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

TOTAL: 26 points   Your score is:

Your NAME: Eduardo Martinez

Date Turned in: 10/17/16

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
o   me? no
o   derived classes below me? no
o   their clients through inheritance?? no
 In publicly accessed Mom, if data member M is private then me, the derived classes below me, and their clients through inheritance will all not have acess to the private data meber.

Inter2:
In privately accessed Dad, data member D is public. Will it ever become accessible to
o   me? yes
o   derived classes below me? no
o   their clients through inheritance? no
In privately accessed Dad, data member D is public. So, the data member will be only accessible to me and not accessible to the derived classes below me or their clients through inh
eritnace.

Inter3:

Clients at some level can access private a? no
Clients at some level can access protected b?no
Clients at some level can access protected y?no
Whose clients can access public c? base
and public z? d1

Inter4:
Out of b, c, y and z, which ones can be accessible to d2's clients?
D2's clients can access c and z because they are public

Which ones can be passed down?
All of them can be passed down.

Inter5:
What should be #included where (i.e. in which file)?
dad.h should be include in the me.h file

Inter6:
Which files should we compile and why? e.g. g++ ?????
client.cpp me.cpp dad.cpp

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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]<answer>

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.