# Practical No:15

Name : Deepankar Sharma Course: BCA

University Roll No: 2092014 Student Id : 20041299 Semester: 3

Date: November 22, 2021

**Objective:** WAP to implement multithreading and using it elaborate the synchronization.

# Code :

import java.util.Scanner;

class \_77\_BankOfJointAccount{

double jointAmount;

synchronized void show(){

System.out.println("The current amount is: "+ jointAmount);

}

// void addBalance(double amount, String name){

synchronized void addBalance(double amount, String name){

System.out.println(name+ ": ");

jointAmount+=amount;

System.out.println("Added amount is: "+ amount);

show();

}

// void withdrawBalance(double amount, String name){

synchronized void withdrawBalance(double amount, String name){

System.out.println(name+ ": ");

jointAmount-=amount;

System.out.println("Withdrawal amount is: "+ amount);

show();

}

}

class \_77\_TestSynchronized01 extends java.lang.Thread{

\_77\_BankOfJointAccount account;

String name;

// constructor

\_77\_TestSynchronized01(\_77\_BankOfJointAccount account, String name){

this.name= name;

this.account= account;

}

public void run(){

double amount=500;

account.addBalance(amount, name);

account.withdrawBalance(amount, name);

}

}

class \_77\_TestSynchronized02 extends java.lang.Thread{

\_77\_BankOfJointAccount account;

String name;

// constructor

\_77\_TestSynchronized02(\_77\_BankOfJointAccount account, String name){

this.name= name;

this.account= account;

}

public void run(){

double amount=982.76;

Scanner sc = new Scanner(System.in);

account.addBalance(amount, name);

account.withdrawBalance(amount, name);

}

}

class \_77\_TestSynchronized03 extends java.lang.Thread{

\_77\_BankOfJointAccount account;

String name;

// constructor

\_77\_TestSynchronized03(\_77\_BankOfJointAccount account, String name){

this.name= name;

this.account= account;

}

public void run(){

double amount=10000.78;

account.addBalance(amount, name);

account.withdrawBalance(amount, name);

}

}

class \_77\_TestSynchronized04 extends java.lang.Thread{

\_77\_BankOfJointAccount account;

String name;

// constructor

\_77\_TestSynchronized04(\_77\_BankOfJointAccount account, String name){

this.name= name;

this.account= account;

}

public void run(){

double amount=98.6;

account.addBalance(amount, name);

account.withdrawBalance(amount, name);

}

}

public class \_77\_Synchronized {

public static void main(String[] args) {

\_77\_BankOfJointAccount account= new \_77\_BankOfJointAccount();

\_77\_TestSynchronized01 t1= new \_77\_TestSynchronized01(account, "Deepankar");

\_77\_TestSynchronized02 t2= new \_77\_TestSynchronized02(account, "Oliver");

\_77\_TestSynchronized03 t3= new \_77\_TestSynchronized03(account, "Dean Winchester");

\_77\_TestSynchronized04 t4= new \_77\_TestSynchronized04(account, "Bruce Wayne");

t1.start();

t2.start();

t3.start();

t4.start();

\_77\_TestSynchronized01 [] arr= new \_77\_TestSynchronized01[10];

for (\_77\_TestSynchronized01 i : arr) {

i=new \_77\_TestSynchronized01(account, "name"+ i);

i.start();

}

}

}

# Output:

PPS E:\03 Semester\Java\MOODLE\Unit 01 and 02\\_65\_MultiThreading> cd "e:\03 Semester\Java\MOODLE\Unit 01 and 02\\_65\_MultiThreading\" ; if ($?) { javac \_77\_Synchronized.java } ; if ($?) { java \_77\_Synchronized }

Deepankar:

Added amount is: 500.0

The current amount is: 500.0

Deepankar:

Withdrawal amount is: 500.0

The current amount is: 0.0

Bruce Wayne:

Added amount is: 98.6

The current amount is: 98.6

Bruce Wayne:

Withdrawal amount is: 98.6

The current amount is: 0.0

Dean Winchester:

Added amount is: 10000.78

The current amount is: 10000.78

Dean Winchester:

Withdrawal amount is: 10000.78

The current amount is: 0.0

Oliver:

Added amount is: 982.76

The current amount is: 982.76

Oliver:

Withdrawal amount is: 982.76

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0

namenull:

Added amount is: 500.0

The current amount is: 500.0

namenull:

Withdrawal amount is: 500.0

The current amount is: 0.0