National University of Computer and Emerging Sciences



Lab Exercise 02

For

Object Oriented Programming Lab

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**FAST School of Computing**

# Instructions:

1. Make a word document with the naming convention “SECTION\_ LAB#\_ROLLNO” and put all your source code and snapshots of its output in it. Make sure your word file is formatted properly.
2. Plagiarism is strictly prohibited.
3. Do not discuss solutions with one another.

# Useful links

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| **Question#1** |

Write a program that inputs the size of an integer array and then starts taking input of the elements of the array, if the number of elements of the exceeds the size of the array your program should extend the size of the array. Implement functions to increase the size of your array.

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| **Question#2** |

FASTlish is a modified form of English Language developed by the developers of FAST NU. The main purpose of this language is to communicate with a fellow fastian in an encrypted form. So in this language basically the letters of English language are replaced by some other letters. And this is a one to one mapping. So for example every english letter has mapped letter. So for example ‘a’ might be mapped to ‘y’ and ‘o’ is mapped to ‘e’.

So basically there is an underlying scheme of every letter mapped to some other letter. The secret recipe to generate a word in this language lies in the roll no. of a student. So for example one student has a Roll no. 18F-WXYZ. Now there are 2 secret codes for the encoded characters one code is W+X+1 for the capital Letters and second code is Y+Z+1 for the small letters.

**Part 1:**

Now write a Program in which you declare 2 integers a=W+X+1 and b=Y+Z+1. Now create 2

Pointers, P1 will point to ‘a’ and P2 will point to ‘b’. Then write a function void

GenerateCode(int\* P1,int\* P2,char\* line). This function takes a line by reference and changes it

into the encrypted line.

Example scenario:

My Roll no is 19F-0805. So Code 1 is 0+8+1 = 9 and Code 2 is 0+5+1 = 6.

Now For Capital letters Code is 9 and For Small letters Code is 6.

Input: Hello World!

Output: Qkrru Fuxrj!

So every capital letter is replaced by (W+X+1)th character ahead and every small letter is replaced by (Y+Z+1)th character ahead. Hint: W is replaced by F. So assume after ‘z’ there comes an ‘a’ again and after ‘Z’ there comes an ‘A’.

**Part 2:**

After Encoding the characters, you need to decode the character and do everything above exactly in the opposite manner. So your Decode function will be like void Decode (int\* P1, int\* P2, char\* line).

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| **Question#3** |

Input a string and store it in a jagged character array with a \0 at the end. Use delimiters for input, input will end at a ‘.’ And display that character array using pointer notation.

Sample input:

My name is Abdul Ahad.

Explanation:

Convert this string to 2d array it will be stored in memory like this.

My\0

Name\0

Is\0

Abdul\0

Ahad\0