CS202

Ching-Wei Lin

987563037

assignment #4.5

For this assignment, It is also very similar with assignment two. However, now we are using a whole new language Let’s start with object Avatar. It is like the foundation of this program. The avatar object has three member functions. The first one is the list of characters. The second one is the list of tools and the last one is the history of this avatar. The history is just a char pointer, nothing special. The two lists are much more complicated.

The list of characters is a 2-3 nodes which has two integers data and three node pointers and two character data. The two integers are named as priority, which is used to sort the tree when we are dealing with searching, adding or removing, and they are formed as an array of integers. The three pointers are one of the characters of 2-3 tree. A node might have one, two or three pointers at a time depending on what situation. Also, they are formed as an array of pointers. Finally, the two character data are two character objects which means I can put two characters in a node the most. They are formed as an array, too.

Let’s clarify the character data first. The character data is a data type and it is one of my basic class. As a basic class, it has a data member which is name and has three function which will be derived. The three functions are add, display and remove. Also, there will be operator overloading, which includes +, =, +=, ==, != and []. Five derived classes will be built. First one is nick name which has char pointer n\_name. Second one is contact which has a char star con. The third one is website which has char star web. The forth one is phone number which has integer data member num. The last one is cloth which represents the avatar’s wearing style, so has a char star style. Three of the member functions which are add, remove and display will be all implemented in the derived classes.

The list of tools is very similar to the list of characters. The data structure for both of them are 2-3 tree, so the integer data members and the pointers data member are the same. However, this time the objects restored are tools objects and also they are formed as an array.

The tool object comes from my second basic class. The tool class has a char pointer name as a member function and a integer member function level which represent the level of this tool. Similarly, it has three member functions which are add, display and remove and operator overloading, which includes +, =, +=, ==, != and [] as well. There are three derived classes for the tool class. The first one is weapon which has an integer data member damage representing the power of that weapon and an integer data member range representing how far could the weapon be able to reach. The second one is supply which has a integer data member recovery representing how much amount recovery could the supply do. The last one is hint which has a char pointer advise representing the tips from some of missions. Likely, the member functions for all three derived classes will be implemented in their own class because they have to deal with different kind of data.

The operating overloading is more exciting that we can create our own operators and it will be super convenient because only typing one sign cause a function affair or even multiple functions.