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CS 31 Project 3 Report

**Encountered Problems**

The main problem I was having with the code was that I kept getting an error of trying to access a part of the string array that was not there. Using Visual Studio’s debugger program for the first time, it was a little hard at first as well in that I did not totally understand the different function keys. But after a couple of Youtube tutorials, I was able to use the step into function keys with relative ease and quickly find the bug when my while loop went one step too far when going through the indexes of the string array of the order string. I quickly fixed it and after these troubles learned a new and valuable skill in learning how to use debugging software.

**Pseudocode**

In the function that checks if the order string syntax is correct, it overall has two main parts after converting everything to lowercase to make things easy. A number checking part and a character checking part which also checks to see if a specific order running total has exceeded the limits as described in the specs.

First thing to note, we use a bool variable that acts as an on/off switch to know if we are on the number or character part of the string. For the number checking part, it uses a helper function to check if there are leading zeros and if it is a digit. After this, it calculates the order total and adds it to the running total to later be evaluated in the character checking part if it has exceeded the limit. Then we use helper functions that determine that an exact order char was made without any spaces or unusual symbols.

Lastly, in order to create total order numbers for the assigned function, I created one int function that does the total order type calculation for every type of order (specified by the const char parameter). It uses a similar algorithm as our syntax checking algorithm in that it incrementally adds on to the running total until the program has ended to then help return the specified total

**Test Cases**

Test cases I ran tried to fit two main criteria. Normal ones and more unusual/unencountered ones. First I tested all order types in various sequences with capital and lowercase letters including correct single orders types. This all worked. Then I tried to exceed the maximum order types such as 100 total orders, 21 pickup orders, and 10 delivery orders. These would all produce errors, passing my tests. Lastly, I tried to test more unusual cases such as empty strings, orders with some leading zeroes, and nonsensical characters and symbols. All these tests produced errors which meant that my program was a success.