National University of Computer and Emerging Sciences

Lab Manual # 12

Programming Fundamentals

(Section BSE-1A)

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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 input.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 No 2(File handling and Arrays)

Create a small phone book after reading the data from the file phonebook.txt (a sample file is provided to which you add more data) . An array is used to store a list of names and another array is used to store the phone numbers that go with each name. Write the function called lookupName so the code properly looks up and display the phone number for the input target name.

Question No 3 (File handling and arrays)

The file named **inventory.txt** contains three types of (space separated) information [**Name, Quantity, price per unit**] about items available in a shop for sale. Assume the number of products that the shopkeeper manages is 10. You are required to read these details from the file whose format is: **name** in an array of cstrings, **quantity** in an integer array and **price per unit** in a float array. Show all the data to the customer and ask him what he wants to buy.

Code	Name	Quantity	Price per unit
1	Apple	25	3.5
2	Orange	20	5.7
3	Banana	50	2.5
4	Papaya	23	10
5	Lychee	35	1
6	Olive	56	2
7	Strawberry	125	3.5
8	Raspberry	18	1
9	Date	90	1.2
10	Mango	40	15

Ask the customer the code of the item and then quantity. Then display “Do you want to buy more items”. If the customer presses 1 then continue shopping by asking the customer the code and quantity of another item. If 0 is pressed then show the bill to the customer, write the **updated inventory** to the file following the format as shown in example below, and exit program.

Sample example: Suppose the customer buys 10 apples, and 5 strawberries. Then the following updated inventory must be stored on file.

inventory.txt

Apple **15** 3.5
Orange 20 5.7
Banana 50 2.5
Papaya 23 10
Lychee 35 1
Olive 56 2
Strawberry **120** 3.5
Raspberry 18 1
Date 90 1.2
Mango 4 15

Question 4 : (file handling and arrays)

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
Najamsheraz, 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
Najamsheraz, the singer, is an intelligent boy.