

## Lab 3

### Assignment-1

Write a Java program that uses a method to calculate the area of a rectangle and compare them using Relational Operator.

#### Steps

- Create a class **Rectangle**.
- The Rectangle class should have two attributes length and width of type int.
- Create a constructor that accepts length and width as parameters.
- Area should be calculated as length\*area.
- Instantiate two Rectangle classes with random values.
- Compare the areas of the two rectangles using the Relational Operator.
  - If the first one is bigger than the second one, print “Rectangle1 > Rectangle2”.
  - If the first one is smaller print “Rectangle1 < Rectangle2”.
  - Otherwise print “They are equal”.

#### Program

```
import java.util.Random;

public class Rectangle {
    private int length;
    private int width;

    public Rectangle(int length, int width) {
        this.length = length;
        this.width = width;
    }

    public int calculateArea() {
        return length * width;
    }

    public static void main(String[] args) {
        Random rand = new Random();
        Rectangle rectangle1 = new Rectangle(rand.nextInt(20) + 1,
        rand.nextInt(20) + 1);
        Rectangle rectangle2 = new Rectangle(rand.nextInt(20) + 1,
        rand.nextInt(20) + 1);
```

```

        int area1 = rectangle1.calculateArea();
        int area2 = rectangle2.calculateArea();
        System.out.println("Rectangle1: length = " + rectangle1.length + ",
width = " + rectangle1.width + ", area = " + area1);
        System.out.println("Rectangle2: length = " + rectangle2.length + ",
width = " + rectangle2.width + ", area = " + area2);

        if (area1 > area2) {
            System.out.println("Rectangle1 > Rectangle2");
        } else if (area1 < area2) {
            System.out.println("Rectangle1 < Rectangle2");
        } else {
            System.out.println("They are equal");
        }
    }
}

```

### *Output*

```

PS D:\Wenshu\College\Engg\TPCell-Training\Sem5-Java\Anudip-Practicals\lab-assignments\lab3> javac Rectangle.java
PS D:\Wenshu\College\Engg\TPCell-Training\Sem5-Java\Anudip-Practicals\lab-assignments\lab3> java Rectangle
Rectangle1: length = 7, width = 2, area = 14
Rectangle2: length = 3, width = 16, area = 48
Rectangle1 < Rectangle2

```

## Assignment-2

Write a Java program that allows the user to create a bank account and perform transactions such as deposit, withdrawal, and balance inquiry. Using a conditional operator (ternary operator), display the message whether minimum balance is maintained or not.

### Steps

- Create a class **BankAccount**.
- Add three member variables
  - String accountHolderName ;
  - int accountNumber;
  - int balance;
- Add a constructors using all three members.
- Add getters and setters.
- Add method deposit (int), withdraw(int).
- Implement the methods by increasing or decreasing the balance.
- In the main method
  - Create a bank account.
  - Withdraw money from this account and/or deposit into this account.
  - Get the balance.
  - Create a string variable “status” inside the main method.
  - Assign values to status as “Minimum Balance Maintained” if balance is above or equal to 5000. Otherwise values of status will be “Minimum Balance not maintained”.
  - Use conditional operator (ternary operator) to assign the values of the status.
  - Display the status.

### Program

```
import java.util.Scanner;

class BankAccount {
    private String accountHolderName;
    private int accountNumber;
    private int balance;

    public BankAccount(String accountHolderName, int accountNumber, int balance) {
```

```
        this.accountHolderName = accountHolderName;
        this.accountNumber = accountNumber;
        this.balance = balance;
    }

    public String getAccountHolderName() {
        return accountHolderName;
    }

    public void setAccountHolderName(String accountHolderName) {
        this.accountHolderName = accountHolderName;
    }

    public int getAccountNumber() {
        return accountNumber;
    }

    public void setAccountNumber(int accountNumber) {
        this.accountNumber = accountNumber;
    }

    public int getBalance() {
        return balance;
    }

    public void setBalance(int balance) {
        this.balance = balance;
    }

    public void deposit(int amount) {
        if (amount > 0) {
            balance += amount;
            System.out.println("Deposited: ₹" + amount);
        } else {
            System.out.println("Invalid deposit amount!");
        }
    }

    public void withdraw(int amount) {
        if (amount > 0 && amount <= balance) {
            balance -= amount;
            System.out.println("Withdrawn: ₹" + amount);
        } else {
            System.out.println("Invalid withdrawal amount or insufficient funds!");
        }
    }
}
```

```

public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);

    System.out.println("Creating new bank account...");
    System.out.print("Enter account holder name: ");
    String name = scanner.nextLine();
    System.out.print("Enter account number: ");
    int accNumber = scanner.nextInt();
    System.out.print("Enter initial balance: ");
    int initialBalance = scanner.nextInt();

    BankAccount account = new BankAccount(name, accNumber,
initialBalance);
    System.out.println("\nAccount created successfully!");

    System.out.print("\nEnter deposit amount: ₹");
    account.deposit(scanner.nextInt());

    System.out.print("Enter withdrawal amount: ₹");
    account.withdraw(scanner.nextInt());

    System.out.println("\nCurrent Balance: ₹" + account.getBalance());
    String status = account.getBalance() >= 5000 ? "Minimum Balance
Maintained" : "Minimum Balance not Maintained";
    System.out.println("\nAccount Status: " + status);

    scanner.close();
}
}

```

## Output

```

PS D:\Venshu\College\Engg\TPCell-Training\Sem5-Java\Anudip-Practicals\lab-assignments\lab3> javac BankAccount.java
PS D:\Venshu\College\Engg\TPCell-Training\Sem5-Java\Anudip-Practicals\lab-assignments\lab3> java BankAccount
Creating new bank account...
Enter account holder name: Amit Shah
Enter account number: 3061845
Enter initial balance: 100000000

Account created successfully!

Enter deposit amount: ?60000
Deposited: ?60000
Enter withdrawal amount: ?250000
Withdrawn: ?250000

Current Balance: ?99810000

Account Status: Minimum Balance Maintained

```