***COD PROJECT***

***24TH APRIL 2012***

***Mini C Compiler Through LEX And YACC***

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***INTRODUCTION***

***We have tried to make a mini c compiler which have the following features , the errors it can detect are explained in the remainning document.***

***There are two files required for the program .***

***Ist is lex.l and 2nd is yacc.y .***

***1ST LEX FILE***

***The use of lex file is to read the input from the input file and tokenize the inputs.***

***It will also checks for the comments in the C file .***

***if there are multiple line comments then it skips those line and do not send them to yacc file for error checking, also it increases the line counter accordingly.***

***It can do the same for single line comments also.***

***The keywords detected and tokenized by the lex file are as :***

IDENTIFIER CONSTANT STRING\_LITERAL SIZEOF STRINGFOR

PTR\_OP INC\_OP DEC\_OP LEFT\_OP RIGHT\_OP LE\_OP GE\_OP EQ\_OP NE\_OP L\_OP G\_OP

AND\_OP OR\_OP MUL\_ASSIGN DIV\_ASSIGN MOD\_ASSIGN ADD\_ASSIGN

SUB\_ASSIGN LEFT\_ASSIGN RIGHT\_ASSIGN AND\_ASSIGN

XOR\_ASSIGN OR\_ASSIGN TYPE\_NAME

DEFINE SCANF INT\_SPEC

TYPEDEF EXTERN STATIC AUTO REGISTER

CHAR SHORT INT LONG SIGNED UNSIGNED FLOAT DOUBLE CONST VOLATILE VOID

STRUCT UNION ENUM ELLIPSIS

CASE DEFAULT IF ELSE SWITCH WHILE DO FOR GOTO CONTINUE BREAK RETURN

***2ND YACC FILE***

***The Yacc file has the grammer for the mini c compiler.***

***it checks for various errors.***

***It recieves the tokens from the lex file and then tries to match the patterns with the grammer written in it .***

***The yacc file reads the input from the input file.***

***The Errors detected by Our mini compiler are : -***

1. **Header file errors e.g. #include<stdio> will give an error.**
2. **Semicoloumn errors after each statement**
3. **Improper bracketting errors for paranthesis , curly brackets and square brackets.**
4. **Error in definition of for loop.**
5. **Error in definition of while loop.**
6. **Error in definiton of Do While loop.**
7. **Error in definition of If statement.**
8. **Error in definition of if-else statement.**
9. **Error in dangling else.**
10. **Error in goto statement**
11. **Error in struct definition**
12. **Error in enum definition**
13. **Error in union definition**
14. **Error in function declaration**
15. **Error in scanf statement**
16. **Error in printf statement**
17. **Error in unary expression(example as ++)**
18. ***Error in declaration***
19. ***Error in switch case statements***
20. ***Error in break statement***
21. ***Error in continue statement***
22. ***Error in return statement***
23. ***Error in default statement***
24. ***Error in pointer declaration***
25. ***Error in type casting***
26. ***Error in Comments***

***Limitations of our compiler***

1. ***Question was for syntax error, so we have only considered syntax error not any run time error.***
2. ***No evalution for expression containing no operator between them***
3. ***Problem in string assignment.***
4. ***We have only considered few libraries for include statement***
5. ***Matching of Predefined function with their respective header files.***

***Time line***

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| **Learning basics of lex and yacc** | **January 20th – February 15th** |
| **Defining Rules** | **March 5th – March 10th** |
| **Working on modules** | **March 10th – March 30th** |
| **Module Integration** | **April 1st – April 22nd** |
| **Testing** | **April 23rd – April 24th** |

***THANK YOU !***