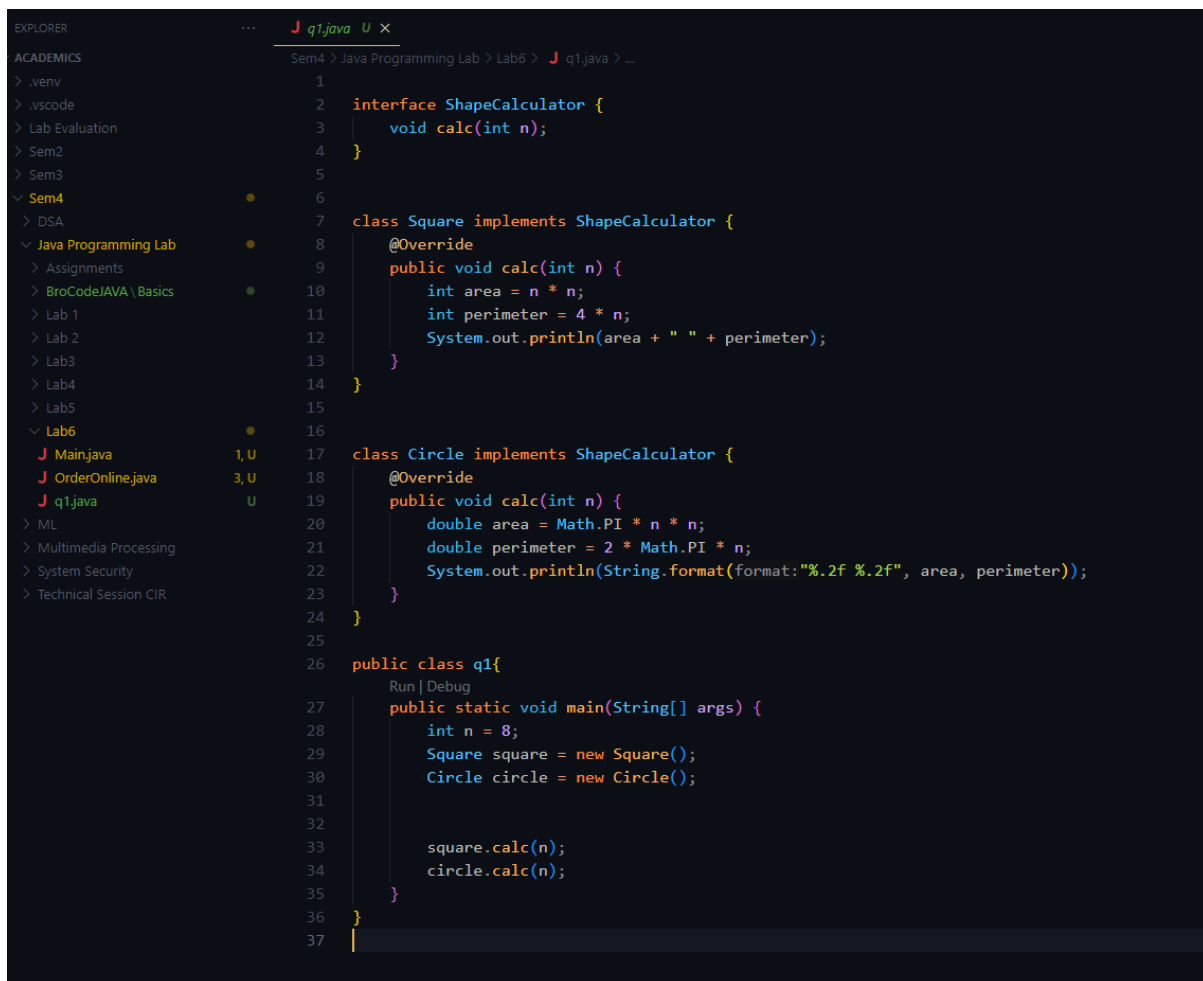


Java Lab -6

Praneesh R V

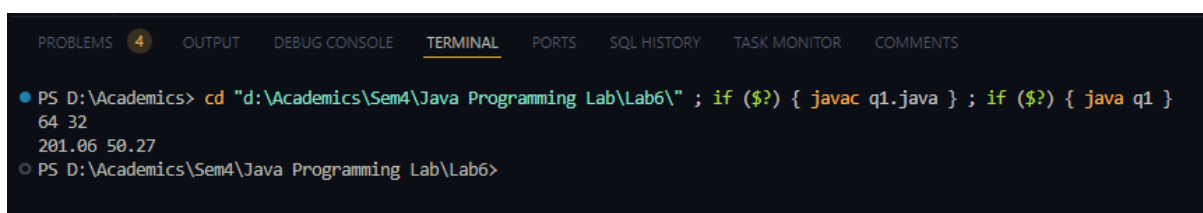
CB.SC.U4CYS23036

Qn1,



```
1
2 interface ShapeCalculator {
3     void calc(int n);
4 }
5
6
7 class Square implements ShapeCalculator {
8     @Override
9     public void calc(int n) {
10         int area = n * n;
11         int perimeter = 4 * n;
12         System.out.println(area + " " + perimeter);
13     }
14 }
15
16
17 class Circle implements ShapeCalculator {
18     @Override
19     public void calc(int n) {
20         double area = Math.PI * n * n;
21         double perimeter = 2 * Math.PI * n;
22         System.out.println(String.format(format:"%.2f %.2f", area, perimeter));
23     }
24 }
25
26 public class q1{
27     Run | Debug
28     public static void main(String[] args) {
29         int n = 8;
30         Square square = new Square();
31         Circle circle = new Circle();
32
33         square.calc(n);
34         circle.calc(n);
35     }
36 }
37
```

Output:



```
PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL PORTS SQL HISTORY TASK MONITOR COMMENTS
PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab6\" ; if ($?) { javac q1.java } ; if ($?) { java q1 }
64 32
201.06 50.27
PS D:\Academics\Sem4\Java Programming Lab\Lab6>
```

Qn2,

```
1 interface Matrix {
2     void diagonalsMinMax(int[][] matrix);
3 }
4 class Main implements Matrix {
5     @Override
6     public void diagonalsMinMax(int[][] matrix) {
7         int n = matrix.length;
8         int min1 = Integer.MAX_VALUE, max1 = Integer.MIN_VALUE;
9         int min2 = Integer.MAX_VALUE, max2 = Integer.MIN_VALUE;
10
11         for (int i = 0; i < n; i++) {
12             min1 = Math.min(min1, matrix[i][i]);
13             max1 = Math.max(max1, matrix[i][i]);
14             min2 = Math.min(min2, matrix[i][n - i - 1]);
15             max2 = Math.max(max2, matrix[i][n - i - 1]);
16         }
17         System.out.println("Smallest Element - 1: " + min1);
18         System.out.println("Greatest Element - 1: " + max1);
19         System.out.println("Smallest Element - 2: " + min2);
20         System.out.println("Greatest Element - 2: " + max2);
21     }
22 }
23
24 Run | Debug
25 public static void main(String[] args) {
26     int n = 5;
27     int[][] matrix = {
28         {7, 8, 9, 0, 1},
29         {2, 3, 4, 5, 6},
30         {5, 4, 2, 0, 8},
31         {23, 5, 6, 8, 9},
32         {12, 5, 6, 7, 32}
33     };
34
35     Main obj = new Main();
36     obj.diagonalsMinMax(matrix);
37 }
38 }
```

Output:

```
PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL PORTS SQL HISTORY TASK MONITOR COMMENTS
● PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab6\" ; if ($?) { javac Main.java } ; if ($?) { java Main }
Smallest Element - 1: 2
Greatest Element - 1: 32
Smallest Element - 2: 1
Greatest Element - 2: 12
○ PS D:\Academics\Sem4\Java Programming Lab\Lab6> |
```

Qn3,

```
1 import java.util.Scanner;
2 interface Product {
3     void ProductDetails();
4     void show_Bill();
5 }
6 class Customer {
7     String id, name;
8     public void getdetails() {
9         Scanner sc = new Scanner(System.in);
10        id = sc.nextLine();
11        name = sc.nextLine();
12    }
13    public void showdetails() {
14        System.out.println("ID:" + id);
15        System.out.println("NAME:" + name);
16    }
17 }
18 class OrderOnline extends Customer implements Product {
19     int numItems;
20     String[] productNames;
21     double[] productCosts;
22     double totalBill = 0;
23     @Override
24     public void ProductDetails() {
25         Scanner sc = new Scanner(System.in);
26         numItems = sc.nextInt();
27         productNames = new String[numItems];
28         productCosts = new double[numItems];
29         for (int i = 0; i < numItems; i++) {
30             productNames[i] = sc.next();
31             productCosts[i] = sc.nextDouble();
32             totalBill += productCosts[i];
33         }
34         if (totalBill <= 10000) {
35
36         } else if (totalBill > 10000 && totalBill <= 30000) {
37             totalBill += totalBill * 0.05;
38         } else if (totalBill > 30000 && totalBill <= 50000) {
39             totalBill += totalBill * 0.07;
40         } else {
41             totalBill += totalBill * 0.09;
42         }
43     }
44     @Override
45     public void show_Bill() {
46         System.out.println("Bill:" + totalBill);
47     }
48     Run | Debug
49     public static void main(String[] args) {
50         Scanner sc = new Scanner(System.in);
51         int n = sc.nextInt();
52         for (int i = 0; i < n; i++) {
53             OrderOnline customer = new OrderOnline();
54             customer.getdetails();
55             customer.ProductDetails();
56             customer.showdetails();
57             customer.show_Bill();
58         }
59     }
60 }
```

Output:

PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL PORTS SQL HISTORY TASK MONITOR COMMENTS

```
PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab6\" ; if ($?) { javac OrderOnline.java } ; if ($?) { java OrderOnline }
001
123
pran
2
1
2
3
1
ID:123
NAME:pran
Bill:3.0
PS D:\Academics\Sem4\Java Programming Lab\Lab6> 
```