Muhammad Hamza Zaib
Matrix Calculator
Documentation

Tasks Completed:

In this project, I have successfully done the following:

- Implement the required three unit tests.
  In each unit test. I iterate over the list of matrices and find the matrices suitable for the first specified operation. e.g if unit test is a*b+c then it will first find 2 matrices suitable for multiplication. Once found it continues the search from that same index onward and finds a matrix suitable for addition to the result of multiplication. If found,it adds and prints the result.
  In case it reaches the end of list and the test expression has not been completely evaluated then it indicates the failure of test.

- The user can input the matrix and the expression it wants to evaluate through a file named "file.txt"
  Program will evaluate the expression and print the result.

Classes:

- **PostFixExpression:**
  In this class I calculate the postfix expression of the given infix expression i.e read from file and evaluate it. I had previously made this class but it was for normal numbers and not matrices so for this project,i had to re-implement it for matrices.
- **Matrix:**
  This class stores a matrix and provides methods to add, multiply and subtract two matrices.
- **MatrixComputer:**
  This class reads the file “file.txt” and stores the user provided expression and provides method “evaluate()” to evaluate it.
- **unitTests:**
  This class implements the required three unit tests and validates the behaviour of matrix class.

File Format:

line 1: (expression) -> the expression must be enclosed in paranthesis and no spaces should be present.e.g if you enter (1+2+3) it means you want to add the first three matrices.
line 2: no.ofrows no.ofcolumns ->e.g 2 2 means the matrix has 2 rows and 2 columns.
line 3: first row of matrix ->e.g 1 2
line 4: second row of matrix ->e.g 3 4

line 5: . ->dot signifies the begining of new matrix
line 6: no.ofrows no.ofcolumns ->rows and columns of second matrix and so on

Note: The last line of the file should be the last row of the last matrix.

Sample File:

(1+2*3)
2 2
1 2
3 4
.
2 2
1 2
3 4
.
2 2
1 2
3 4
.