

Final Project — Phase One

Max Olivier

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Readings

There are no readings for this part of the project.

Main Ideas

- More linked lists.

Exercise 1 (Cryptology Program)

The first phase of the final project involves updating some code you already have in preparation for other parts of the final project. There are two parts:

First, update the `LinkedList.cpp` program from last week by modifying it so that, instead of making a new node regardless of the data being entered, if the data is already in the list it adds one to an integer variable in each node keeping track of the number of times that node's data has been entered into the list.. Note that this will require you to adding a variable to the `Node` class so that each node keeps track of not only its data, but how many times that data has been entered into the list. It will also require you to modify the `insert()` function. In addition, add a function called `remove()` that takes a `char` variable as a parameter and deletes the node in the list that contains that `char` as its data. If that data is not contained in the list simply let the user know that. Note: remember to actually deallocate the memory used for the node you are removing with the `delete` command. Finally, add a function called `max()` that takes no parameters and returns the data appearing most frequently in the list (i.e. the data whose node has the highest count). Break ties as you wish.

Next, update the `Translator.h` program to include two new functions. One, called `get_index()` should take a letter (`char`) as a parameter and return that letter's integer index. For example `get_index('b')` should return 1. The other, called `get_char()` should take an integer parameter and return the associated character. For example `get_char(1)` should return 'b'. Assume in both functions that the user enters proper input.