Deep Patel
CS202
Assignment 3
Title: Give food suggestion from menu

Linux tools and Debugger write up:

I found out some tools like how to change focus in gdb. Like by default it only set to upper screen where it scrolls program. However, you can change the focus to command line. It will allow you to see previous output. (command: foc cmd and foc src). It makes my gdb experience delightful. As usual to find out memory allocation and deallocation errors. I used back trace, break pointer, step into method, print objects etc.

Programming Design / OOP:

In object-oriented design each object has their responsibility and push up similarity in common base class. In this program derived classes desert, beverage, and main course have their own responsibility plus it have access to its base class members function. We have over loaded operator like <<, <, = in entire hierarchy. So, user of base class can use operator based on its type.

Implementing operator overloading in entire hierarchy is best practice based on its usage. One of the scenarios where operator overloading is useful. When your hierarchy is data. Meaning, you can easily call operator as we use operator on primitive data type. That is power of operator overloading. However, more abstraction can be complex.

The program also contains custom string class. Which helpful in my hierarchy function implementation. The custom string class contains =, >>, <<, ==, !=, and < operator. It is helpful to does deep copy using = assignment operator. It is also taking care for memory deallocation.

In my hierarchy, food constructor, main_course constructor, desert constructor, beverage constructor used assignment operators to do strcpy. So, that make code lesser. Also in deallocation part you do not need to delete memory since your string class does deallocation.

The data structure is BST. Where, it has bst_node and BTS_tree classes. The bst_tree manage the bst_node. The operator over loaded are <, <<.

We have also used RTTI method which is not object-oriented practice. But there is some case where user just interested to display certain objects. In those case we need to know the type of object we want at run time.

Data structure complexity is also important. BST insertion have complexity of O(h) . where h is height of the tree. Display all have complexity of O (h). BST is good choice if your program needs lot of searching. Because it improves your search based on its data.