Assignment 3

Title:- Write a program to calculate matrix addition using the concept of thread in JAVA

Code:

package Main;

import java.util.Scanner;

/\*\*

\*

\* @author Lenovo

\*/

public class Main {

public static void main(String[] args)throws InterruptedException

{

System.out.println("Enter the number of rwos and columns: ");

Scanner sc = new Scanner(System.in);

int row = sc.nextInt();

int col = sc.nextInt();

int[][]a = new int[row][col];

int[][]b = new int[row][col];

int[][]c = new int[row][col];

int[][]d = new int[row][col];

NewThread[][]newth = new NewThread[row][col];

for(int i=0; i<row; i++)

{

for(int j=0; j<col; j++)

{

System.out.println(i+""+j+""+":For 1st matrix");

a[i][j] = sc.nextInt();

System.out.println(i+""+j+""+":For 2nd matrix");

b[i][j] = sc.nextInt();

}

}

System.out.println("\1Addition\n2Multiplication\nEnter your choice:");

int ch = sc.nextInt();

for(int i=0; i<row; i++)

{

for(int j=0; j<col; j++)

{

newth[i][j] = new NewThread(i,j,a,b,c,d,row,col,ch);

newth[i][j].start();

newth[i][j].join();

}

}

for(int i=0; i<row; i++)

{

for(int j=0; j<col; j++)

{

newth[i][j].join();

}

}

if(ch==1)

{

System.out.println("Addition is:");

for(int i=0; i<row; i++)

{

for(int j=0; j<col; j++)

{

System.out.println(c[i][j]+"\t");

}

System.out.println("");

}

}

else

{

System.out.println("Multiplication is:");

for(int i=0; i<row; i++)

{

for(int j=0; j<col; j++)

{

System.out.println(d[i][j]+"\t");

}

System.out.println("");

}

}

}

}

NewThread.java:

package Main;

import java.util.logging.Level;

import java.util.logging.Logger;

/\*\*

\*

\* @author Lenovo

\*/

public class NewThread extends Thread{

int row,col,rowsize,colsize,ch;

int[][]a = new int[row][col];

int[][]b = new int[row][col];

int[][]c = new int[row][col];

int[][]d = new int[row][col];

public NewThread(int row, int col, int [][]a, int [][]b, int [][]c, int [][]d, int rowsize, int colsize, int ch)

{

this.row = row;

this.col = col;

this.a = a;

this.b = b;

this.c = c;

this.d = d;

this.rowsize = rowsize;

this.colsize = colsize;

this.ch = ch;

}

@Override

public void run()

{

if(ch==1)

{

c[row][col] = a[row][col] + b[row][col];

}

else

{

for(int i=0; i<rowsize; i++)

{

for(int j=0; j<colsize; j++)

{

d[i][j] = 0;

for(int k=0; k<colsize; k++)

{

d[i][j] = a[i][k] \* b[k][j];

}

}

}

}

}

}

Output:

