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Section: 08.

Course: CSE321.

Assignment: Lab-3.

*#Task-1:*

package cse321\_lab3;

import java.util.Scanner;

public class CSE321\_Lab3 {

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

System.out.println("Enter the first integer: ");

int num1 = scan.nextInt();

System.out.println("Enter the second integer: ");

int num2 = scan.nextInt();

Thread\_task1 T1 = new Thread\_task1("add", num1, num2);

Thread\_task1 T2 = new Thread\_task1("sub", num1, num2);

Thread\_task1 T3 = new Thread\_task1("mul", num1, num2);

Thread\_task1 T4 = new Thread\_task1("div", num1, num2);

Thread\_task1 T5 = new Thread\_task1("oth", num1, num2);

T1.setPriority(Thread.MAX\_PRIORITY);

T5.setPriority(Thread.MIN\_PRIORITY);

T1.start();

T2.start();

T3.start();

T4.start();

T5.start();

try {

T1.join();

T2.join();

T3.join();

T4.join();

} catch (InterruptedException e){

e.printStackTrace();

}

}

}

class Thread\_task1 extends Thread {

int num1;

int num2;

String method;

public Thread\_task1 (String method, int num1, int num2) {

super(method);

this.num1 = num1;

this.num2 = num2;

}

@Override

public void run() {

String method1 = getName();

String op1 = "add";

String op2 = "sub";

String op3 = "mul";

String op4 = "div";

if (method1.equals(op1)) {

System.out.println(this.num1 + this.num2);

} else if (method1.equals(op2)) {

System.out.println(this.num1 - this.num2);

} else if (method1.equals(op3)) {

System.out.println(this.num1 \* this.num2);

} else if (method1.equals(op4)) {

System.out.println(this.num1 / this.num2);

} else {

System.out.println("No Valid Operation");

}

}

}

*#Task-2:*

package cse321\_lab3;

import java.util.Scanner;

public class CSE321\_Lab3 {

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

String house1 = "House Stark";

String house2 = "House Targaryen";

String house3 = "House Lannister";

String house4 = "House Bolton";

String house5 = "House Tyrell";

CSE321\_Lab3 object = new CSE321\_Lab3();

object.printHouse(house1);

object.printHouse(house2);

object.printHouse(house3);

object.printHouse(house4);

System.out.println();

Thread\_task2 T1 = new Thread\_task2(house1);

Thread\_task2 T2 = new Thread\_task2(house3);

Thread\_task2 T3 = new Thread\_task2(house4);

Thread\_task2 T4 = new Thread\_task2(house5);

T1.start();

T2.start();

T3.start();

T4.start();

try {

T1.join();

T2.join();

T3.join();

T4.join();

} catch (InterruptedException e){

e.printStackTrace();

}

if (T1.isAlive()){

System.out.println("Not Today!");

}

if (!T3.isAlive()) {

System.out.println("You know nothing!");

}

}

public static void printHouse(String name) {

System.out.println("The House is: " + name);

}

}

class Thread\_task2 extends Thread {

public Thread\_task2 (String name) {

super(name);

}

@Override

public void run() {

String house\_name = getName();

System.out.println("The House is: " + house\_name);

}

}

*#Task-2(Bonus):*

package cse321\_lab3;

import java.util.Scanner;

public class CSE321\_Lab3 {

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

String house1 = "House Stark";

String house2 = "House Targaryen";

String house3 = "House Lannister";

String house4 = "House Bolton";

String house5 = "House Tyrell";

Thread\_task2 T1 = new Thread\_task2(house1);

Thread\_task2 T2 = new Thread\_task2(house2);

Thread\_task2 T3 = new Thread\_task2(house3);

Thread\_task2 T4 = new Thread\_task2(house4);

Thread\_task2 T5 = new Thread\_task2(house5);

T1.start();

try {

T1.sleep(1000);

} catch (InterruptedException e){

e.printStackTrace();

}

T2.start();

try {

T2.sleep(1000);

} catch (InterruptedException e){

e.printStackTrace();

}

T3.start();

try {

T3.sleep(3000);

} catch (InterruptedException e){

e.printStackTrace();

}

T4.start();

try {

T4.sleep(3000);

} catch (InterruptedException e){

e.printStackTrace();

}

T5.start();

try {

T5.sleep(5000);

} catch (InterruptedException e){

e.printStackTrace();

}

try {

T1.join();

T2.join();

T3.join();

T4.join();

T5.join();

} catch (InterruptedException e){

e.printStackTrace();

}

}

}

class Thread\_task2 extends Thread {

public Thread\_task2 (String name) {

super(name);

}

@Override

public void run() {

String house\_name = getName();

System.out.println("The House is: " + house\_name);

}

}

*#Task-3:*

package cse321\_lab3;

import java.util.Scanner;

public class CSE321\_Lab3 {

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

Thread\_task3 T1 = new Thread\_task3("Odd\_1st");

Thread\_task3 T2 = new Thread\_task3("Even\_1st");

Thread\_task3 T3 = new Thread\_task3("Odd\_2nd");

Thread\_task3 T4 = new Thread\_task3("Even\_2nd");

Thread\_task3 T5 = new Thread\_task3("Final");

T1.start();

T2.start();

T3.start();

T4.start();

T5.start();

T1.setPriority(Thread.MAX\_PRIORITY);

T5.setPriority(Thread.MIN\_PRIORITY);

try {

T1.join();

T2.join();

T3.join();

T4.join();

T5.join();

} catch(InterruptedException e) {

e.printStackTrace();

}

}

}

class Thread\_task3 extends Thread {

public Thread\_task3 (String name) {

super(name);

}

@Override

public void run() {

long fib[] = new long [51];

int n = 50;

long x = 0;

long y = 1;

long z = 0;

int i = 0;

while (i <=n) {

fib[i] = z;

x = y;

y = z;

z = x + y;

i++;

}

String op1 = "Odd\_1st";

String op2 = "Even\_1st";

String op3 = "Odd\_2nd";

String op4 = "Even\_2nd";

String op5 = "Final";

long sum1 = 0;

long sum2 = 0;

long sum3 = 0;

long sum4 = 0;

long sumF = 0;

long mean1 = 0;

long mean2 = 0;

long mean3 = 0;

long mean4 = 0;

long meanF = 0;

for(int j=0; j< fib.length-25; j++) {

if (fib[j]%2==1) {

sum1 = sum1 + fib[j];

} else {

sum2 = sum2 + fib[j];

}

}

for(int k=0; k<=fib.length-1; k++) {

if (fib[k]%2==1) {

sum3 = sum3 + fib[k];

} else {

sum4 = sum4 + fib[k];

}

}

String method = getName();

if(method.equals(op1)){

mean1 = sum1 / (fib.length-26);

System.out.println("Mean from 1st half Odds: " + mean1);

} else if (method.equals(op2)) {

mean2 = sum2 / (fib.length-26);

System.out.println("Mean from 1st half Evens: " + mean2);

} else if (method.equals(op3)) {

mean3 = sum3 / 25;

System.out.println("Mean from 2nd half Odds: " + mean3);

} else if (method.equals(op4)) {

mean4 = sum4 / 25;

System.out.println("Mean from 2nd half Evens: " + mean4);

} else if (method.equals(op5)) {

meanF = (sum1 / (fib.length-26)) + (sum2 / (fib.length-26)) + (sum3 / 25) + (sum4 / 25);

System.out.println(meanF/4);

}

}

}