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SUBJECT:STACK-QUEUE/EXPERIMENT 2/FINAL REPORT

PROGRAMMING LANGUAGE:C++

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1.SOFTWARE USAGE

There are lots of input files and all of them contain lots of different commands.Such as ;

1.ADD : This command add second node to the first node of the item list and this returns the output depending on the type's of adding elements.

2.PUT : This command put anytype of item to the end of list.

3. DELETE : This command delete the oldest element from the list.

4.UNDO : This command reversed the last operation that applied to the program.

5.REDO : This command reversed the undo operation if there is no undo operation this command won't do anything.

6.PRINT : This command prints all items in the item list to the output file.

Depending on this commands,our program gives an output file.We will give an input file to read the commands and an output file to write the results on it.Everything going to start with main function.And the program is going to give a output file.

2.PROBLEMS

In this project,the things that expected from us are keeping three different types of objects into one data structure.These are string,integer and double.String has the most priority.Integer has the lowest priority.Depending on these notations,the program has to apply the commands into the command list.

2.1 Very first problem is dividing the input file.Because in one line,first word of line is command and if there are more words the remaining words are the putting object.Because of that we have to divide the each line.

When I try to divide the line,I realized that I didn't divide the line just using space token.Because in some lines at the second part of line there are more than one words so if I use space token,I divide the second part too.To prevent this thing I used some break key words in my input file.After that I sent all seperated lines to the function that decide the words type.

2.2 The program has to decide what kinds of values are put into the item list.

When the program starts to read from the input file all values are in string type.We have to decide their type by looking the number of quotes,and dots.If there are two quotes , the type of this value will be string.No matter what we used into the value.I mean there could be

a dot.But this will be string because there are two quotes.In this situation using dots or letters or numbers is not important.If there are two quotes,this will be in string type.If there are no quotes,there is just one dot,this will be in double type.And if there are no qoutes or dots,there are just numbers,this will be in integer type. And after deciding the type,if the value is in string type,I used substring function to vanish the quotos.And after all this things the program will send the seperated line values to the doTheJob function.

2.3 The program has to keep all record of command.Because all command has to be reversed.

To solve this problem I create a doubly linked list.Because to implement the undo redo command the program have to reach the previous element.The program reach both sides of node by using doubly linked list.And all items and their types that we use for applying the commands record in this linked list and also the name of command records too.

2.4 After reading from an input file the program has to implement the commands depending on their own missions.

I made linked list to keep elements easily.And my all elements keeps in string but absolutely I record their own type into the linked list.By using linked list addition and deletion is more easier than using arrays.

2.5 The redo command is seperated from the other command.Because it only Works after undo command.In the oppesite it doesn't work.

The linked list has a temporary pointer.When each command added to linked list this temp value is equalized to the tail of the command linked list.But in Undo command temp value is equalized to the previous node of the temp value.In this way if the temp pointer equal to the tail of the linked list,redo command doesn't work.Otherwise,it will work.

2.6 Overloading + and << operator.

I didn't implement these two things.I didn't reach the overloading function.I define my struct into the private zone of the class.After that I changed this.I created another class but it didn't works too.So I turned the program to the first situation.

This is my operator << overloading function and its prototype.

```
ostream& operator<<(ostream& file,List& obj){
	while(obj.headOfList!=NULL){
		file<< (obj.headOfList->value);
		obj.headOfList=obj.headOfList->next;
	}
	file<<"\n";
	return file;

}
```

```
friend  ostream& operator<<(ostream&,List&);
```

These are my operator + overloading functions and their prototypes.

```
double CommandList::operator +(const double val){
	string str=this->getSecondItem();
	double val2=stringToDoubleConverter(str);
	double result=val+val2;
	return result;
}

double CommandList::operator +(const int val){
	string str=this->getSecondItem();
	double val2=stringToDoubleConverter(str);
	double result=val+val2;
	return result;
}

string CommandList::operator +(const string val){
	string str=this->getSecondItem();
	return val+str;

}
```

```
double operator +(const double);
double operator +(const int);
string operator +(const string);
```

3.DATA STRUCTURES

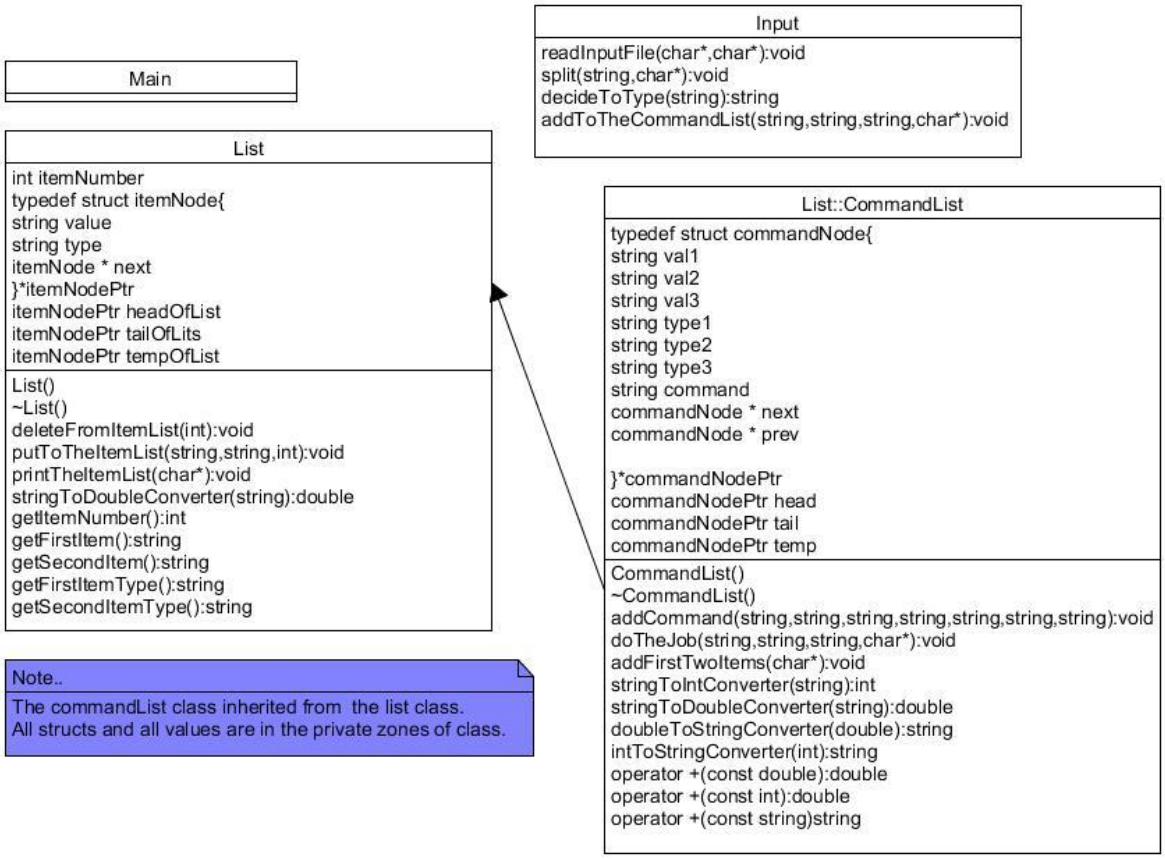
I used doubly linked list for keeping the commands and by using this data structure I implemented the undo and redo commands. .I have a commandlist class and this has struct into the private part of class.By using doubly linked list the program can reach the both sides of node.Because of that this is an efficient solution for undo and redo commands. Creating the command list I used doubly linked list.

For keeping items I used linked list.I have a list class and this has struct into the private part of class.The linked list is keeping the value type and the adres of next node.This is not a doubly linked list.Creating the item list I used normal linked list.

4.CLASS DIAGRAM

The main function takin to arguments

int main(int argc,char* argv[]){…}



5.ERRORS AND REFERENCES

Very first possible error is entering a command that doesn't match any possible command.To solve this I create if-else block.If the command doesn't match any of commands ,the program will give an error message for this.

UNKNOWN COMMAND OR DATA TYPE

If the putting value doesn't belong to string,integer or double,the program will give an error message.

UNKNOWN COMMAND OR DATA TYPE

If the program read delete command when the item list empty,the program will give an error message.Because the program can't delete anything from the empty item list.

DELETION IGNORED

If the program read the add command when there is least than two items into the item list.The program will give an error message.

ADDITION IGNORED

If the program read the undo command when there is no record into the command linked list,the program will give an error message.

UNDO IGNORED

If the undo command doesn't apply before reading redo command,the redo command won't do anything.The program will give an error message.

REDO IGNORED

REFERENCES

http://stackoverflow.com/

https://www.youtube.com/watch?v=o5wJkJJpKtM →Paul Programming

https://www.youtube.com/watch?v=k0pjD12bzP0 →Paul Programming

https://www.youtube.com/watch?v=tvC1WCdV1XU&list=PLAE85DE8440AA6B83 →Bucky Roberts/The New Boston

http://www.tutorialspoint.com/cplusplus/

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