

## LAB-1

- 1) Write a program to overload the method print that prints sum of  $n$  natural numbers when one variable is passed, prints the prime numbers in a given range when 2 parameters are passed.

=&gt;

```
class Overload {
```

```
    void print(int n) {
```

```
        int sum = 0;
```

```
        for (int i = 1; i <= n; i++) {
```

```
            sum = sum + i;
```

```
        }
```

```
        System.out.println("Sum of " + n + " natural  
        number is " + sum);
```

```
    }
```

```
    void print(int m, int n) {
```

```
        System.out.println("Prime numbers in  
        the range are");
```

```
        for (int i = m; i <= n; i++) {
```

```
            int flag = 0;
```

```
            for (int j = 2; j <= i/2; j++) {
```

```
                if (i % j == 0) {
```

```
                    flag = 1;
```

```
                    break;
```

```
                }
```

```
            }
```

```
            if (flag == 0)
```

```
                System.out.println(i);
```

```
        }
```

```
    }
```

```
}
```

```
class OverloadDemo {  
    public static void main (String[] args) {  
        Overload o = new Overload();  
        o.print(5)  
        o.print(7, 13);  
    }  
}
```

2. ~~Write a Java program to create a class~~

Output :-

Sum of 5 natural number is 15

Prime number in the range are

7

11

13



2. Write a Java program to create a class Grocery that has the variable c\_name and c\_phone. Create a method to accept 3 parameters to specify quantity of dal, quantity of pulse and quantity of sugar. The method to return the total price. Display the name, ph\_no and total bill of 3 customers.

=>

```
class Grocery {  
    String c_name;  
    String c_ph;  
    double total;  
  
    Grocery(String c_name, String c_ph) {  
        this.c_name = c_name;  
        this.c_ph = c_ph;  
    }  
  
    void calc(double q_dal, double q_pulses, double  
        q_sugar) {  
        total = q_dal * 100 + q_pulse * 80 + q_sugar * 50;  
    }  
  
    void display() {  
        System.out.println("Name " + " " + "Phone no"  
            + " " + "Total");  
        System.out.println(c_name + " " + c_ph +  
            " " + total);  
        System.out.println();  
    }  
}
```

```
class GDemo {
```

```
    public static void main (String[] args) {
```

```
        Grocery g1 = new Grocery ('Ram', '80634
```

```
        Grocery g2 = new Grocery ('Sham', '76542
```

```
        Grocery g3 = new Grocery ('Bhama', '963421
```

```
        g1.calc (2, 2, 1);
```

```
        g1.display ();
```

```
        g2.calc (3, 5, 2);
```

```
        g2.display ();
```

```
        g3.calc (1, 1, 0.5);
```

```
        g3.display ();
```

```
    }
```

```
}
```

Output :

Name	Phone_no	Total
Rama	8060302010	410.00

Name	Phone_no	Total
Shama	7689632510	800.00

Name	Phone_no	Total
Bhama	9632587412	205.00



3. Write a java program to calculate roots of a quadratic equation. Use appropriate methods to take input, and calculate the roots.

=>

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

```
class quad {
```

```
    int a, b, c;
```

```
    double root1, root2, d;
```

```
    Scanner s = new Scanner(System.in);
```

```
    void input() {
```

```
        System.out.println("Quadratic equation is  
in the form:  $ax^2 + bx + c$ ");
```

```
        System.out.print("Enter a:");
```

```
        a = s.nextInt();
```

```
        System.out.print("Enter b: ");
```

```
        b = s.nextInt();
```

```
        System.out.print("Enter c: ");
```

```
        c = s.nextInt();
```

```
    }
```

```
    void discriminant() {
```

```
        d = (b*b) - (4*a*c);
```

```
    }
```

```
    void calculateRoots() {
```

```
        if (d > 0)
```

```
        {
```

```
            System.out.println("Roots are real");
```

```
            root1 = (-b + Math.sqrt(d)) / (2*a);
```

```
            root2 = (-b - Math.sqrt(d)) / (2*a);
```

```

        System.out.println("First root is: " + root1);
        System.out.println("Second root is: " + root2);
    }

```

```

    else if (d == 0) {

```

```

        System.out.println("Roots are real & equal");

```

```

        root1 = -(b + Math.sqrt(d)) / (2 * a);

```

```

        System.out.println("Root: " + root1);
    }

```

```

    else {

```

```

        System.out.println("No real solution");

```

```

        double real = -b / (2 * a);

```

```

        double imaginary = Math.sqrt(-d) / (2 * a);

```

```

        System.out.println("This equation has two complex roots: " + real + " + " +

```

```

        imaginary + "i and " + real + " - " +

```

```

        imaginary + "i");
    }
}

```

```

class Main {

```

```

    public static void main (String[] args) {

```

```

        Quad q = new Quad();

```

```

        q.input();

```

```

        q.discriminant();

```

```

        q.calculateRoots();
    }
}

```



Output

Quadratic equation in the form :  $ax^2 + bx + c$

Enter a : 1

Enter b : 2

Enter c : 0

Roots are real and unequal

First root is : 0.0

Second root is : -2.0