***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** {

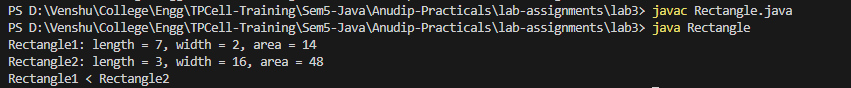
            System.out.println("They are equal");

        }

    }

}

***Output***



***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***

