Batch: eDAC – September 2020 Batch **Module: Algorithms and Data Structures**

Exam: Algorithms Lab Exam **Date: 20-01-2021**

Instructions:
1) This question paper has only one question and attempting it is compulsory.
2) The duration of this lab exam is 45 minutes.
3) Please read the problem statement carefully, put down the algorithm on a rough sheet and then start implementing the program.
4) Use any of C/C++/Java/Python programming languages.
5) The program can be implemented on your own machines.
6) Submission of the implemented program (Source code) is mandatory.
7) The source code will have to upload at: .....

The Word-Crossing

Consider the 5 * 5 (5 rows and 5 columns) matrix given below:

```
  0 1 2 3 4
0 * * * * *
1 * * C * *
2 * B A L L
3 * * T * *
4 * * * * *
```

The matrix shown above is containing two words CAT and BALL. CAT is printed vertically and BALL is printed horizontally. Rest of the elements are represented by '*' only. The first character of the string CAT is represented at first row and second column (1,2). That means the co-ordinate of first character of string CAT i.e 'C' is (1,2). The remaining characters of the string CAT i.e 'A' and 'T' are placed vertically just below the first character 'C' in the same column.
There is a common character between string CAT and string BALL. The common character is 'A'. The representation of the second string BALL is based upon the common character 'A'. The string BALL is represented horizontally in the same row which is containing the common character 'A'.
Write a program which accepts two strings as input and represents them in a 10 * 10 matrix in the similar manner as explained above.

Input specification:

- First line of the input comprises of the string to be placed vertically and followed by a space, then followed by the space separated coordinates indicating the location of the first character of the string.
- Second line of the input comprises of the string to be placed horizontally intersecting with the string placed vertically.

Output specification:

- The 10 * 10 matrix with both the strings placed appropriately. And the remaining of the matrix contents should be represented by the character '*'.
- Each row of the matrix should be terminated by a new line and the contents of the row be separated by a single space.

Assumptions:

a) The strings length will be >= 3 and <= 5.
b) Both the strings remain within the bounds of 10 * 10 matrix.
c) There is one and only one same character among the two strings.

Sample Input 1	**Sample Output 1**	**Sample Input 2**	**Sample Output 2**
CAT 1 2 BALL	* * * * * * * * * * * * C * * * * * * * * B A L L * * * * * * * T *	INDIA 3 5 GOA	* I * * * * * * * * * N * * * * * * * * * D * * * * * * * * * I * * * * * * * G O A *