**Programming Project Report**

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**Academic Integrity Statement:** I pledge that I have neither given nor received unauthorized help on this programming assignment.

**Problem Statement:**

The goal of this programing assignment was to create a linked list that was able to store various Restaurant nodes with Their own properties. Then various methods were implemented to allow for functionality of the linked list such as printing the list, ability to change price of specific types of food, and finding the highest costing food. The main inputs of this project were the menu screen, inserting a new node, and changing the price. The possible outputs were printing the full linked list,and printing out the highest price.

**Design:**

In designing a linked list it was chosen to add to the tail of the linked list instead of the head as it would be easier to implement other functions onto the main code, and it would keep the list in chronological order vs inserting at the head. Yes if you want to add another node it would take a few milliseconds longer, but the functionality of inserting at the tail overweight’s downsides. For finding the highest price 2 nodes are created, one which stores the current values of the linked list and the other which is empty. The function looks through the linked list and compares each price to another and determines if one price is higher than the other, then stores that node into the empty node. Then prints it. For changing the price it was chosen to use the setPrice function which was defined earlier.

**Implementation:**

The implementation started with creating the node header and cpp file such that those methods could be utilized in the list header and cpp files. After generating the list header and cpp files, the next step was to implement these in main which was done by using a switch statement for the menu options. Then adding “New Node” and “Change Price” abilities to their own functions outside of main for clarity.

**Testing:**

The testing that was done on this consisted of testing the linked list for multiple different nodes and seeing if it was able to properly print each node, recognize the highest price, and change the price of multiple nodes with the same type of food. Once this was complete the menu was debugged so characters or symbols cannot be input. Finally the inputs in each of the functions were fixed so the code does not break when non-desirable things are put into the input statements.

**Conclusions:**

Overall this project was a success as the code properly generates a user made linked list and is able to complete each of the required functions successfully. So yes overall this project was a success. If this project were to be continued a doubly linked list would be implemented which would allow for looking at the tail and head to be possible making inserting at either the head, tail, or middle possible. This project took about 6 hrs to complete with 30 min for the report.