COMSATS Institute of Information Technology Abbottabad
Department of Computer Science

Assignment No. 2
Algorithms and Data Structures

Class: BSE-3B **Total Marks: 20**

Question 1

You should develop test cases (of screen captures) to show successful running of each of the option in this program.

Define a structure called **LineType** with following field:

Line : that can store a maximum 80 characters

Declare an array called **Page** that can store up to 25 **LineType** above

Develop a program in C++ to manipulate **Page** above to allow the user to perform the following operations.

Main Menu

[1]. Enter Lines of Text
[2]. Retrieve all Lines
[3]. Retrieve a particular line of Text
[4]. Delete a particular line of Text
[5]. Reverse a particular line

Choice:

If option **1** is selected

```
Enter Line #: 1
Enter line (up to max. 80 char): This is first line

Enter Line #: 2
Enter line (up to max. 80 char): This is second line
up to so on……
```

If option **2** is selected

```
Line #: 1 This is first line
Line #: 2 This is second line
up to so on……
```

If option **3** is selected

```
Enter Line #:  2
This is second line
```

If option **4** is selected

```
Enter Line # to Delete: 1
Line 1 Deleted Successfully
```

And so on

Question 2

Jack Fridge has a large refrigerator at home that can store hundreds of items. He asks you to develop a program to track the items in his refrigerator.

a) You would like to label each of the items in Jack's refrigerator with an identification code. Create a structure called FoodCodeType that stores the following information:

- Type : a 1-character category type that represents V for vegetables, M for meat, F for fruits and D for drinks
- ID : a 3-digit integer number

b) John would like to store the following information for each of his food item in the refrigerator:

- Code : of FoodCodeType above
- Desc : can store up to a maximum of 30 characters describing the item
- ExpiryDate : a 8-character date in YYYYMMDD showing the expiry date of the item

Declare an array called FoodArray of the above structure that can store up to 999 records.

c) Jack would like to know what meat items are there in his refrigerator. Write a function called ShowItemType that take in the FoodArray array, an integer parameter numrec which holds the number of food items in the referigerator and a character parameter called type. The function should display all meat items' information if type='M'.

d) Jack wants to throw away those items that already expired. Assume today is twenty first of December 2011 (20111221 in YYYYMMDD format), write a function called ShowExpiredItems that take in FoodArray array, an integer parameter numrec which holds the number of items in the fridge and a string date parameter called TodayDate (in YYYYMMDD). The function should display information of all items that had passed the expiry date. (Hint: The dates can be compared because they are in string format.