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CS202 Program5

Review & Efficiency

In Program 5, I was aiming to accomplish the left function of the program 4, including build the tree of the restaurant and an outside tree of the Uber driver nearby. In this case, to complete the function of choosing the restaurant and placing the order from the menu and then finding the Uber nearby to deliver the food to user.

In this program, I keep and modify the most program in the program 4, including interface class which is the graphic interface to show several choices for choosing and combine some function for receiving things user input and import into the memory. I also keep the four functions for user to use, including display the menu, placing the order, and display the order. Besides this, I add more function to complete the display, remove, remove all, retrieve, retrieve all related function. I keep and update the function to read and write more file, since I need two more files to store the information of the restaurant and Uber driver. Beside the already exist classes, I add four more classes to help me finish the whole program and achieve the criteria. This first class is the restaurant class which is the class as every single node of the restaurant, the object of the restaurant can be each restaurant and has it’s menu object and uber dirver object. The basic function is the restaurant class is the copy constructor, insert function both the insert object reference or insert arguments, remove function to remove the restaurant node of specific name. There also display function used to display the information store in the restaurant node. There also some get and set functions in case to some problem happen in the copy destructor. Another class is the bst restaurant class, which stand for a binary search tree of the restaurant. In that class has the root reference to the restaurant as the pointer of the root in the C++ binary search tree. Besides, there are copy constructor too for more convenient to new an object and give them information. There are get and set right left function which is necessary to traverse and build the binary search tree. There also has the insert function to insert the information when import the information from the file. The retrieve function is in every class to retrieve the specific node with the same value with passed in String. Retreive all related function used the keyword contains to determine whether the string has the related keyword with the passed in value. Remove function is very tricky since it’s in the Java system. Different to the C++ remove node of binary search tree, remove in the java is always rely on the garbage collector mechanism, so the only process we should do is get the inorder successor’s member and copy it to the removed node and then delete the inorder successor. Instead of remove, remove all is different from and more easier only need to set all node to null when it traverse back. BST uber class is the class to build a binary search tree and store the uber driver.

It also has retrieve and retrieve all related function, and remove and remove all and display function as well. The insert function use the compareToIgnoreCase function which is in the build in String library and act as the strcmp function is c++ but ignore the upper or lower case. The uber driver class is another node type class of the binary search tree has the get and set left and right function as well, and retrieve to return bool is matches and remove function to set every member inside the class to null;

The efficiency of this binary search tree of binary search tree is kind well, since the time consumption of the insert and remove or retrieve function is between the average level. Because it’s the BST data structure, the insert and remove will spend more time than LLL.