# Session-5 Lab set = 4

(Java Operators)

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".

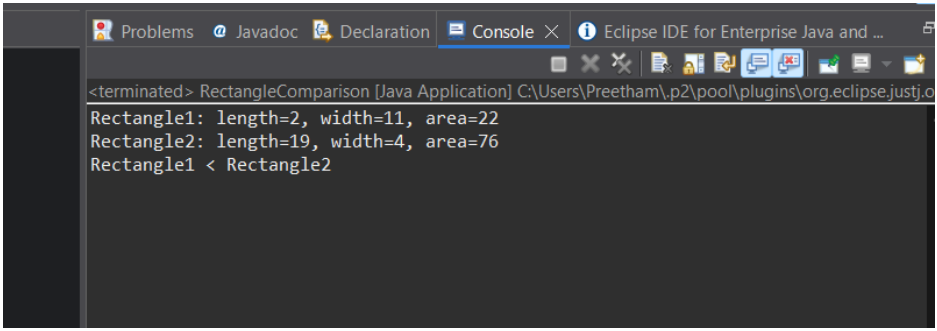
## Code

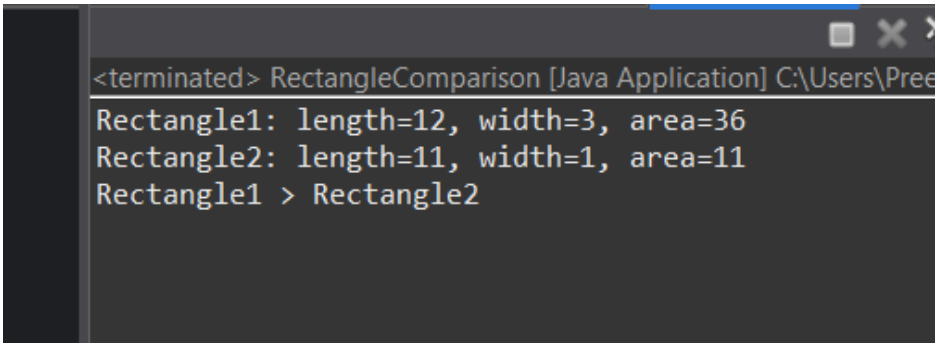
RectangleComparison.java | Rectangles.java

```java
package anudip.java.lab;

public class Rectangles {
    int length;
    int width;

    // Constructor
    public Rectangles(int length, int width) {
        this.length = length;
        this.width = width;
    }

    // Method to calculate area
    public int area() {
        return length * width;
    }
}
```

```java
package anudip.java.lab;

import java.util.Random;

public class RectangleComparison {
    public static void main(String[] args) {
        Random rand = new Random();

        // Instantiate two rectangles with random values (e.g., between 1 and 20)
        Rectangles rect1 = new Rectangles(rand.nextInt(20) + 1, rand.nextInt(20) + 1);
        Rectangles rect2 = new Rectangles(rand.nextInt(20) + 1, rand.nextInt(20) + 1);

        int area1 = rect1.area();
        int area2 = rect2.area();

        System.out.println("Rectangle1: length=" + rect1.length + ", width=" + rect1.width + ", area=" + area1);
        System.out.println("Rectangle2: length=" + rect2.length + ", width=" + rect2.width + ", area=" + area2);

        // Compare areas
        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 and 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.

# Code

BankDemo.java | BankAccount2.java

```java
package anudip.java.lab;

public class BankAccount2 {
    private String accountHolderName;
    private int accountNumber;
    private int balance;

    // Constructor
    public BankAccount2(String accountHolderName, int accountNumber, int balance) {
        this.accountHolderName = accountHolderName;
        this.accountNumber = accountNumber;
        this.balance = balance;
    }

    // Getters
    public String getAccountHolderName() {
        return accountHolderName;
    }

    public int getAccountNumber() {
        return accountNumber;
    }

    public int getBalance() {
        return balance;
    }

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

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

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

```java
    // Deposit method
    public void deposit(int amount) {
        if (amount > 0) {
            balance += amount;
            System.out.println("Deposited: " + amount);
        } else {
            System.out.println("Invalid deposit amount.");
        }
    }

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

BankDemo.java *BankAccount2.java

```java
package anudip.java.lab;

import java.util.Scanner;

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

        // Create a bank account
        System.out.print("Enter Account Holder Name: ");
        String name = sc.nextLine();
        System.out.print("Enter Account Number: ");
        int accNum = sc.nextInt();
        System.out.print("Enter Initial Balance: ");
        int initBalance = sc.nextInt();

        BankAccount2 account = new BankAccount2(name, accNum, initBalance);

        // Perform transactions
        System.out.print("Enter amount to deposit: ");
        int dep = sc.nextInt();
        account.deposit(dep);

        System.out.print("Enter amount to withdraw: ");
        int wd = sc.nextInt();
        account.withdraw(wd);

        // Check balance and display status using ternary operator
        int currentBalance = account.getBalance();
        String status = (currentBalance >= 5000) ? "Minimum Balance Maintained" : "Minimum Balance not Maintained";

        System.out.println("\nAccount Holder: " + account.getAccountHolderName());
        System.out.println("Account Number: " + account.getAccountNumber());
        System.out.println("Final Balance: " + currentBalance);
        System.out.println("Status: " + status);

        sc.close();
    }
}
```

# Output

Console Problems Debug Shell

<terminated> BankDemo [Java Application] C:\Users\Preetham\.p2\pool\plugins\org.eclip

```
Enter Account Holder Name: preetham
Enter Account Number: 12345
Enter Initial Balance: 6000
Enter amount to deposit: 200
Deposited: 200
Enter amount to withdraw: 1200
Withdrawn: 1200

Account Holder: preetham
Account Number: 12345
Final Balance: 5000
Status: Minimum Balance Maintained
```

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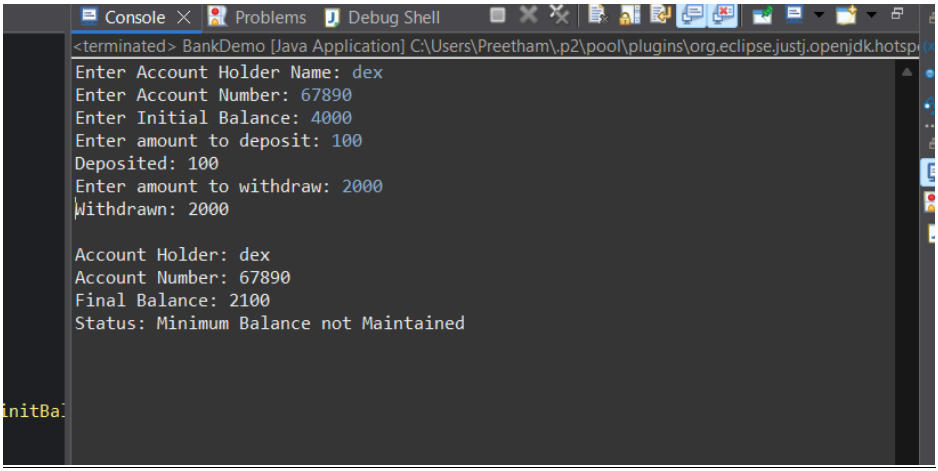
Console
Problems
Debug Shell
<terminated> BankDemo [Java Application] C:\Users\Preetham\.p2\pool\plugins\org.eclipse.justj.openjdk.hotsp
Enter Account Holder Name: dex
Enter Account Number: 67890
Enter Initial Balance: 4000
Enter amount to deposit: 100
Deposited: 100
Enter amount to withdraw: 2000
Withdrawn: 2000
Account Holder: dex
Account Number: 67890
Final Balance: 2100
Status: Minimum Balance not Maintained