**PROJECT Performance Monitoring: Java Arrays**

**Objective** To investigate the executions speeds of a software application.

***PROJECT DESCRIPTION***

Examine the given program that performs matrix operations and then use some Java statements / features that will the display statement processing times of the program.

***Information about This Project***

Program efficiency is benchmarked with various features of the programming language.

***Steps to Complete This Project***

**STEP 1 Launch Eclipse, JCreator or Net Beans**

Open a new Java Project.

**STEP 2 Test the Starter Code**

Run the starter code that is given in **Figure 1** .

**STEP 3 Modify the Program**

Modify the starter code by placing some program statements that will assist in monitoring execution speeds of the matrix operation(s) .

You can use variables such as those shown below and place them at appropriate locations in the program to monitor program segment execution times.

**long preTime = System.*currentTimeMillis*();**

**long postTime = System.currentTimeMillis();**

**STEP 4 Test the Modified Program**

Test the modified program.

**STEP 5 Submit the Project**

Submit a copy of your completed project for credit.

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**Figure 1 Java Code to Perform Matrix Addition**

|  |
| --- |
| **import java.util.Scanner;**    **public class Add\_Matrices**  **{**  **Scanner scan;**  **int matrix1[][], matrix2[][], sum[][];**  **int row, column;**    **void create() {**    **scan = new Scanner(System.*in*);**    **System.*out*.println("Matrix Addition");**    **// the first matrix is created**  **System.*out*.println("\nEnter number of rows & columns");**  **row = Integer.*parseInt*(scan.nextLine());**  **column = Integer.*parseInt*(scan.nextLine());**    **matrix1 = new int[row][column];**  **matrix2 = new int[row][column];**  **sum = new int[row][column];**    **System.*out*.println("enter the data for first matrix :");**    **for(int i = 0; i < row; i++)**  **{**  **for(int j = 0; j < column; j++)**  **{**  **matrix1[i][j] = scan.nextInt();**  **}**  **}**    **// the second matrix is created**  **System.*out*.println("enter the data for second matrix :");**    **for(int i=0; i<row; i++) {**    **for(int j=0; j<column; j++) {**    **matrix2[i][j] = scan.nextInt();**  **}**  **}**  **}** |

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**Figure 1 Java Code to Perform Matrix Addition ( continued )**

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| --- |
| **void display() {**    **System.*out*.println("\nThe First Matrix is :");**    **for(int i=0; i<row; i++) {**    **for(int j=0; j<column; j++) {**    **System.*out*.print("\t" + matrix1[i][j]);**  **}**  **System.*out*.println();**  **}**    **System.*out*.println("\n\nThe Second Matrix is :");**    **for(int i=0; i<row; i++) {**    **for(int j=0; j<column; j++) {**    **System.*out*.print("\t" + matrix2[i][j]);**  **}**  **System.*out*.println();**  **}**  **}**    **void add() {**    **for(int i=0; i<row; i++) {**    **for(int j=0; j<column; j++) {**    **sum[i][j] = matrix1[i][j] + matrix2[i][j];**  **}**  **}**    **System.*out*.println("\n\nThe Sum is :");**    **for(int i=0; i<row; i++) {**    **for(int j=0; j<column; j++) {**    **System.*out*.print("\t" + sum[i][j]);**  **}**  **System.*out*.println();**  **}**  **}**  **}** |

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**Figure 1 Java Code to Perform Matrix Addition ( continued )**

|  |
| --- |
| **class MainClass**  **{**    **public static void main(String args[])**  **{**    **Add\_Matrices obj = new Add\_Matrices();**    **obj.create();**  **obj.display();**  **obj.add();**  **}**  **}** |