Catedra Calculatoare

Raport

PCD

Lucrarea de laborator nr.1

**Tema: Crearea thread-urilor**

Varianta 7

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**Problema:Scrieţi un program care creează doua fire de execuţie. Ambele fire vor citi datele din acelaşi tablou de date mas[] de tipul int, generat aleatoriu cu dimensiunea 100 şi ce cuprinde valori intre 1 şi 100. Primul fir Th1 va afişa: Condiţie 1 din tabelul 1.Al doilea fir Th2 va afişa: Condiţie 2 din tabelul 1.**

|  |  |  |
| --- | --- | --- |
| 7 | Sumele produselor numerelor pare două câte două începând cu primul element | Sumele produselor numerelor pare două câte două începând cu ultimul element |

**Listingul programului:**

package company.com;  
  
import java.lang.reflect.Array;  
import java.util.Random;  
  
class Counter extends Thread {  
 //clasa care defineşte firul de execuţie  
 private int from, to, step,direction; //1-in crestere, 2- in descrestere  
 private int array[] = new int[1000];  
  
 public Counter(int from, int to, int step, int[] array,int direction) {  
 this.from = from;  
 this.to = to;  
 this.step = step;  
 this.array= array.clone();  
 this.direction=direction;  
 }  
  
 public void run() {  
 int sum1=0,sum2=0;  
 if(direction==1) {  
 int prod=0,sum=0,count=0,countP=0;  
 int temp1=0,temp2=0;  
 System.*out*.println();  
 for (int i = from; i <= to; i += step) {  
 if(array[i]%2 == 0){  
 count++;  
 if(count==1)temp1=array[i];  
 if(count==2)  
 {  
 temp2=array[i];  
 prod=temp1\*temp2;  
 System.*out*.println(super.getName()+": "+prod+", ");  
 if(countP<=1){  
 sum1+=prod;  
 countP++;  
 }  
 else if(countP==2){  
 System.*out*.println(super.getName()+"Sum1 = "+sum1+". ");  
 sum1=0;  
 countP=0;  
 }  
 count=0;  
 }  
 }  
 }  
  
 }  
 else{  
 int prod=0,sum=0,count=0,countP=0;  
 int temp1=0,temp2=0;  
 for (int i = from; i >= to; i -= step) {  
 if (array[i] % 2 == 0) {  
 count++;  
 if (count == 1) temp1 = array[i];  
 if (count == 2) {  
 temp2 = array[i];  
 prod = temp1 \* temp2;  
 System.*out*.print(super.getName()+": "+prod+", ");  
 if(countP<=1){  
 sum1+=prod;  
 countP++;  
 }  
 else if(countP==2){  
 System.*out*.println(super.getName()+"Sum1 = "+sum1+". ");  
 sum1=0;  
 countP=0;  
 }  
 count = 0;  
 }  
 }  
 }  
  
 }  
 }  
}  
class Dev extends Thread{  
 private String text;  
 Dev(String text){  
 this.text=text;  
 }  
 public void run(){  
  
 for (int i = 0; i < this.text.length(); i++) {  
 System.*out*.print(text.charAt(i));  
 try {  
 Thread.*sleep*(150);  
 }  
 catch (InterruptedException e){  
 e.printStackTrace();  
 }  
 }  
  
 }  
}  
public class Main {  
  
 public static void main(String[] args) {  
 Counter cnt1, cnt2;  
 int array[];  
 array=new int[100];  
 System.*out*.println("Sirul generat random:");  
 for(int i=0;i<=99;i++){  
 array[i]=*getRand*(0,100);  
 System.*out*.print(array[i]+", ");  
 if(i==60)System.*out*.println();  
 }  
 System.*out*.println();  
 System.*out*.println("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_");  
 System.*out*.println();  
  
 cnt1 = new Counter(0, 99, 1,array,1);  
 //numară de la 0 la 100 cu pasul 5  
  
 cnt2 = new Counter(99, 0, 1,array,2);  
 //numară de la 100 la 200 cu pasul 10  
  
 cnt1.start();  
 cnt2.start();  
 try {  
 cnt1.join();  
 cnt2.join();  
 }  
 catch (InterruptedException e){  
 e.printStackTrace();  
 }  
 System.*out*.println("Firele de executie 1 si 2 s-au finisat");  
 Dev d=new Dev("Marjina Alexandru C-161");  
 d.start();  
  
 }  
 public static int getRand(int min, int max){  
 if(min >= max){  
 throw new IllegalArgumentException("interval gresit");  
 }  
 Random R =new Random();  
 return R.nextInt((max-min)+1)+min;  
 }  
}

**Output:**

Sirul generat random:

93, 66, 69, 98, 82, 35, 31, 62, 19, 1, 41, 91, 77, 43, 44, 12, 24, 80, 76, 71, 64, 46, 75, 7, 82, 93, 18, 5, 31, 4, 41, 77, 30, 76, 44, 26, 15, 15, 90, 15, 43, 70, 7, 56, 58, 56, 89, 29, 10, 67, 47, 8, 73, 64, 24, 84, 57, 65, 85, 3, 23,

22, 1, 48, 21, 6, 85, 72, 24, 69, 51, 61, 95, 76, 63, 56, 91, 91, 59, 76, 4, 49, 97, 55, 43, 14, 74, 63, 92, 62, 63, 95, 84, 34, 91, 27, 52, 40, 49, 28,

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Thread-0: 6468,

Thread-1: 1120, Thread-0: 5084,

Thread-1: 1768, Thread-1: 5208, Thread-0: 528,

Thread-1Sum1 = 2888.

Thread-0Sum1 = 11552.

Thread-1: 6808, Thread-0: 1920,

Thread-1: 56, Thread-0: 4864,

Thread-1: 4256, Thread-0: 3772,

Thread-0Sum1 = 6784.

Thread-1Sum1 = 6864.

Thread-0: 72,

Thread-1: 1824, Thread-0: 2280,

Thread-0: 1144,

Thread-0Sum1 = 2352.

Thread-0: 6300,

Thread-0: 3248,

Thread-0: 560,

Thread-0Sum1 = 9548.

Thread-1: 432, Thread-0: 512,

Thread-0: 2016,

Thread-1: 1056, Thread-0: 1056,

Thread-0Sum1 = 2528.

Thread-0: 432,

Thread-1Sum1 = 2256.

Thread-0: 1824,

Thread-1: 2016, Thread-0: 4256,

Thread-0Sum1 = 2256.

Thread-0: 56,

Thread-0: 6808,

Thread-0: 5208,

Thread-0Sum1 = 6864.

Thread-0: 1768,

Thread-0: 1120,

Thread-1: 512, Thread-1: 560, Thread-1Sum1 = 2528.

Thread-1: 3248, Thread-1: 6300, Thread-1: 1144, Thread-1Sum1 = 9548.

Thread-1: 2280, Thread-1: 72, Thread-1: 3772, Thread-1Sum1 = 2352.

Thread-1: 4864, Thread-1: 1920, Thread-1: 528, Thread-1Sum1 = 6784.

Thread-1: 5084, Thread-1: 6468, Firele de executie 1 si 2 s-au finisat

Marjina Alexandru C-161

Process finished with exit code 0