



COMSATS University Islamabad, Lahore Campus

Block-C, Department of Computer Science

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LabTask#3 (20 marks)

What This Assignment Is About

This assignment is meant to practice reading and writing data from and to an ASCII file using JAVA APIs.

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 7x7 matrix.

```
7
0 1 0 7 5 3 4
2 0 0 3 2 2 4
3 0 2 9 0 2 4
2 1 1 2 2 2 4
0 0 2 4 3 3 4
3 0 2 9 0 2 4
1 2 3 4 5 6 0
```

After reading the data from the data file, your program should multiply the matrix by itself ($A \times A$), i.e create its square and store the squared matrix in the output file. Sample run of the program is as follows.

```
C:\school\FA22\OOP\LabTasks>java MM input_matrix.txt  
output_matrix.txt
```

```
C:\school\FA22\OOP\LabTasks>type output_matrix.txt
```

```
29 15 35 80 51 61 64  
16 13 23 62 42 46 36  
34 20 29 91 53 59 64  
19 12 24 72 42 48 40  
27 12 32 81 37 51 48  
34 20 29 91 53 59 64  
39 5 32 122 32 48 84
```

```
C:\school\FA22\OOP\LabTasks>
```

Due Date : Sunday, December 4th, 2022