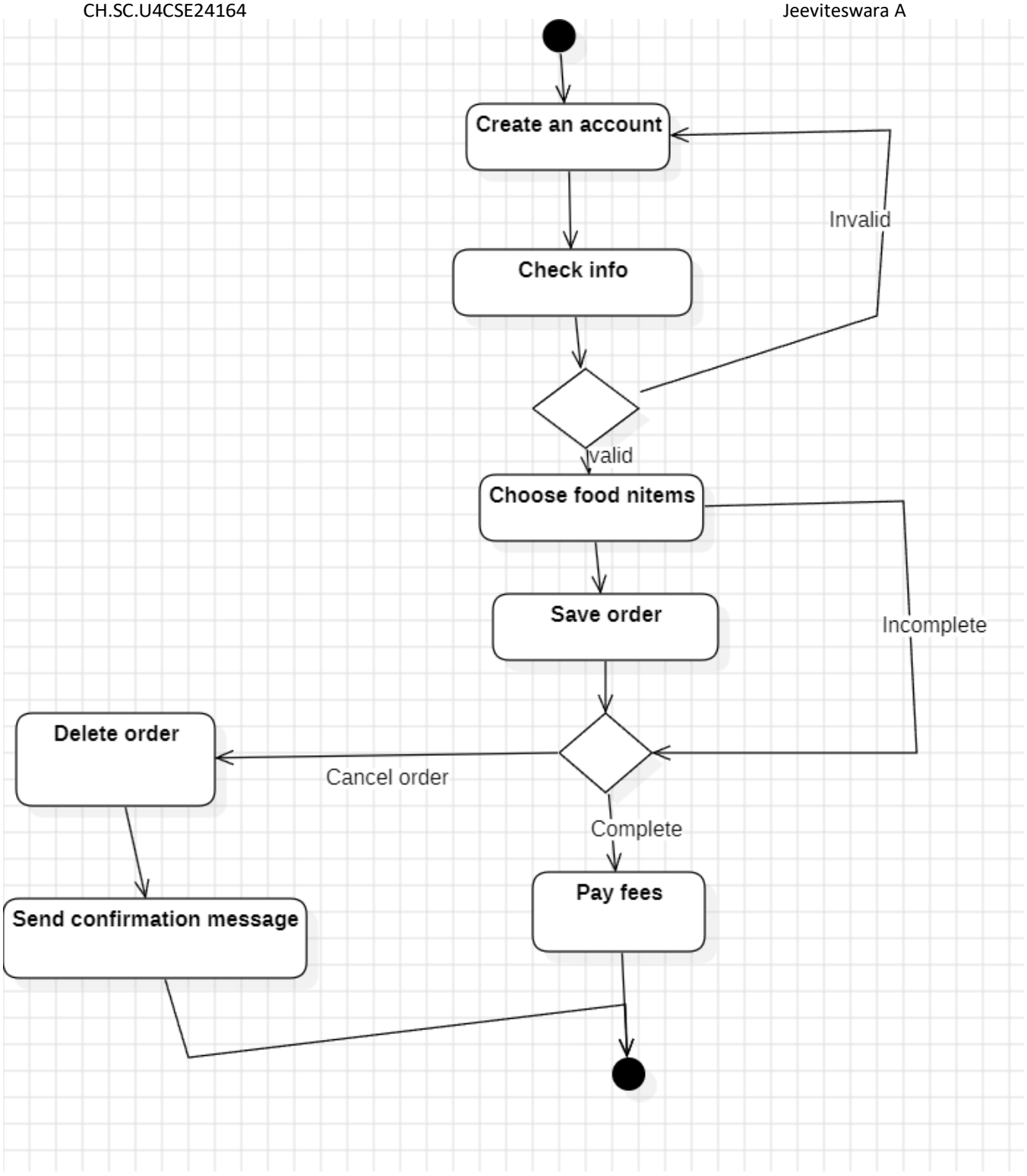


3.a) Object Diagram:



4.

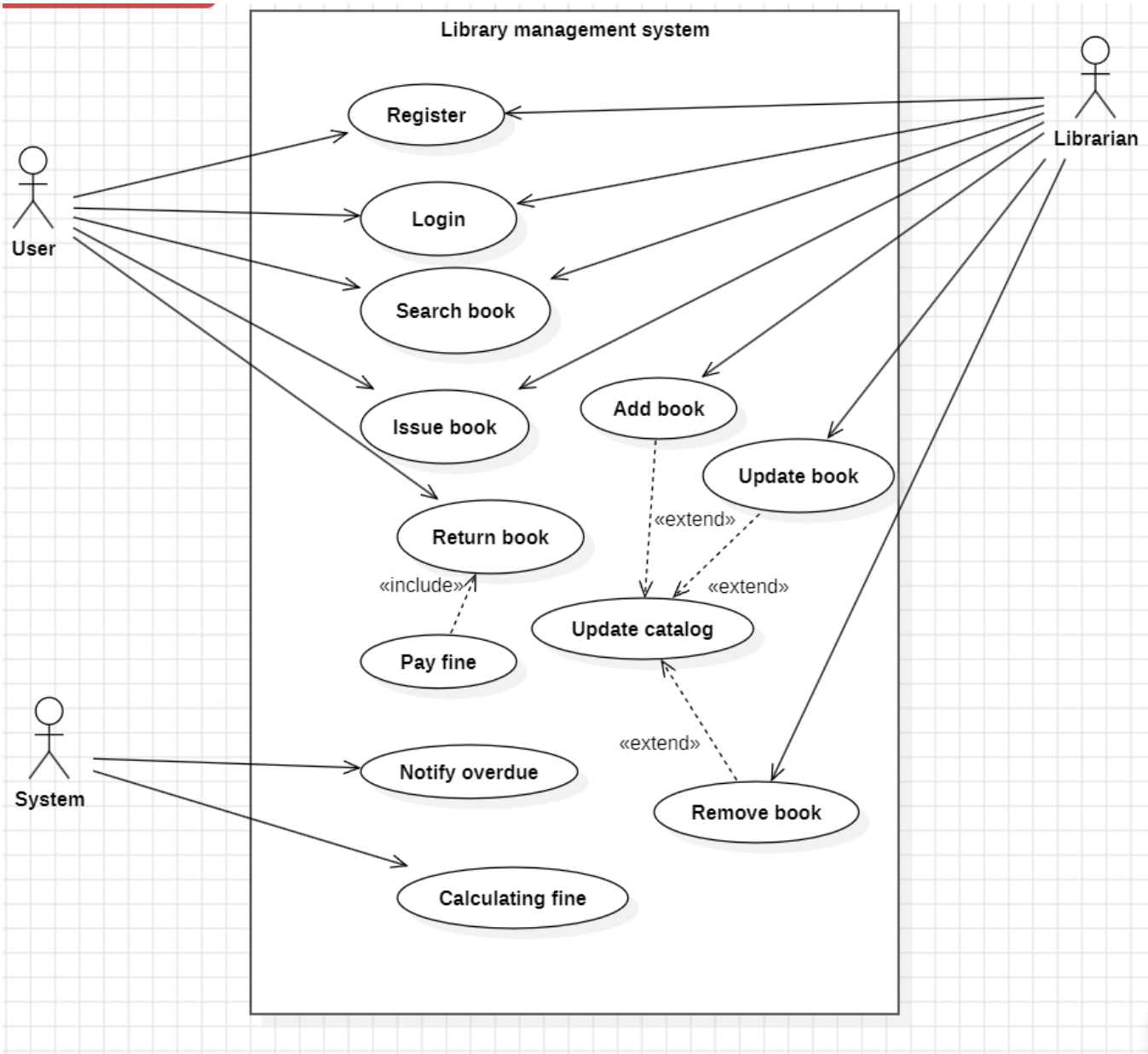
4.a) State-Activity Diagram:


Create an account
Invalid
Check info
valid
Choose food nitems
Save order
Incomplete
Delete order
Cancel order
Complete
Pay fees
Send confirmation message

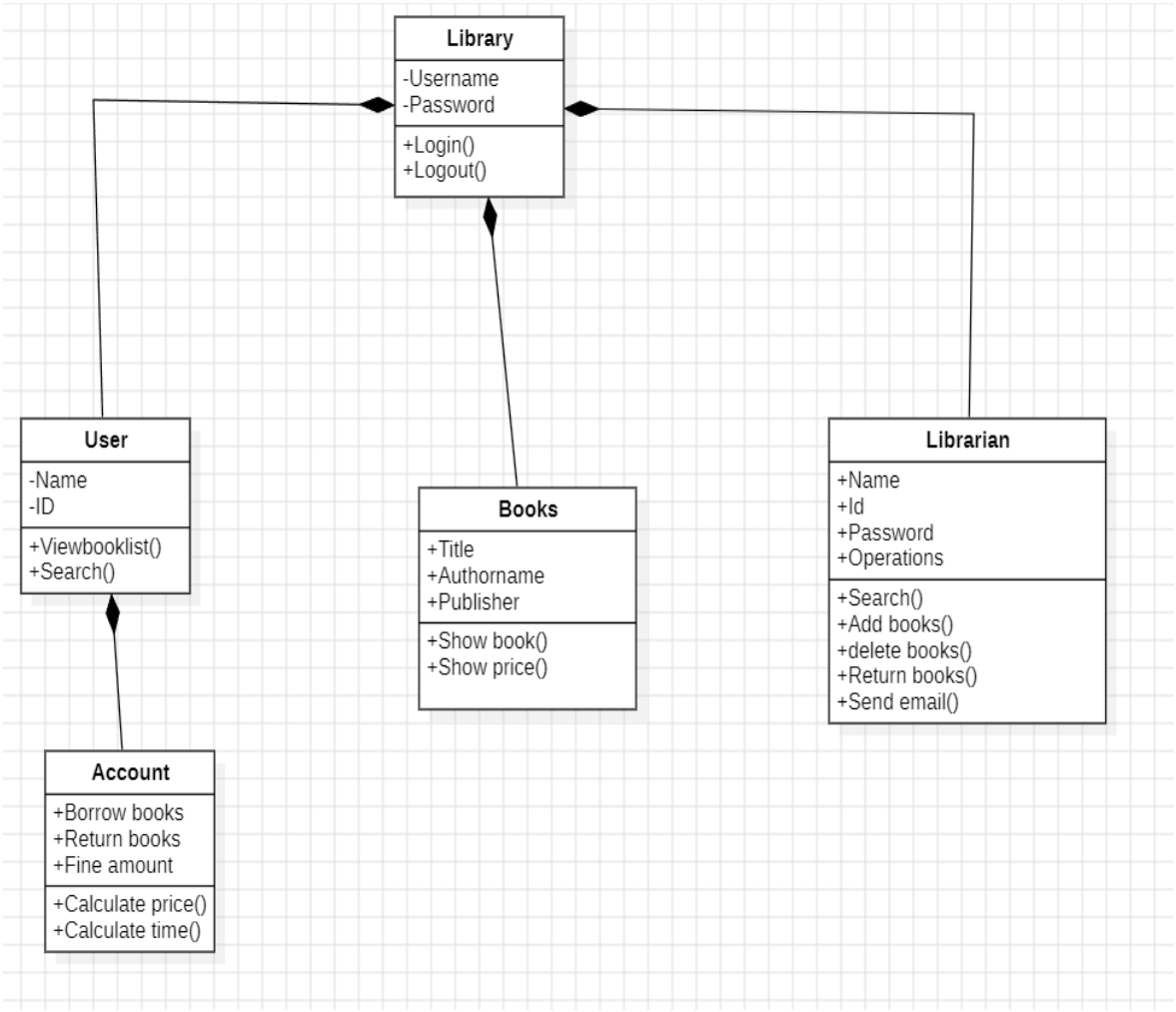
g

5. Library management system

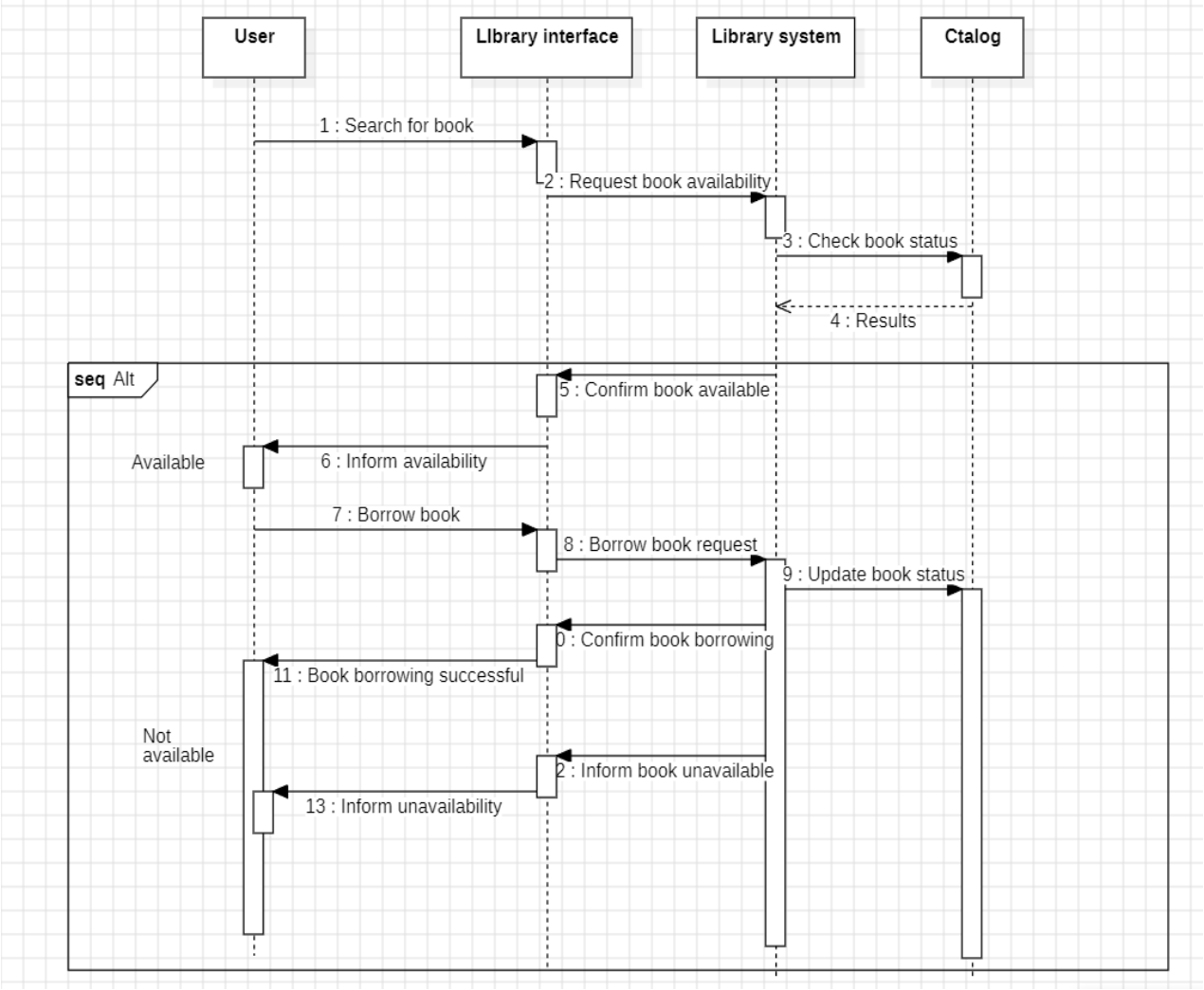
5.a) Use Case Diagram:



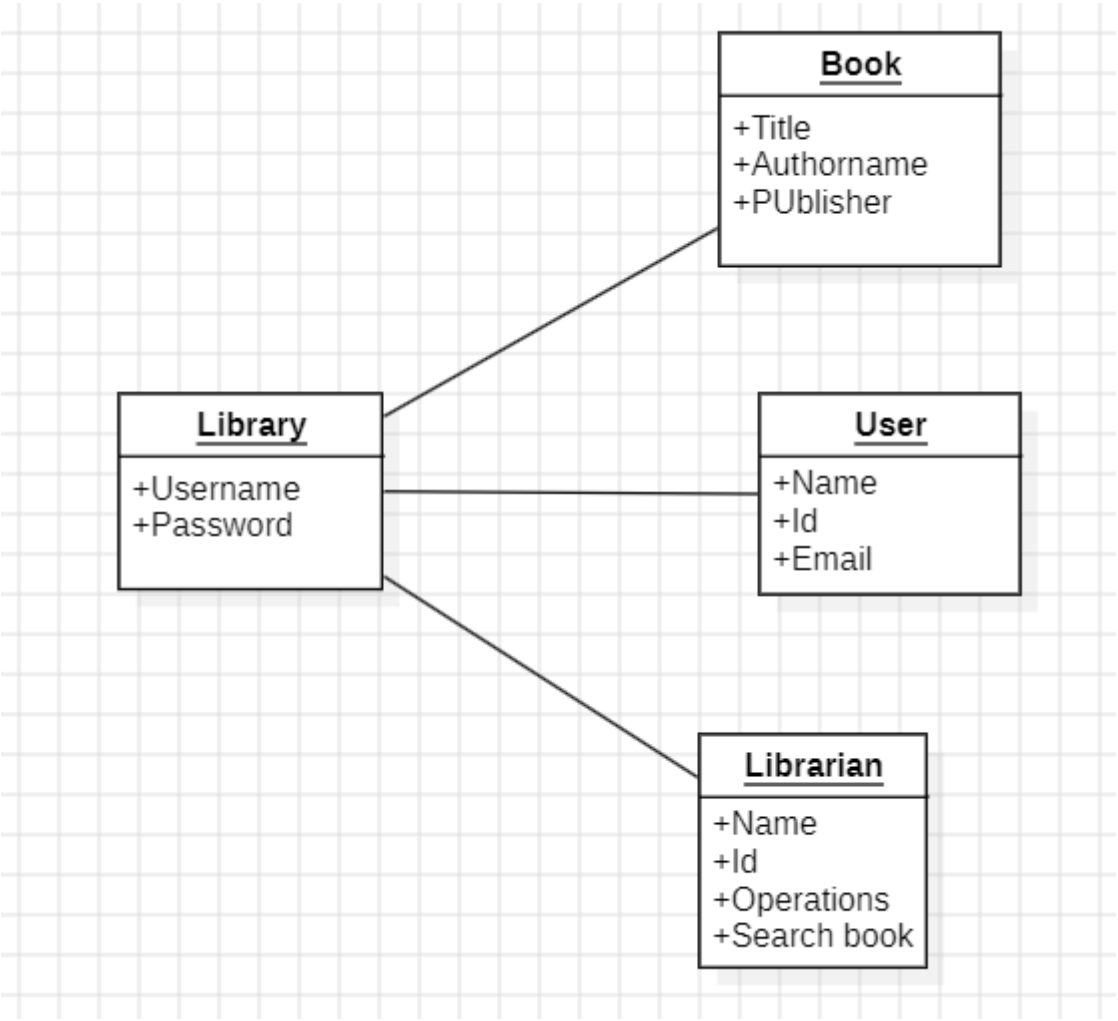
5.b) Class Diagram:



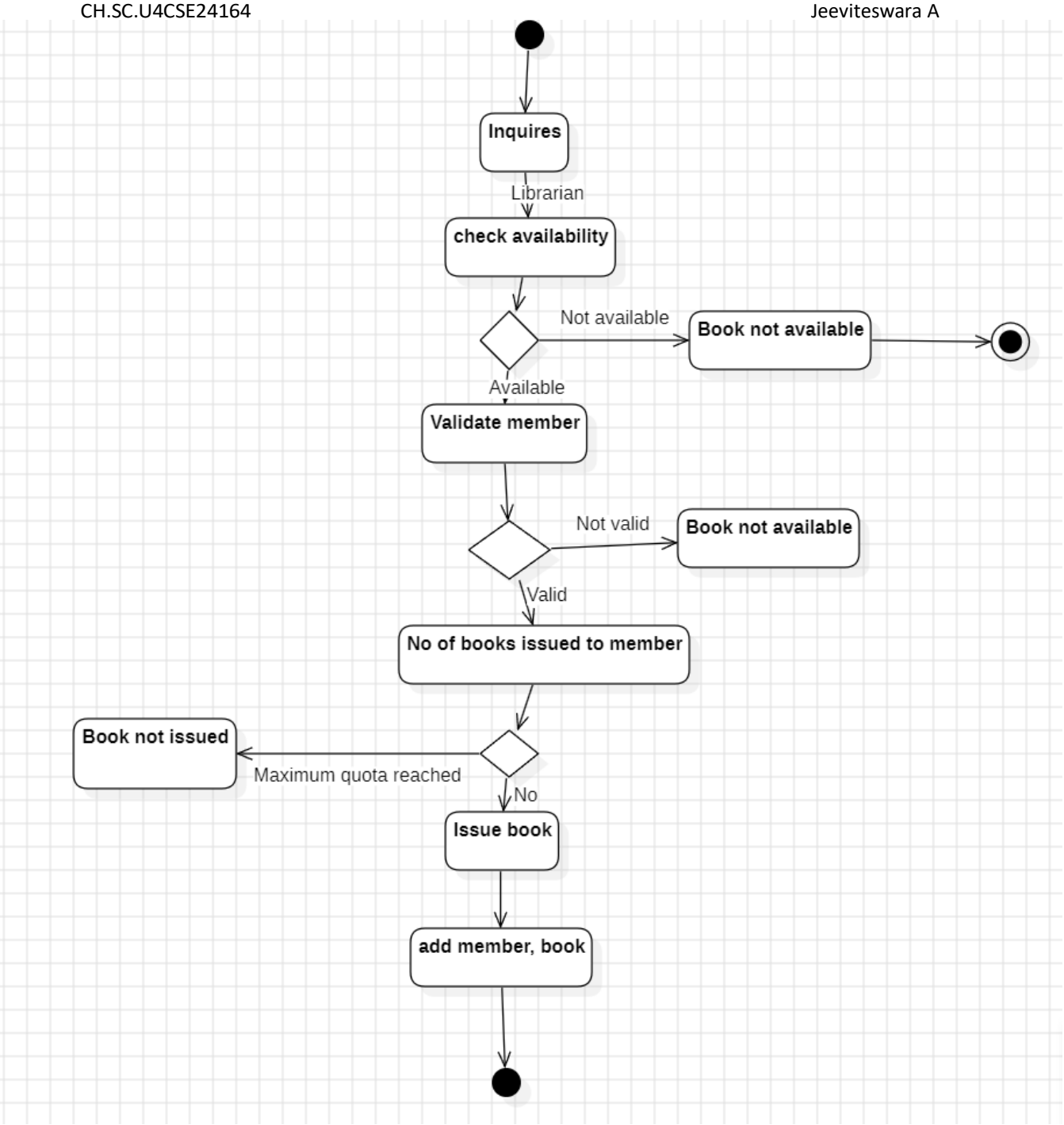
5.c) Sequence Diagram:


User
LIbrary interface
Library system
Ctalog
1 : Search for book
2 : Request book availability
3 : Check book status
4 : Results
seq Alt
5 : Confirm book available
Available
6 : Inform availability
7 : Borrow book
8 : Borrow book request
9 : Update book status
0 : Confirm book borrowing
11 : Book borrowing successful
Not available
2 : Inform book unavailable
13 : Inform unavailability

5.d) Object Diagram:



5.e) State-Activity Diagram:


Inquires
Librarian
check availability
Not available
Book not available
Available
Validate member
Not valid
Book not available
Valid
No of books issued to member
Book not issued
Maximum quota reached
No
Issue book
add member, book

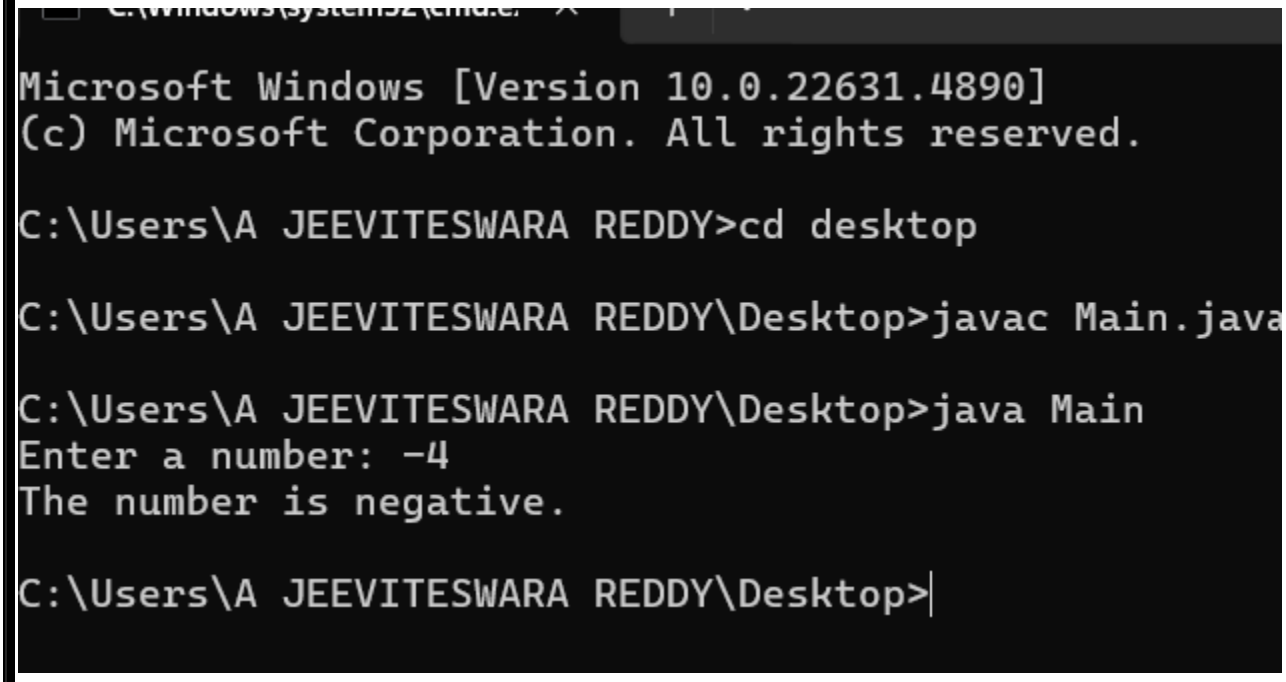
6. Basic Java Programs

6.a) To check if a number is positive or negative using scanner:

Code:

```
import java.util.Scanner;
public class Main {
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
System.out.print("Enter a number: ");
int num = scanner.nextInt();
if(num > 0){
System.out.println("The number is positive.");
}
else if(num < 0){
System.out.println("The number is negative.");
}
else{
System.out.println("The number is zero.");
}
scanner.close();
}
}
```

Output:



6.b) Printing numbers using while statement:

Code:

```
public class A{
  public static void main(String[] args) {
    int i = 0;
    while (i < 5) {
      System.out.println(i);
      i++;
    }
  }
}
```

Output:

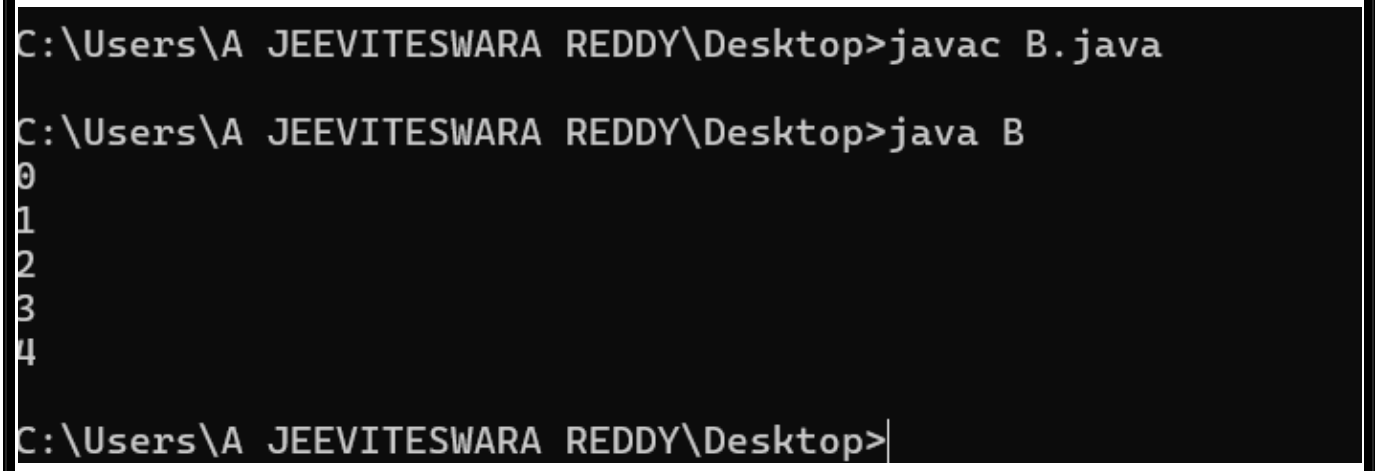
```
C:\Users\A JEEVITESWARA REDDY\Desktop>javac A.java

C:\Users\A JEEVITESWARA REDDY\Desktop>java A
0
1
2
3
4

C:\Users\A JEEVITESWARA REDDY\Desktop>
```

6.c) Printing numbers using do while statement:

Code:

```
public class B{
  public static void main(String[] args) {
    int i = 0;
    do {
      System.out.println(i);
      i++;
    }
    while (i < 5);
}
}
```

Output:



6.d) Printing even numbers using for statement:

Code:

```
public class C{
  public static void main(String[] args) {
    for (int i = 0; i <= 10; i = i + 2) {
      System.out.println(i);
}
}
}
```

Output;

```
C:\Users\A JEEVITESWARA REDDY\Desktop>javac C.java

C:\Users\A JEEVITESWARA REDDY\Desktop>java C
0
2
4
6
8
10
```

6.e) Printing sum of two numbers using scanner:

Code:

```
import java.util.Scanner;
public class D {
public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter first number: ");
        int num1 = scanner.nextInt();
        System.out.print("Enter second number: ");
        int num2 = scanner.nextInt();
        int sum = num1 + num2;
        System.out.println("Sum: " + sum);
        scanner.close();
}
}
```

Output:

```
C:\Users\A JEEVITESWARA REDDY\Desktop>javac D.java

C:\Users\A JEEVITESWARA REDDY\Desktop>java D
Enter first number: 10
Enter second number: 5
Sum: 15

C:\Users\A JEEVITESWARA REDDY\Desktop>
```

6.f) Sum of the digits using scanner:

Code:

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

Output:

```
C:\Users\A JEEVITESWARA REDDY\Desktop>javac G.java

C:\Users\A JEEVITESWARA REDDY\Desktop>java G
Enter a number: 123
Sum of digits: 6

C:\Users\A JEEVITESWARA REDDY\Desktop>
```

h

6.g) Concatenation of two strings:

Code:

```
 import java.util.Scanner;
public class H{
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter first string: ");
        String a = scanner.nextLine();
        System.out.print("Enter second string: ");
        String b = scanner.nextLine();
        String c= a+ " " + b;
        System.out.println("Concatenated String: " + c);
        scanner.close();
}
}
```

Output:

```
C:\Users\A JEEVITESWARA REDDY\Desktop>javac H.java

C:\Users\A JEEVITESWARA REDDY\Desktop>java H
Enter first string: hello
Enter second string: world
Concatenated String: hello world

C:\Users\A JEEVITESWARA REDDY\Desktop>
```

6.h) Factorial of a given number:

Code:

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

Output:

```
C:\Users\A JEEVITESWARA REDDY\Desktop>java I
Enter a number: 5
Factorial of 5 is: 120

C:\Users\A JEEVITESWARA REDDY\Desktop>
```

6.i) Reversing a number:

Code:

```
import java.util.Scanner;
public class J {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        int reversed = 0;
      while (num != 0) {
            int digit = num % 10;
            reversed = reversed * 10 + digit;
            num /= 10;
        }
      System.out.println("Reversed number: " + reversed);
        scanner.close();
}
}
```

Output:

```
C:\Users\A JEEVITESWARA REDDY\Desktop>java J
Enter a number: 246
Reversed number: 642

C:\Users\A JEEVITESWARA REDDY\Desktop>
```

6.j) To check if a given number is prime:

Code:

```
import java.util.Scanner;
public class K{
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        boolean isPrime = true;
      if (num <= 1) {
        isPrime = false;
        }
      else {
        for (int i = 2; i <= Math.sqrt(num); i++) {
        if (num % i == 0) {
        isPrime = false;
        break;
        }
        }
        }
      if (isPrime) {
        System.out.println(num + " is a prime number.");
        }
      else {
        System.out.println(num + " is not a prime number.");
        }
        scanner.close();
}
}
```

Output:

```
PS D:\OOP\Exp 3 Basic Java Programs> javac SumOfDigits.java
PS D:\OOP\Exp 3 Basic Java Programs> java SumOfDigits.java
Sum of digits: 30
PS D:\OOP\Exp 3 Basic Java Programs>
```