Cairo University
Faculty of Engineering
Computer Engineering Department

Advanced Programming Techniques
Thursday Requirement

Write a program that implements the matrix multiplication C[ ]= A[ ]xB[ ] using threading as follows :

- The first thread should multiply the rows of matrix A by half of the columns of matrix B and return the corresponding result in matrix C.
- The second thread should multiply the rows of matrix A by the other half of the columns of matrix B and return the corresponding result in matrix C.

Steps:

- Create a Runnable class call it “Multiply” that implement the Runnable interface.
- The function run of class “Multiply” should be able to multiply a certain rows of matrix A to a certain columns of matrix B
- Create a NewRunnable class (one that implements runnable)
- Define a private field integer array
- Implement the class constructor (should take an int array)
- Implement the run() method that splits the array into threads, and prints the thread that corresponds to the thread’s name.
- The thread name should contain numbers only, so you may want to set the thread names as: t1.setName("1"). You may use int id = Integer.parseInt(“string”), to get the equivalent id.
- The printing should indicate which thread is printing this line
- The main thread should do the following:
    - prompt the user to enter matrix A and matrix B. Assuming A,B are two int matrices.
    - Create two objects of class “Multiply” and pass to them the two matrices A,B and an empty matrix C that should contain the result.
    - Create two threads and give them the two objects of class “Multiply” .
    - Start All threads and print the three matrices.
    - Determine if we need to join the threads or not and why?