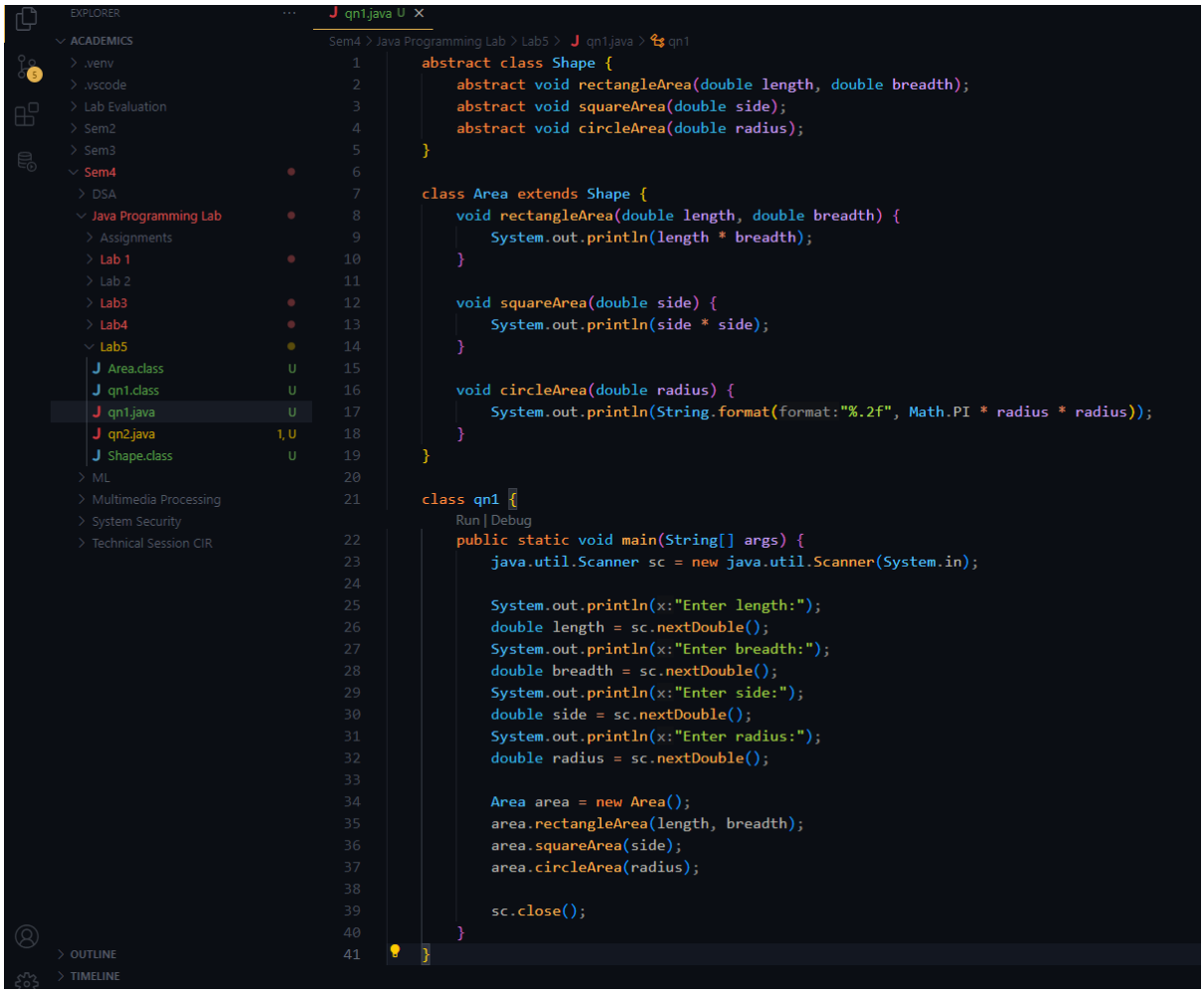
Java Lab -5

Praneesh R V

CB.SC.U4CYS23036

Qn1,

Code:



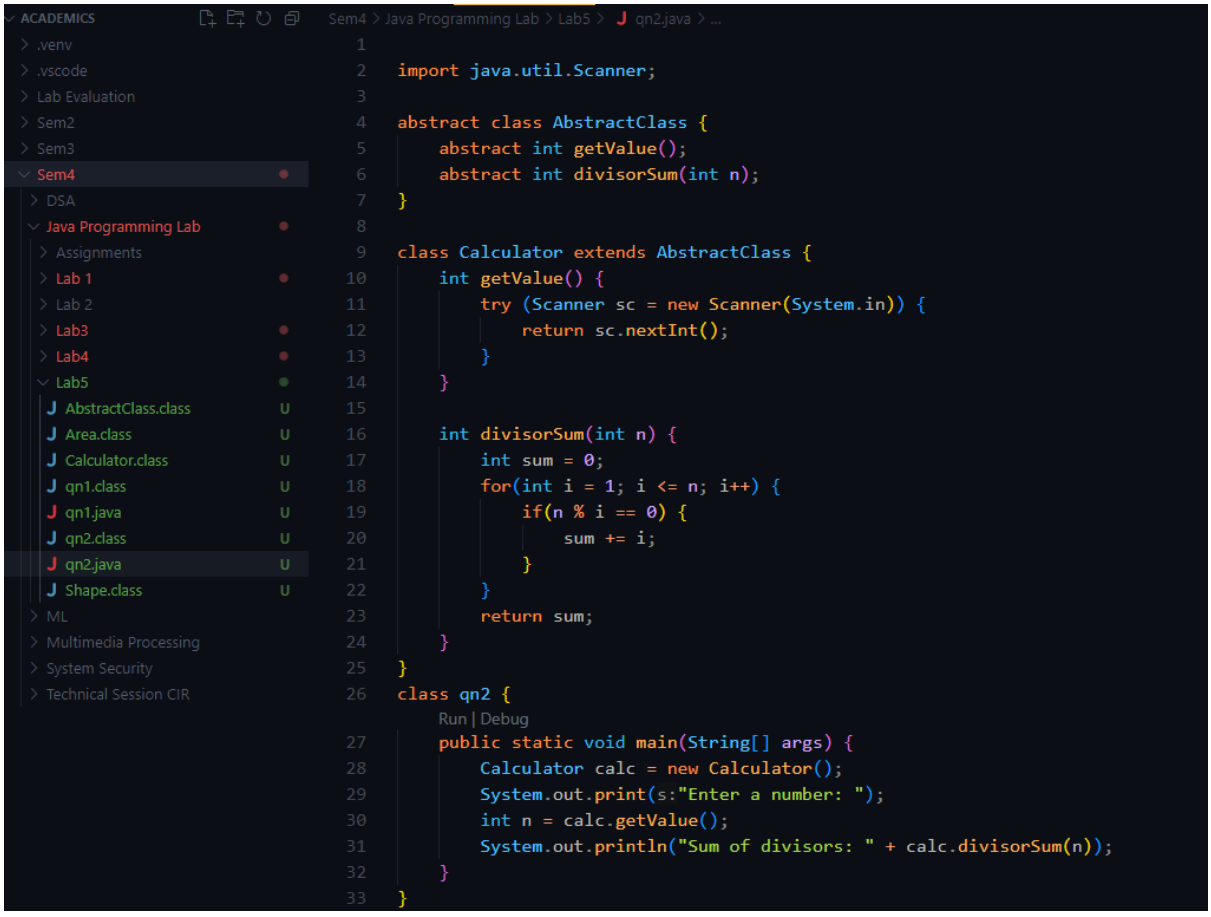
Output:

```
PROBLEMS 9  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  SQL HISTORY  TASK MONITOR  COMMENTS

PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab5\" ; if ($?) { javac qn1.java } ; if ($?) { java qn1 }
Enter length:
5
Enter breadth:
5
Enter side:
3
Enter radius:
5
25.0
9.0
78.54
PS D:\Academics\Sem4\Java Programming Lab\Lab5>
```

Qn 2,

Code:



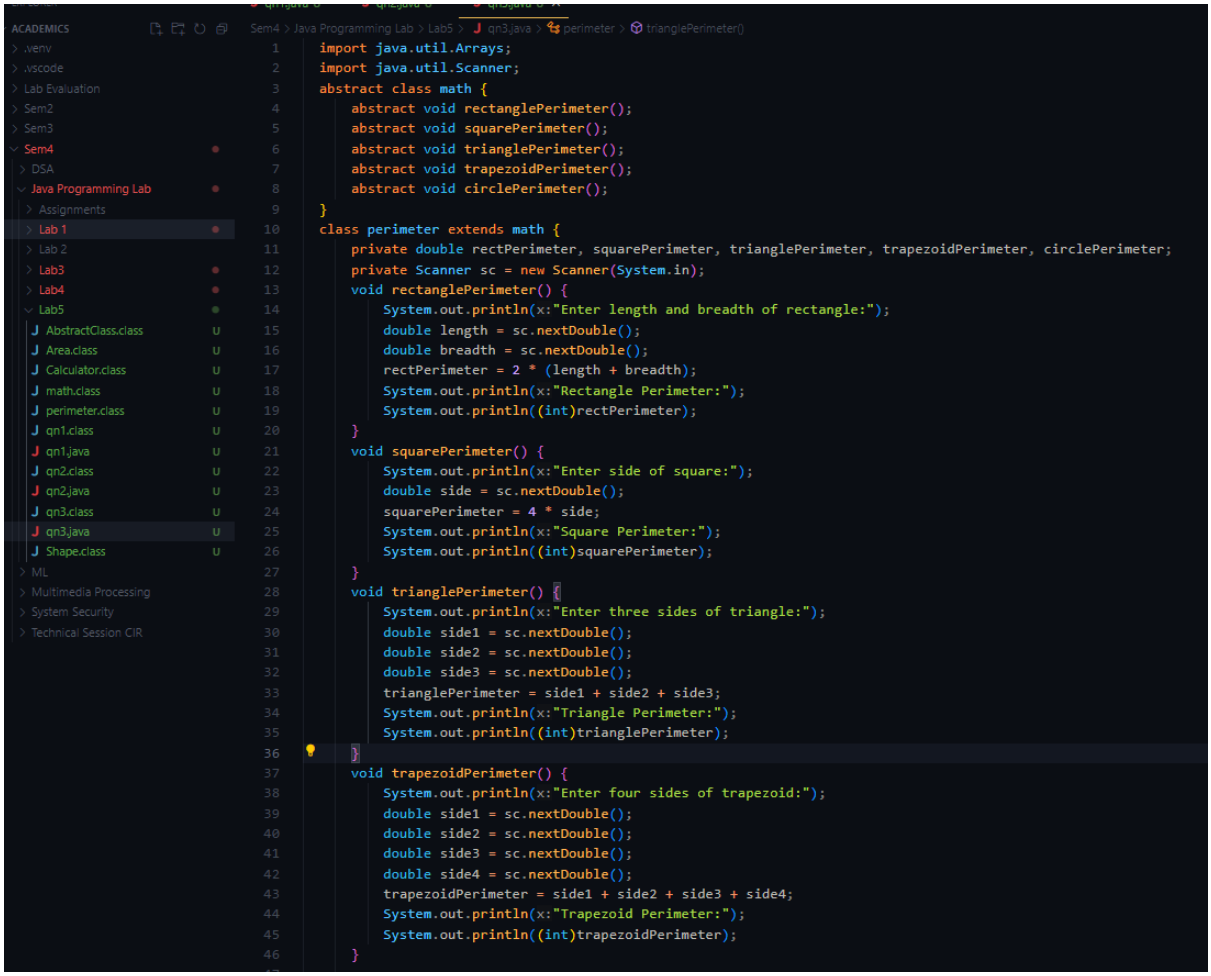
Output:

```
PROBLEMS 8  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  SQL HISTORY  TASK MONITOR  COMMENTS

PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab5\" ; if ($?) { javac qn2.java } ; if ($?) { java qn2 }
Enter a number: 500
Sum of divisors: 1092
PS D:\Academics\Sem4\Java Programming Lab\Lab5>
```

Qn3,

Code:

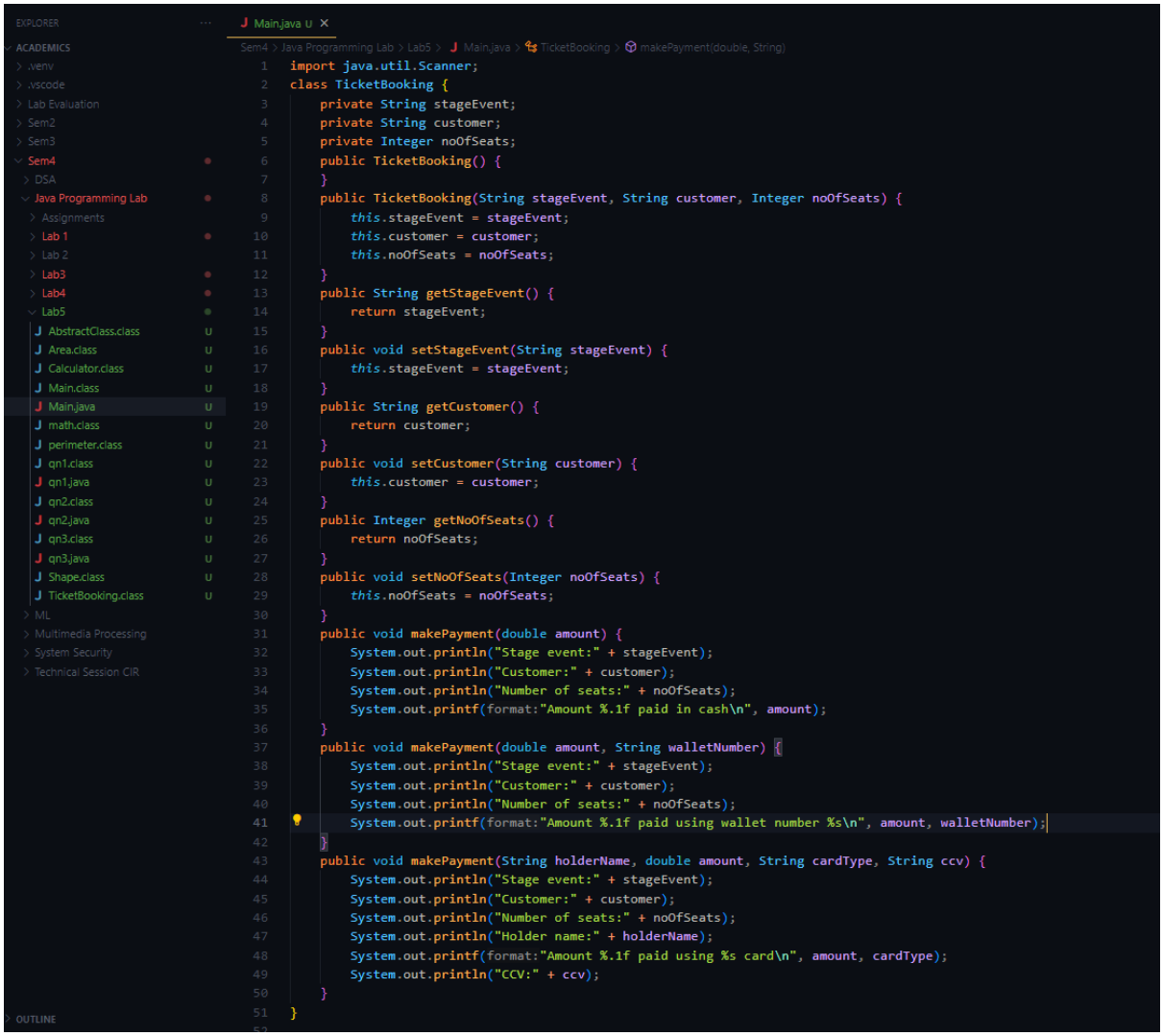

ACADEMICS
.venv
.vscode
Lab Evaluation
Sem2
Sem3
Sem4
DSA
Java Programming Lab
Assignments
Lab 1
Lab 2
Lab3
Lab4
Lab5
AbstractClass.class
Area.class
Calculator.class
math.class
perimeter.class
qn1.class
qn1.java
qn2.class
qn2.java
qn3.class
qn3.java
Shape.class
ML
Multimedia Processing
System Security
Technical Session CIR
Sem4 > Java Programming Lab > Lab5 > qn3.java > perimeter > trianglePerimeter()
import java.util.Arrays;
import java.util.Scanner;
abstract class math {
abstract void rectanglePerimeter();
abstract void squarePerimeter();
abstract void trianglePerimeter();
abstract void trapezoidPerimeter();
abstract void circlePerimeter();
}
class perimeter extends math {
private double rectPerimeter, squarePerimeter, trianglePerimeter, trapezoidPerimeter, circlePerimeter;
private Scanner sc = new Scanner(System.in);
void rectanglePerimeter() {
System.out.println(x:"Enter length and breadth of rectangle:");
double length = sc.nextDouble();
double breadth = sc.nextDouble();
rectPerimeter = 2 * (length + breadth);
System.out.println(x:"Rectangle Perimeter:");
System.out.println((int)rectPerimeter);
}
void squarePerimeter() {
System.out.println(x:"Enter side of square:");
double side = sc.nextDouble();
squarePerimeter = 4 * side;
System.out.println(x:"Square Perimeter:");
System.out.println((int)squarePerimeter);
}
void trianglePerimeter() {
System.out.println(x:"Enter three sides of triangle:");
double side1 = sc.nextDouble();
double side2 = sc.nextDouble();
double side3 = sc.nextDouble();
trianglePerimeter = side1 + side2 + side3;
System.out.println(x:"Triangle Perimeter:");
System.out.println((int)trianglePerimeter);
}
void trapezoidPerimeter() {
System.out.println(x:"Enter four sides of trapezoid:");
double side1 = sc.nextDouble();
double side2 = sc.nextDouble();
double side3 = sc.nextDouble();
double side4 = sc.nextDouble();
trapezoidPerimeter = side1 + side2 + side3 + side4;
System.out.println(x:"Trapezoid Perimeter:");
System.out.println((int)trapezoidPerimeter);
}

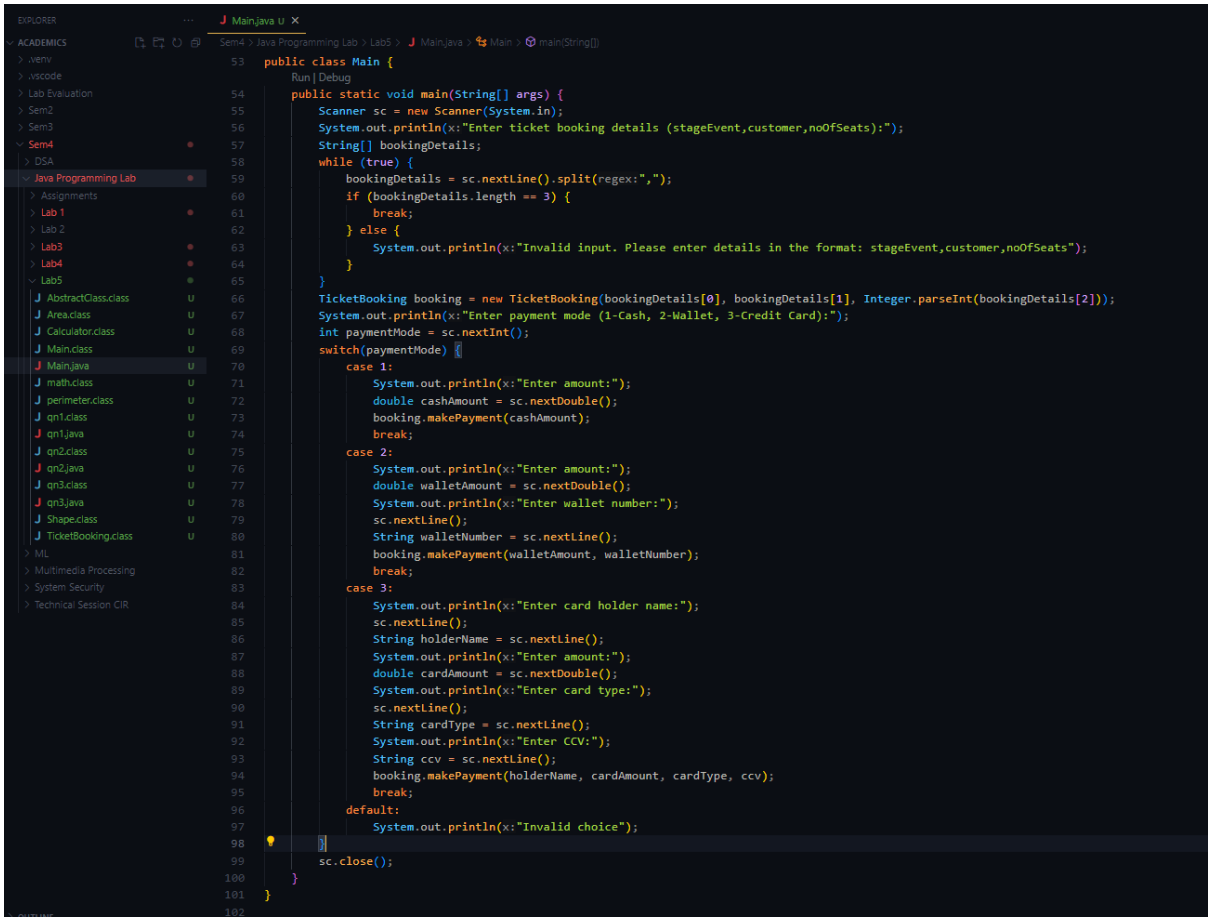
Output:

```
PS D:\Academics\Sem4\Java Programming Lab\Lab5> cd "d:\Academics\Sem4\Java Programming Lab\Lab5\" ; if ($?) { javac qn3.java } ; if ($?) { java qn3 }
Enter length and breadth of rectangle:
20
20
Rectangle Perimeter:
80
Enter side of square:
10
Square Perimeter:
40
Enter three sides of triangle:
3
4
5
Triangle Perimeter:
12
Enter four sides of trapezoid:
1
3
5
4
Trapezoid Perimeter:
13
Enter radius of circle:
5
Circle Perimeter:
31
Sum of all perimeters:
176
Sorted perimeters:
12 13 31 40 80
PS D:\Academics\Sem4\Java Programming Lab\Lab5>
```

Qn4,

Code:


EXPLORER
ACADEMICS
.venv
.vscode
Lab Evaluation
Sem2
Sem3
Sem4
DSA
Java Programming Lab
Assignments
Lab 1
Lab 2
Lab3
Lab4
Lab5
AbstractClass.class
Area.class
Calculator.class
Main.class
Main.java
math.class
perimeter.class
qn1.class
qn1.java
qn2.class
qn2.java
qn3.class
qn3.java
Shape.class
TicketBooking.class
ML
Multimedia Processing
System Security
Technical Session CIR
OUTLINE
Main.java U
Sem4 > Java Programming Lab > Lab5 > Main.java > TicketBooking > makePayment(double, String)
import java.util.Scanner;
class TicketBooking {
private String stageEvent;
private String customer;
private Integer noOfSeats;
public TicketBooking() {
}
public TicketBooking(String stageEvent, String customer, Integer noOfSeats) {
this.stageEvent = stageEvent;
this.customer = customer;
this.noOfSeats = noOfSeats;
}
public String getStageEvent() {
return stageEvent;
}
public void setStageEvent(String stageEvent) {
this.stageEvent = stageEvent;
}
public String getCustomer() {
return customer;
}
public void setCustomer(String customer) {
this.customer = customer;
}
public Integer getNoOfSeats() {
return noOfSeats;
}
public void setNoOfSeats(Integer noOfSeats) {
this.noOfSeats = noOfSeats;
}
public void makePayment(double amount) {
System.out.println("Stage event:" + stageEvent);
System.out.println("Customer:" + customer);
System.out.println("Number of seats:" + noOfSeats);
System.out.printf(format:"Amount %.1f paid in cash\n", amount);
}
public void makePayment(double amount, String walletNumber) {
System.out.println("Stage event:" + stageEvent);
System.out.println("Customer:" + customer);
System.out.println("Number of seats:" + noOfSeats);
System.out.printf(format:"Amount %.1f paid using wallet number %s\n", amount, walletNumber);
}
public void makePayment(String holderName, double amount, String cardType, String ccv) {
System.out.println("Stage event:" + stageEvent);
System.out.println("Customer:" + customer);
System.out.println("Number of seats:" + noOfSeats);
System.out.println("Holder name:" + holderName);
System.out.printf(format:"Amount %.1f paid using %s card\n", amount, cardType);
System.out.println("CCV:" + ccv);
}
}



```java
public class Main {
    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println(x:"Enter ticket booking details (stageEvent,customer,noOfSeats):");
        String[] bookingDetails;
        while (true) {
            bookingDetails = sc.nextLine().split(regex:",");
            if (bookingDetails.length == 3) {
                break;
            } else {
                System.out.println(x:"Invalid input. Please enter details in the format: stageEvent,customer,noOfSeats");
            }
        }
        TicketBooking booking = new TicketBooking(bookingDetails[0], bookingDetails[1], Integer.parseInt(bookingDetails[2]));
        System.out.println(x:"Enter payment mode (1-Cash, 2-Wallet, 3-Credit Card):");
        int paymentMode = sc.nextInt();
        switch(paymentMode) {
            case 1:
                System.out.println(x:"Enter amount:");
                double cashAmount = sc.nextDouble();
                booking.makePayment(cashAmount);
                break;
            case 2:
                System.out.println(x:"Enter amount:");
                double walletAmount = sc.nextDouble();
                System.out.println(x:"Enter wallet number:");
                sc.nextLine();
                String walletNumber = sc.nextLine();
                booking.makePayment(walletAmount, walletNumber);
                break;
            case 3:
                System.out.println(x:"Enter card holder name:");
                sc.nextLine();
                String holderName = sc.nextLine();
                System.out.println(x:"Enter amount:");
                double cardAmount = sc.nextDouble();
                System.out.println(x:"Enter card type:");
                sc.nextLine();
                String cardType = sc.nextLine();
                System.out.println(x:"Enter CCV:");
                String ccv = sc.nextLine();
                booking.makePayment(holderName, cardAmount, cardType, ccv);
                break;
            default:
                System.out.println(x:"Invalid choice");
        }
        sc.close();
    }
}
```

Output:

```
PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab5\" ; if ($?) { javac Main.java } ; if ($?) { java Main }
Enter ticket booking details (stageEvent,customer,noOfSeats):
Movie Shadow 2
Invalid input. Please enter details in the format: stageEvent,customer,noOfSeats
Movie,Shadow,2
Enter payment mode (1-Cash, 2-Wallet, 3-Credit Card):
2
Enter amount:
1000
Enter wallet number:
2
Stage event:Movie
Customer:Shadow
Number of seats:2
Amount 1000.0 paid using wallet number 2
PS D:\Academics\Sem4\Java Programming Lab\Lab5>
```

Qn5,

Code:

```java
import java.util.Scanner;
abstract class Move {
    abstract int minFrontMoves(int[] arr);
}
public class qn5 extends Move {
    @Override
    int minFrontMoves(int[] arr) {
        int n = arr.length;
        int[] sortedArr = arr.clone();
        java.util.Arrays.sort(sortedArr);
        int count = 0;

        for (int i = 0; i < n; i++) {
            if (arr[i] != sortedArr[i]) {
                count++;
                int temp = arr[i];
                for (int j = i; j > 0; j--) {
                    arr[j] = arr[j - 1];
                }
                arr[0] = temp;
            }
        }
        return count;
    }
        Run | Debug
        public static void main(String[] args) {
            Scanner scanner = new Scanner(System.in);
            System.out.println(x:"Enter the number of elements in the array:");
            int n = scanner.nextInt();
            int[] arr = new int[n];
            System.out.println(x:"Enter the elements of the array:");
            for (int i = 0; i < n; i++) {
                arr[i] = scanner.nextInt();
            }
            qn5 main = new qn5();
            int result = main.minFrontMoves(arr);
            System.out.println(x:"Minimum number of front moves required to sort the array:");
            System.out.println(result);
            scanner.close();
        }}
```

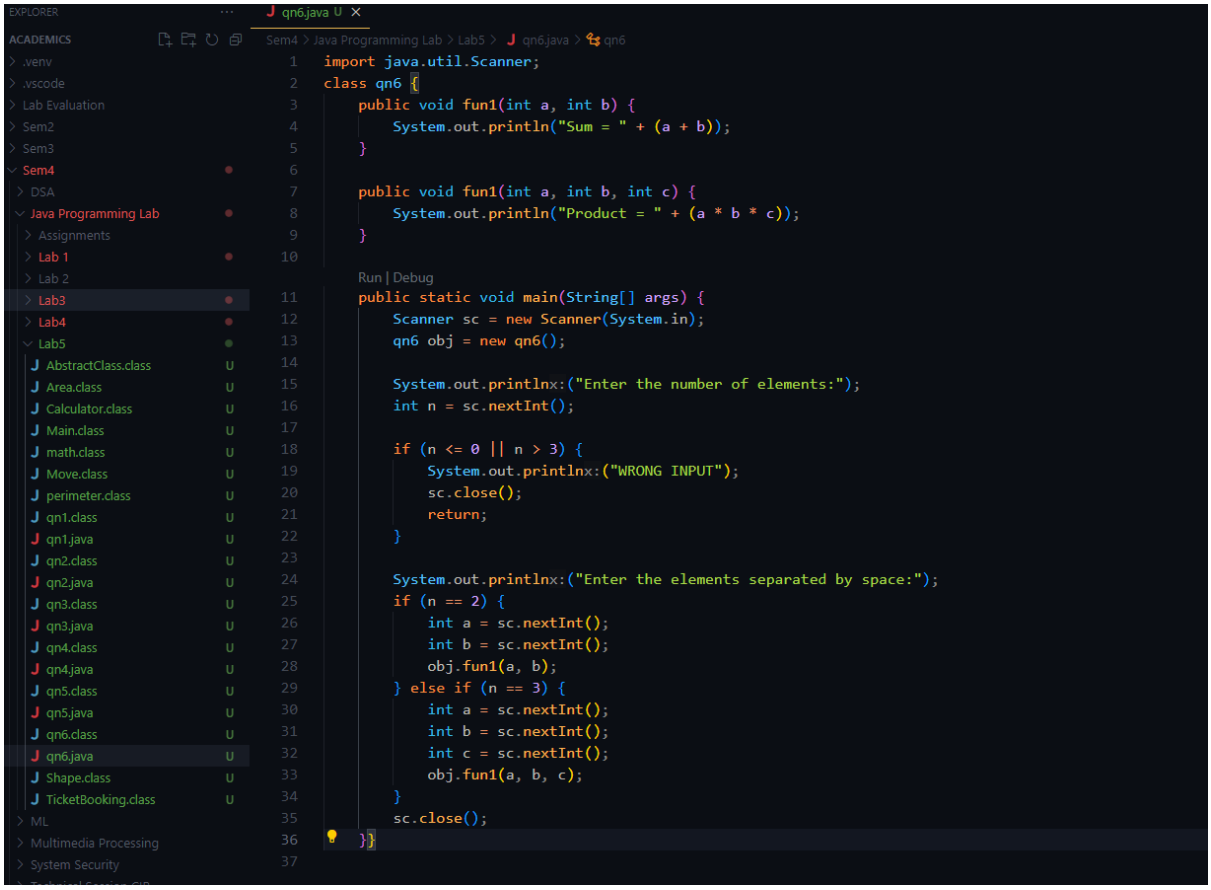
Output:

```
PROBLEMS 12  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  SQL HISTORY  TASK MONITOR  COMMENTS

PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab5\" ; if ($?) { javac qn5.java } ; if ($?) { java qn5 }
Enter the number of elements in the array:
5
Enter the elements of the array:
1
7
3
2
8
Minimum number of front moves required to sort the array:
2
PS D:\Academics\Sem4\Java Programming Lab\Lab5>
```

Qn6,

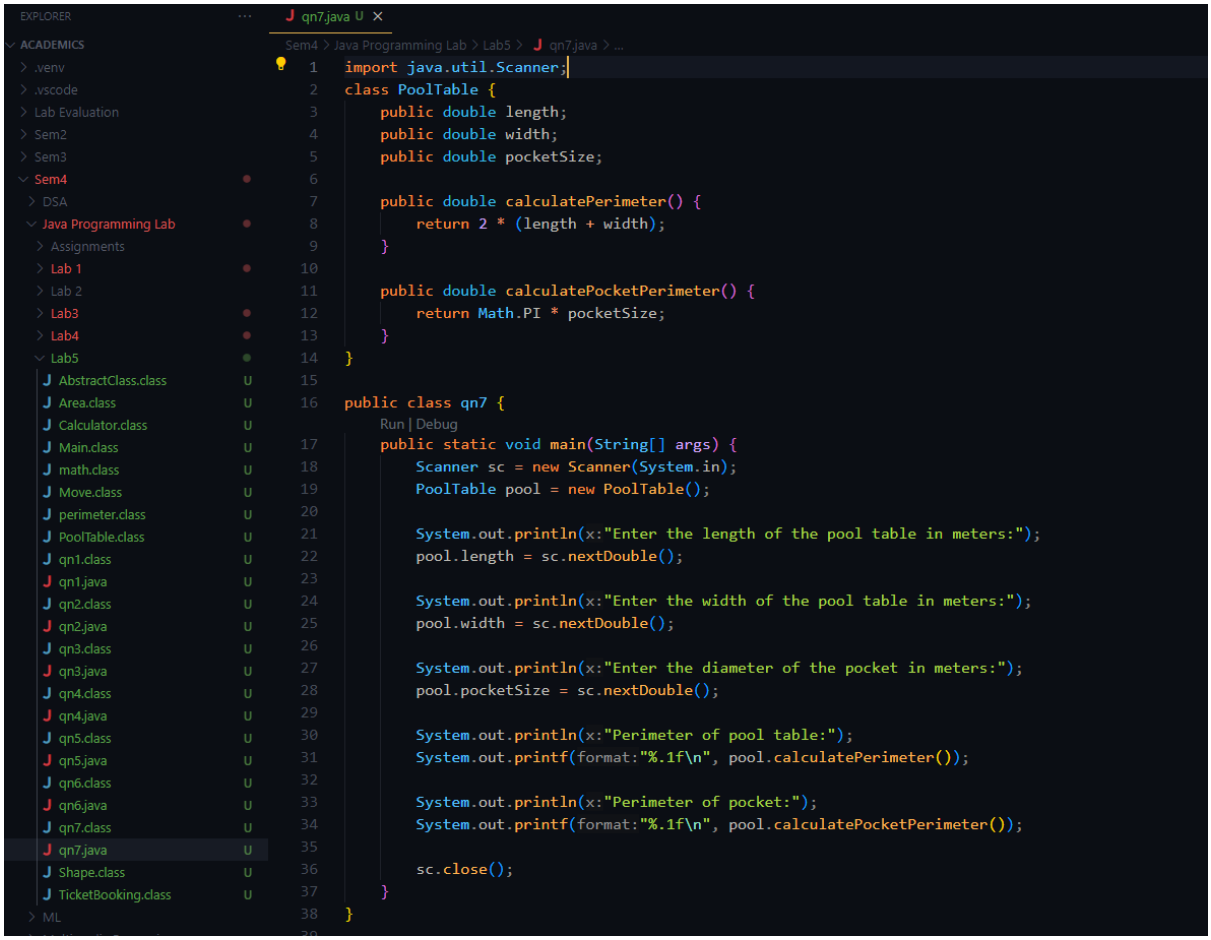
Code:



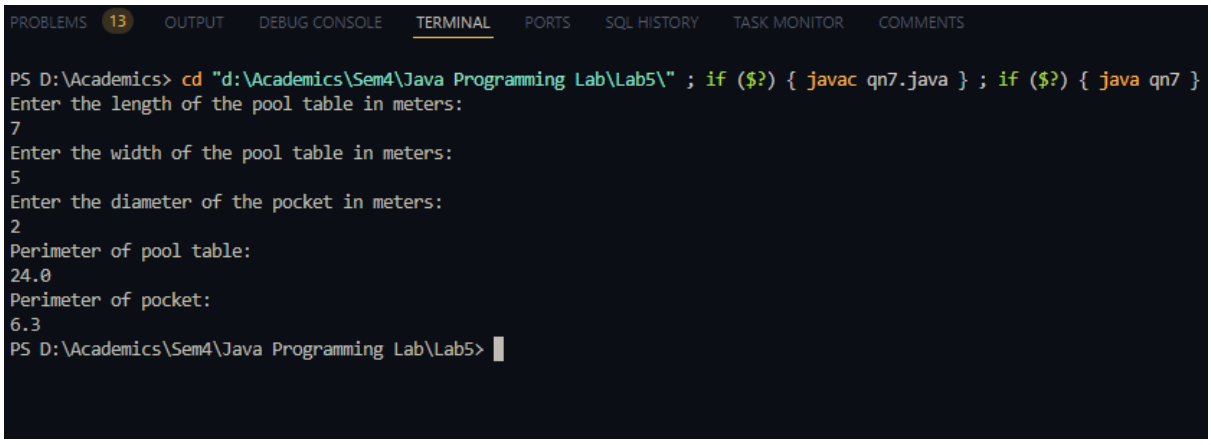
Output:

Qn7,

Code:

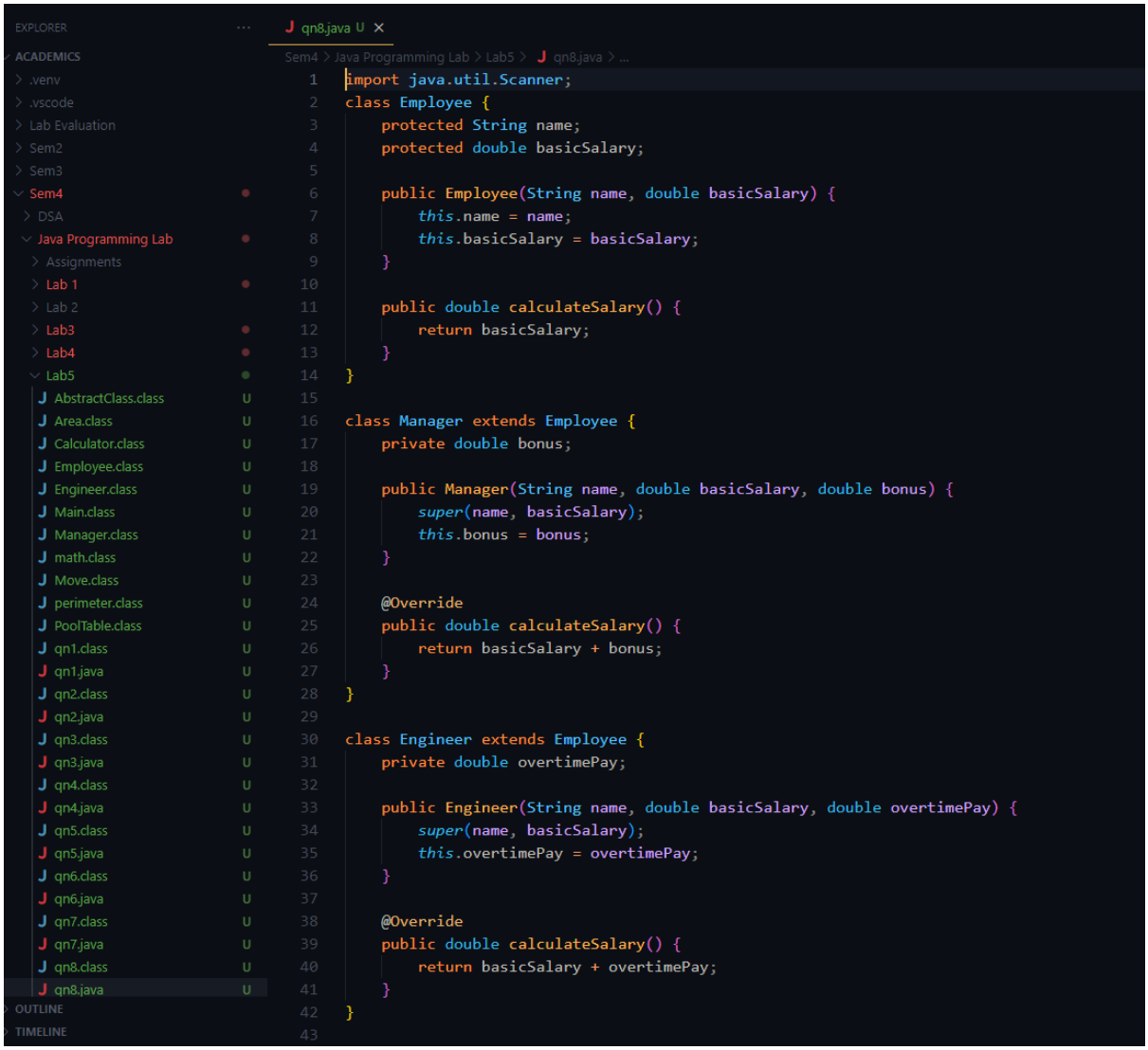


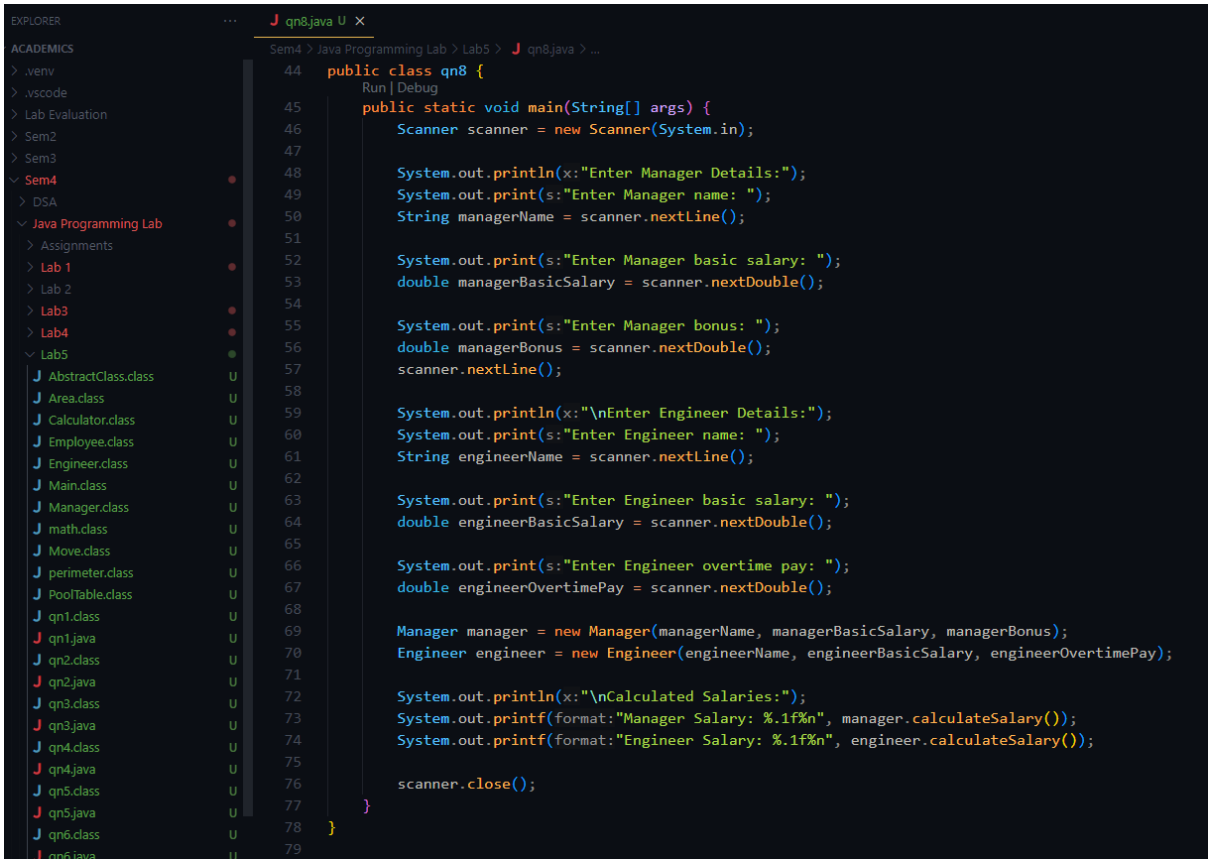
Output:



Qn8,

Code:


EXPLORER
qn8.java U
ACADEMICS
.venv
.vscode
Lab Evaluation
Sem2
Sem3
Sem4
DSA
Java Programming Lab
Assignments
Lab 1
Lab 2
Lab3
Lab4
Lab5
AbstractClass.class
Area.class
Calculator.class
Employee.class
Engineer.class
Main.class
Manager.class
math.class
Move.class
perimeter.class
PoolTable.class
qn1.class
qn1.java
qn2.class
qn2.java
qn3.class
qn3.java
qn4.class
qn4.java
qn5.class
qn5.java
qn6.class
qn6.java
qn7.class
qn7.java
qn8.class
qn8.java
OUTLINE
TIMELINE
Sem4 > Java Programming Lab > Lab5 > qn8.java > ...
import java.util.Scanner;
class Employee {
protected String name;
protected double basicSalary;
public Employee(String name, double basicSalary) {
this.name = name;
this.basicSalary = basicSalary;
}
public double calculateSalary() {
return basicSalary;
}
}
class Manager extends Employee {
private double bonus;
public Manager(String name, double basicSalary, double bonus) {
super(name, basicSalary);
this.bonus = bonus;
}
@Override
public double calculateSalary() {
return basicSalary + bonus;
}
}
class Engineer extends Employee {
private double overtimePay;
public Engineer(String name, double basicSalary, double overtimePay) {
super(name, basicSalary);
this.overtimePay = overtimePay;
}
@Override
public double calculateSalary() {
return basicSalary + overtimePay;
}
}


EXPLORER
ACADEMICS
.venv
.vscode
Lab Evaluation
Sem2
Sem3
Sem4
DSA
Java Programming Lab
Assignments
Lab 1
Lab 2
Lab3
Lab4
Lab5
AbstractClass.class
Area.class
Calculator.class
Employee.class
Engineer.class
Main.class
Manager.class
math.class
Move.class
perimeter.class
PoolTable.class
qn1.class
qn1.java
qn2.class
qn2.java
qn3.class
qn3.java
qn4.class
qn4.java
qn5.class
qn5.java
qn6.class
qn6.java
qn8.java U
Sem4 > Java Programming Lab > Lab5 > qn8.java > ...
public class qn8 {
Run | Debug
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
System.out.println("Enter Manager Details:");
System.out.print("Enter Manager name: ");
String managerName = scanner.nextLine();
System.out.print("Enter Manager basic salary: ");
double managerBasicSalary = scanner.nextDouble();
System.out.print("Enter Manager bonus: ");
double managerBonus = scanner.nextDouble();
scanner.nextLine();
System.out.println("\nEnter Engineer Details:");
System.out.print("Enter Engineer name: ");
String engineerName = scanner.nextLine();
System.out.print("Enter Engineer basic salary: ");
double engineerBasicSalary = scanner.nextDouble();
System.out.print("Enter Engineer overtime pay: ");
double engineerOvertimePay = scanner.nextDouble();
Manager manager = new Manager(managerName, managerBasicSalary, managerBonus);
Engineer engineer = new Engineer(engineerName, engineerBasicSalary, engineerOvertimePay);
System.out.println("\nCalculated Salaries:");
System.out.printf("Manager Salary: %.1f%n", manager.calculateSalary());
System.out.printf("Engineer Salary: %.1f%n", engineer.calculateSalary());
scanner.close();
}
}

Output:


PROBLEMS 13
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
SQL HISTORY
TASK MONITOR
COMMENTS
PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab5\" ; if ($?) { javac qn8.java } ; if ($?) { java qn8 }
Enter Manager Details:
Enter Manager name: Ravi
Enter Manager basic salary: 100000
Enter Manager bonus: 500000
Enter Engineer Details:
Enter Engineer name: Rajesh
Enter Engineer basic salary: 75000
Enter Engineer overtime pay: 10000
Calculated Salaries:
Manager Salary: 600000.0
Engineer Salary: 85000.0
PS D:\Academics\Sem4\Java Programming Lab\Lab5>

Qn9,

Code:

```java
import java.util.Scanner;
class qn9 {
    public void Quantity(int r, int h) {
        double volume = (1.0/3.0) * Math.PI * r * r * h;
        System.out.printf(format:"Volume of cone: %.2f\n", volume);
    }

    public void Quantity(int r) {
        double volume = (4.0/3.0) * Math.PI * r * r * r;
        System.out.printf(format:"Volume of ball: %.2f\n", volume);
    }

    Run | Debug
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        qn9 ic = new qn9();

        System.out.println(x:"Enter radius and height for cone (separated by space):");
        int r1 = sc.nextInt();
        int h = sc.nextInt();
        ic.Quantity(r1, h);

        System.out.println(x:"\nEnter radius for ball:");
        int r2 = sc.nextInt();
        ic.Quantity(r2);

        sc.close();
    }
}
```

Output:

```
PROBLEMS 13  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  SQL HISTORY  TASK MONITOR  COMMENTS

PS D:\Academics> cd "d:\Academics\Sem4\Java Programming Lab\Lab5\" ; if ($?) { javac qn9.java } ; if ($?) { java qn9 }
Enter radius and height for cone (separated by space):
3
5
Volume of cone: 47.12

Enter radius for ball:
3
Volume of ball: 113.10
PS D:\Academics\Sem4\Java Programming Lab\Lab5>
```