

# National University of Computer and Emerging Sciences



## Lab Manual # 11

### Programming Fundamentals

#### (Section BSCS-1B)

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## Objectives

The objectives of this lab are to cover the following:

- 2D Character arrays
- File Handling

## Question No 1 (File Handling)

Write a program in C++ which opens a file called Numbers.txt (consisting of numbers, a sample is provided and you can add more numbers to it if you like) and reads the list of integers present in it. If the number being read is an odd number then it writes it in a file called odd.txt and if the number is even it writes it in a file called even.txt.

At the end your program should display the number of odd numbers written in the odd.txt file and the number of even numbers written in the even.txt file.

## Question 3: Encryption and Decryption

The program begins with the menu:

1. Encrypt data
2. Decrypt data

If the user presses 1, read the entire data from file “input.txt” into a char array. The file cannot contain more than 100 characters (including digits, spaces, letters etc.). Encrypt the file by replacing each character with a character that has the next ascii letter. For example a with b, M with N etc. Print the updated array on screen. Also store the array in file “encrypt.txt”.

### Sample input.txt

Najam sheraz, the singer, is an intelligent boy.

### Output in encrypt.txt

Obkbn!tifsb{-!uif!tjohfs-!jt!bo!joufmmjhfou!cpz/

If the user presses 2, read the entire data from file “encrypt.txt” into a char array. The file cannot contain more than 100 characters (including digits, spaces, letters etc.). Decrypt the file by replacing each character with a character that has the preceding ascii letter. For example b with a, N with M etc. Print the updated array on screen. Also store the array in file “decrypt.txt”.

### Sample data:

Input in encrypt.txt

Obkbn!tifsb{-!uif!tjohfs-!jt!bo!joufmmjhfou!cpz/

### Output in decrypt.txt

Najam sheraz, the singer, is an intelligent boy.

### Question No 3 (Cross Word Puzzle):

Write a program in C++ to search a word in a given puzzle: a 2D array size 10 of letters given by user. Your program should ask user for a word he wants to search. If the word is found, display the location of the word and direction the word from that point. You have to search for the words in horizontal and vertical direction only.

**For Example:** You might be given a following array:

```
a s j l I x a p e
j h b x e e n p p
h o t t h b s w y
r o a i n u y z h
p t f x r d z k q
t p n l q o y j y
a n h a p f g b g
h x a s h w a b s
a b c d e f m c e
```

**Enter a word you want to search**

**Input:** Shoot

**Output:** Word Found at location 0, 1 in downward direction.