Lab 8

Comp 11 - Summer Session — Singly Linked List

8.1 Description

The singly linked list is a flexible expanding data structure. The fundamentals of the linked list, are also used to build other powerful data structures. So in this lab, we will solve the problem of iterating(i.e. a forward traversal) of a linked list data structure. As a note, this is yet an other common interview question!

Our objectives are the following:

- Create ten nodes in a linked list. Make sure to set the student names to them.
- Link the ten nodes together to form a chain
- Then, in a while loop, iterate through the linked list until a null pointer is found (that is, the tail of the list is found).
- You may use an additional pointer to iterate through the list.
- I recommend just seeing if you can get 3 students to print out, then you will understand the pattern.

8.2 Files

You may use the following code to help get you started.

```
#include <iostream>
#include <string>

struct Student{
  Student* next;

  // Member fields
  std::string name;
};

int main(){

    // (1) Create ten nodes
    //  ???? s1 =  ???? ????



    // (2) Link them together


    // (3) print out each student name
    // (e.g. )  Student* iter =  s1;
    // Question, what does iter need to point to next?
    // Draw a picture before asking a question of your linked list. :)


    // (4) What do we  not forget to do when we allocate with new?
    // Do that here.

  return 0;
}
```

Listing 8.1: Starter Code

8.3 Refresher

Refer to some of the examples in the slides from the lecture on pointers 1 and 2. It will also be helpful to review our lastest in-class activity

It will be useful to draw pictures before coding in this lab.

8.4 Submission

```
provide comp11 lab8 lab8.cpp README
```

Listing 8.2: Submit Assignment

8.5 Going Further

Did you enjoy this lab? Want to try out some additional commands to go further?

- Build a struct and try passing it around!