CS311 Yoshii HW3 Part 2 - Inherited Linked List (based on week 6)
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DUE: Week 8 Wednesday

TOTAL: 26 points Your score is:

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Date Turned in: 10/18/17

Purpose: To be able to extend the linked list class to allow additional functionality through inheritance
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1) PRE-PROGRAMMING TASKS [6pts] Your score is:
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Review Questions: Must answer these first before you do the program.
Provide your answers to Inter1 – Inter6 found in Notes-6Bdoc. [1pt per answer]
Type here (in this file) both questions and answers.

Inter1 In publicly accessed Mom, data member M is private. Will it ever become accessible to
- me? No
- derived classes below me? No
- their clients through inheritance?? No

Inter2 In privately accessed Dad, data member D is public. Will it ever become accessible to
- me? Yes.
- derived classes below me? No.
- their clients through inheritance? No.

Inter3 1.Clients at some level can access private a? No.
2.Clients at some level can access protected b? No.
3.Clients at some level can access protected y? No.
4.Whose clients can access public c? and public z? d1's client can access public c and public z. base's client can access public c.

Inter4 1. Out of b, c, y and z, which ones can be accessible to d2's clients? c and z
2. Which ones can be passed down? All 4 can be passed down.

Inter5 What should be #included where (i.e. in which file)? We need to inlcude the header file of the parent class in the child class header file. (#include"example.h")

Inter6 Which files should we compile and why? e.g. g++ ????? We should compile the parent class, the child class, and the client file. If we do not compile the parent class, then when we try to call a function from the parent class using a derived class object, we would have an issue when we link the object files together.

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2) PROGRAMMING: LinkedList class through Inheritance [4+16=20pts] Your score:

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We will use the Linked List from HW3P1 to expand it into a Searchable List class by adding more functions.

HW3P2 will create slist.h and slist.C.
Must use the instruction file slistHW3P2 and HW3P2client.cpp

Updating the Header Files (llist.h and slist.h)
Inherit all member functions from the Linked List class.
Note that the client of Searchable List will need to be able to call these functions. **Pick the access type accordingly.**

Searchable List class must have access to the data members of the base class.
But the clients should not access these data members.
Thus, data members should be in which part of the Linked List header? Think.

Now put these 3 functions in slist.h and slist.cpp:
slist(); // constructor which is the same as the llist one

int search(el_t Key)
search through the list to see if any node contains Key.
If so, return its position (>=1). Otherwise, return 0.

void replace(el_t Elem, int I)
go to the Ith node (I is between 1 and Count) and replace the element there with Elem.
If I was an illegal value, throw an exception (OutOfRange).

The client program (HW3P2client.cpp) should:

1)	add to front once (element 4)	
2)	add to rear 3 times (elements 6,7,8)	
3)	displayAll	- 4 6 7 8
4)	search for 6, report the result	- found in pos 2
5)	replace the 6 with 0 using the search result	
6)	search for 8 and report the result	– found in pos 4
7)	replace the 8 with 2 using the search result	
8)	displayAll	- 4 0 7 2
9)	**search for 5 and report the result**	**- not found**
10)	**replace position 7 with 10 - error**	

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Q1) We did not create the slist destructor. Did the llist destructor get called? [2pts] Yes.

Q2) State of the Program[2pts]

- **Does your program compile without errors? Yes.**

- **List any bugs you are aware of, or state "No bugs": No bugs.**

Submit these 6 files:

1) **this assignment sheet with your answers.**
2) **- llist.h updated**
3) **- slist.h commented well**
4) **- slist.cpp commented well**
5) **– HW3P2client.cpp commented well**
6) **– Test (Script of compilation and test result)**

Whether working or not, test result must include the lines for compiling your files or we will not grade your program i.e. 0 points for the program.
Did you answer all the questions?
Did you check your comments and style against CS311 How To Comment.doc??

End.