CS 3240 Data Structures and Algorithms

Homework 3

In this Homework, you are going to write a program that implements a ***sorted*** linked list using ***dynamic allocated arrays***.

DataFile.txt contains the information of poker cards.

1. C: clubs (lowest), D: diamonds, H: hearts, S: spades (highest)
2. 2 (lowest), 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A
3. No Joker cards
4. Any C card is lower than

DataFile Content (You can write the file specification into your program.):

H4,C8,HJ,C9,D10,D5,DK,D2,S7,DJ,SK,H3,H6,S10,HK,DQ,C2,CJ,C4,CQ,D8,C3,SA,S2,HQ,S8,C6,D9,S3,
SQ,C5,S4,H5,SJ,D3,H8,CK,S6,D7,S9,H2,CA,C7,H7,DA,D4,H9,D6,HA,H10,S5,C10

H4, D5, HK, D2

S7, HK, D10

C9,C10

For examples, DJ means J of Diamonds; H7 means 7 of hearts.

Your job

1. Create a list by dynamic allocated array and set the size to 20
2. Read the first 20 cards in the first line of the file, the put them one by one into the list by implementing and using ***PutItem()***. The list must be kept sorted in ***ascending*** order.
   Then output all the cards in the list in one line separating by commas.

3. Then delete the cards indicated in the second line of the file by using ***DeleteItem***
   Then output all the cards in the list in one line separating by commas.

4. Then put the items in the third line in to the list. Must use ***PutItem()***
   Then output all the cards in the list in one line separating by commas.
5. Search the current list for the elements in the list.
   Then output the result as the follows. Yes or No depends on whether the exists in the current list. Must implement and use ***GetItem()***
   C9 NO, C10 YES

Requirements:

1. ***[will be 0 if it does not compile or crash]*** The homework must be done in C++. Although you can use any IDE to do the homework, your code must work under Code::Blocks since the grader will use it to grade your homework. You are not allowed to use Standard Template Library to create the linked list.
2. [5%] The Following identification information must be included at the beginning of your cpp file.
   //Name: XXXXXXX
   //Email: XXXX@csueastbay.edu
3. [20%*4] correct implementation and use of the four functions
4. [5%] Correct Output Format to command line
5. [10%] Correct I/O of the data file