I completed the homework by obeying the necessary rules. In the yacc and flex part, as extra I added If statement rules and to implement if statements I added some other rules like equal, less, and, or. It is working exactly like lisp if. If the condition is true it runs first expression, otherwise if condition is false it runs second expression. There is not any limit for expressions. Everything works according to paranthesis. Paranthesis determines scopes.

In the yacc part I have some important functions which are char * createNewString, char * findResult, char * subseq. When the user define a function if it is a valid function I stored it in the a struct array. This struct type stores the important things like name of function arguments, number of arguments and it's implementation. When the function is called, findResult always find the inner most expressions and subseq function creates new string for this expression by adding spaces (if it is necessary). And createNewString changes the string we have. It removes expression from bigger expression and it add the result of removed expression.

I also added OP_OP IDENTIFIER OP_CP rule to call functions which does not have arguments.

And I added begin: Start | Start begin to use this program recursively.

In the lisp part I applied all this rules recursively. I have functions for non terminals (function expression and exit). I have same rules with yacc. The algorithm of this program is finding the second biggest expression and going to base case recursively. According to rules there are lot's of controls. It checks if the function is already added, is arguments enough, how many expression needed...

I added expression to my lisp code. Main rule is OP_OP KW_IF EXPRESSION EXPRESSION EXPRESSION OP_CP. It checks first expression. To check this one there are more rules for equal, less, and, or. They return true or false according to input. Most important function is findIndexesofExp function. Because to apply recursive it always find the second biggest expression to go deeper.

When the token list is came, it goes to rules to find proper rule. If there is not any proper rule according to token list it says syntax error.

I do not know why I oculd not add images here I will put them to the directory.