OOAD

LAB 1

IT24103440

Question 1

```java
import java.util.Scanner;

public class Welcome {
    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in); // create Scanner object


        System.out.print("Enter your First Name: ");

        String firstName = scanner.nextLine();


        System.out.print("Enter your Last Name: ");

        String lastName = scanner.nextLine();


        System.out.println("Welcome to the Second Year " + firstName + " " + lastName + "!");


        scanner.close(); // close the scanner
    }
}
```

```
Command Prompt                                                    —  □  ×

Microsoft Windows [Version 10.0.22631.5189]
(c) Microsoft Corporation. All rights reserved.

C:\Users\imax.computer>cd C:\Users\imax.computer\OneDrive\Desktop

C:\Users\imax.computer\OneDrive\Desktop>javac Welcome.java

C:\Users\imax.computer\OneDrive\Desktop>java Welcome
Enter your First Name: chamika
Enter your Last Name: kasthuri
Welcome to the Second Year chamika kasthuri!

C:\Users\imax.computer\OneDrive\Desktop>
```

Question 2 and 3

import java.util.Scanner;

public class marks {

    static int[][] studentMarks;

    static int num;

    public static void main(String[] args) {

        Scanner sc=new Scanner(System.in);

```java
System.out.print("Enter number of students : ");

 num =sc.nextInt();

studentMarks= new int[num][3];


while (true) {

   System.out.println("\nCommands:");

   System.out.println("add ");

   System.out.println("update");

   System.out.println("average_sub");

   System.out.println("average_std ");

   System.out.println("total");

   System.out.println("exit");


   System.out.print("\nEnter command : ");

   String command=sc.next();


   if (command.equals("add")){

      System.out.print("Enter student number : ");

      int id=sc.nextInt()-1;

      if (id >= 0 && id < num) {

        System.out.print("Enter marks for Mathematics: ");

        studentMarks[id][0] = sc.nextInt();

        System.out.print("Enter marks for Chemistry: ");

        studentMarks[id][1] = sc.nextInt();
```

```java
                System.out.print("Enter marks for Physics: ");

                studentMarks[id][2] = sc.nextInt();

             }

           else

             {System.out.println("Invalid number");

              break;}

    }

    else if (command.equals("update")){

       System.out.println("Enter student number");

       int id=sc.nextInt()-1;

       System.out.println("Enter subject (Maths:1 , Chem:2 , Physics:3 )");

       int sub=sc.nextInt()-1;


       if(id>=0&&id<num && sub>=0 && sub<3){

          System.out.print("Enter new mark: ");

          studentMarks[id][sub] = sc.nextInt();

       }

       else {

          System.out.println("Invalid student number or subject number");

          break;}

    }

    else if (command.equals("average_sub")){

       System.out.println("Enter subject number");

       int sub=sc.nextInt()-1;
```

```java
        int sum=0;

    for (int i = 0; i < num; i++) {

        sum += studentMarks[i][sub];

    }

    System.out.println("Subject average: " + (sum / (double) num));



}
else if (command.equals("average_std")){

    System.out.println("Enter student number");

    int std=sc.nextInt()-1;

    int sum=0;

    for (int i = 0; i < 3; i++) {

        sum += studentMarks[std][i];

    }

    System.out.println("Student average: " + (sum / (double)3));



}
 else if (command.equals("total")){

    System.out.println("Enter student number");

    int std=sc.nextInt()-1;

    int sum=0;

    for (int i = 0; i < 3; i++) {

        sum += studentMarks[std][i];

    }
```

```java
                System.out.println("Student total: " + sum);

            }

        else if (command.equals("grades")) {

            System.out.println("\nGrades Summary:");

            System.out.printf("%-10s%-12s%-12s%-12s\n", "Student", "Math", "Chemistry",
"Physics");


            for (int i = 0; i < num; i++) {

                System.out.printf("%-10s", "Student " + (i + 1));

                for (int j = 0; j < 3; j++) {

                    System.out.printf("%-12s", getGrade(studentMarks[i][j]));

                }

                System.out.println();

             }

          }


        else if (command.equals("exit"))

        break;

        else {

            System.out.println("Invalid command.");


        }

        }
sc.close();
```

```java
}

public static String getGrade(int mark) {

    if (mark >= 90) return "A";

    else if (mark >= 80) return "B";

    else if (mark >= 70) return "C";

    else if (mark >= 60) return "D";

    else return "Fail";

}



}
```



```
Command Prompt                    ×    +   ∨                                                     —   □   ×

C:\Users\imax.computer\OneDrive\Desktop>java marks
Enter number of students : 1

Commands:
add
update
average_sub
average_std
total
exit

Enter command : add
Enter student number : 1
Enter marks for Mathematics: 10
Enter marks for Chemistry: 80
Enter marks for Physics: 60

Commands:
add
update
average_sub
average_std
total
exit

Enter command : grades

Grades Summary:
Student    Math         Chemistry   Physics
Student 1 Fail         B           D
```