

Efficiency Write-ups for Program 4

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This is a Syntax Translating Program (from C++ to Python), it would prompt the user to enter some information for some syntax in C++, then it would display the Python version of the syntax.

The base class in my hierarchy is “syntax”, it is an abstract base class because it has an abstract method (a method without a body and will be implemented in the derived classes). This class has methods to read in some information from the user and store them into the data members, to compare arguments with some data member and to change some data member to the contents of the argument.

One of the derived class is “conditionals”, in this class, I have method to read in more information after invoking the same named function in the base class; a method to compare data members with arguments (this function is one of the

functions involved with function overloading); a function to display information.

Other two derived classes are “loops” and “function_header”. In the “loops” class, we have the same named functions : to read in information (which will invoke the same named function in the base class by using the keyword “super”); and a display() function to display information. Besides, there is a change(...) function that will change the data members to point to the same contents of the arguments. This function is also one of the functions involved with function overloading. In the “function_header” class, besides the same named functions to read in and display information. There is also one function to change the data members to point to the same contents of the arguments.

As for the data structure, I used Linear Linked List. There are two classes involved: a node class and a list class.

In the node class, there is a syntax reference and a node reference as data members. I also have methods to return a syntax reference by value and return a node reference by value. And two

other methods that would assign the data members to the references passed as the arguments.

In the list class, there is just one data member which is a node reference. There are public functions that will be called in Main to complete specific tasks, for example: add a node in the LLL; remove a node in the LLL; change an object name in the LLL; retrieve an object in the LLL and display all elements in the LLL. There are also private recursive functions that will be called in the public functions to help with completing the mission with recursion.

I'm pretty satisfied with this program comparing to the previous programs I created this term.

Most importantly, I'm submitting this program without any bugs (after I tested it myself).

Although, C++ allows the user to have more control, I think Java is more user friendly than C++. So I'm interested to learn more about Java.