Assignment on Multidimensional Array and String

Problem 1

In this problem, you will implement the basic functionalities of matrix operations for two matrix A, B (No matrix dimension will be greater than 5). You have to take commands (as strings) continuously until a specific command is given and then the program will terminate. List of commands and appropriate actions are given below.

Command	Action
In A **In B**	This command will be used to take input for matrix A or B. This command will be followed by two-integer r, c denoting the row and column number of the matrix. Then r*c integer inputs will be provided.
Out A **Out B**	Output matrix A or B in row major order (print each row in each line)
A+B **B+A**	Perform matrix addition and output the resultant matrix. If addition is not possible then print appropriate error message
A-B **B-A**	Perform matrix subtraction and output the resultant matrix. If subtraction is not possible then print appropriate error message
A*B **B*A**	Perform matrix multiplication and output the resultant matrix. If multiplication is not possible then print appropriate error message
A/n **B/n**	Divide the matrix A or B with an integer value n and print the resultant matrix
Det A **Det B**	Print the determinant of the matrix A or B. If not possible then print appropriate message.
Inv A **Inv B**	Inverse the matrix A or B. If no inversion is possible print appropriate error message
Trans A **Trans B**	Inverse the matrix A or B. If no transposition is possible print appropriate error message
exit	Exit the program

Note that

- Commands are case insensitive
- There can be spaces in frond, end, middle of the the commands. Be sure to trim the string (Remove unnecessary spaces)
- Also, check the sanity of commands before performing operation. (For example, it is not possible to perform A+B if matrix B is not given earlier)
- Print a new line after each output

Some sample inputs and outputs are provided as follows.

Input	Corresponding output
In A 2 3 4 -1 5 2 3 -2 A+B A / 5 In B 3 3 1 2 3 4 5 6 5 7 9 A * B B*A Inv A Inv B Det B A+B In A 3 3 5 1 2 1 0 2 3 2 1 Out B A + B B - A Inv A Trans B exit	No B matrix found 0.8 -0.2 1 0.4 0.6 -0.4 25 38 51 4 5 6 Multiplication not possible Matrix A is not invertible Matrix B is not invertible 0 Addition not possible 1 2 3 4 5 6 5 7 9 6 3 5 5 5 8 8 9 10 -4 1 1 3 5 4 2 5 8 .363 -.272 -.191 -.454 .0909 .7272 -.181 .6363 .0909 1 4 5 2 5 7 3 6 9

Problem 2

In this problem, you will be given three strings s1, s2, s3. You need to replace all the occurrence of string s2 in string s1 with s3. Finally you need to output the string s1 (modified new string).

You cannot use any other character arrays except the arrays used for taking inputs.

- Maximum length of s1 will be 100
- Minimum length of s2 will be 2
- Maximum length of s3 will be 10

Sample input	**Corresponding output**
The man lives in manhattans man woman	The woman lives in womanhattans
ATTTTGCATCGGATCCGTG ATC GG	ATTTTGCGGGGGGCGTG
Whole string Whole string ab	ab
Int main string header Error Not found	Int main string header
ABCDEFG CDE XX	ABXXFG