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Description automatically generated**University Islamabad, Lahore Campus**

**Block–C, Department of Computer Science**

**COMSATS University Islamabad, Lahore Campus 1.5KM Defence Road, Off Raiwind Road, Lahore**

**LabTask#3 (20 marks)**

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**What This Assignment Is About**

This assignment requires you to implement synchronization using Java’s built-in mechanisms. Your program will compute square of a matrix, i.e MxM using Java threads. Each “row” of the matrix will be assigned to a different thread.

**Understanding the Problem**

Your program will read a data file containing a matrix. The matrix will be a square matrix, i.e it will have same number of rows and columns. The name of the data file will be provided as a command line argument. The data file will have the following structure:

**First row** will have a single integer which will denote the size of the matrix.

**Subsequent rows** will contain the actual matrix.

For example the data file below contains a 6x6 matrix.

6

0 1 0 7 5 3

2 0 0 3 2 2

3 0 2 9 0 2

2 1 1 2 2 2

0 0 2 4 3 3

3 0 2 9 0 2

After reading the data from the data file, your program should create one thread for each “row” of the matrix and assign that “row” to the thread. The main thread should wait for all the threads to finish. Once all threads are done performing their assigned task, then and only then should main display the result.

Due Date : Sunday, June 19th, 2022