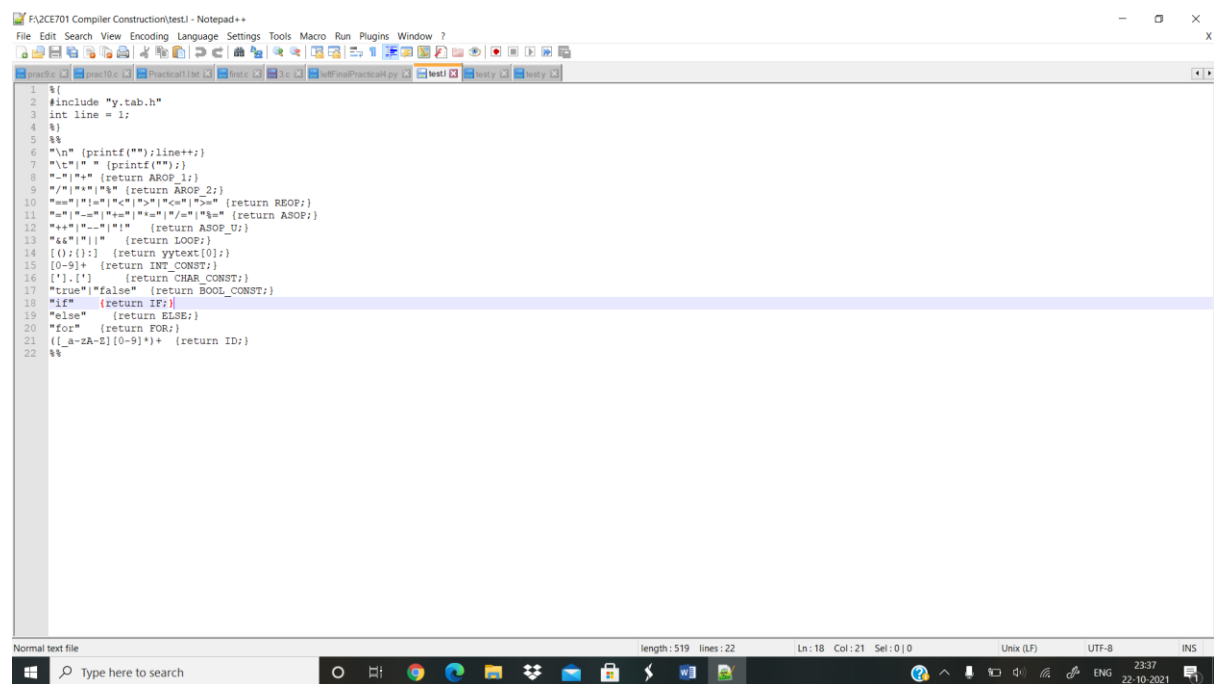


AIM:

To implement grammar rules for control statements, and Loop control.

Niketkumar Kothari

18bce134



```
1  %  
2  #include "y.tab.h"  
3  int line = 1;  
4  %  
5  %%  
6  "\n" (printf("%n"),line++;)  
7  "\t" " " (printf("%n");)  
8  "-" "+" (return AROP_1;)  
9  "/" "*" (return AROP_2;)  
10 "=" "<" ">" "<=" ">=" (return REOP;)  
11 "%" "-" "+" "*" "/" (return ASOP;)  
12 "++" "--" (return ASOP_U;)  
13 "++" "||" (return LOOP;)  
14 "({;})" (return yytext[0];)  
15 "[0-9]+" (return INT_CONST;)  
16 "[']" "'" (return CHAR_CONST;)  
17 "true" "false" (return BOOL_CONST;)  
18 "if" (return IF;)  
19 "else" (return ELSE;)  
20 "for" (return FOR;)  
21 "({_a-zA-Z}[0-9]+)" (return ID;)  
22 %
```

```
F:\ACE701 Compiler Construction\testy - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
pract0.c pract0.c PractCalc1.txt fnc.c 3.c.c FinalPractCalc.py test1 testy testy
1 %{
2 #include<stdio.h>
3 int yylex();
4 void yyerror(char *msg);
5 void yywrap();
6 extern int line;
7 }
8 %token ID INT_CONST CHAR_CONST BOOL_CONST
9 %token AROP_1 AROP_2 REOP ASOP ASOP_U LOOP
10 %token IF ELSE
11 %token FOR
12 %%
13 SS: SS S
14 | S
15 ;
16 S : IF_ST
17 | FOR_ST
18 | BLK
19 | A ';'
20 | A ';'
21 ;
22 IF_ST : IF '(' A ')' S
23 | IF '(' A ')' S ELSE S
24 ;
25 FOR_ST : FOR '(' AX ';' AX ';' AX ')' S
26 ;
27 AX : A
28 ;
29 ;
30 BLK : '{' SS '}'
31 ;
32 A : ID ASOP B
33 | B
34 ;
35 B : B LOOP C
36 | C
37 ;
38 C : C REOP D
39 | D
40 ;
41 D : D AROP_1 E
42 | E
43 ;
44 E : E AROP_2 T
45 ;
46 ;
47 T : ID
48 | ID ASOP U
49 | ASOP_U ID
50 | INT_CONST
51 | CHAR_CONST
52 | BOOL_CONST
53 | '(' AX ')'
54 ;
55 %%
56
57 int main() {
58     yyparse();
59     return 0;
60 }
61
62 void yyerror(char *msg) {
63     printf("Error = %s at line %d\n", msg, line);
64 }
65
66 void yywrap() {
67     printf("==== %d Line Passed ====\n", line);
68 }
69 }
```

```
F:\ACE701 Compiler Construction\testy - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
pract0.c pract0.c PractCalc1.txt fnc.c 3.c.c FinalPractCalc.py test1 testy testy
26 AX : A
27 ;
28 ;
29 ;
30 BLK : '{' SS '}'
31 ;
32 A : ID ASOP B
33 | B
34 ;
35 B : B LOOP C
36 | C
37 ;
38 C : C REOP D
39 | D
40 ;
41 D : D AROP_1 E
42 | E
43 ;
44 E : E AROP_2 T
45 | T
46 ;
47 T : ID
48 | ID ASOP U
49 | ASOP_U ID
50 | INT_CONST
51 | CHAR_CONST
52 | BOOL_CONST
53 | '(' AX ')'
54 ;
55 %%
56
57 int main() {
58     yyparse();
59     return 0;
60 }
61
62 void yyerror(char *msg) {
63     printf("Error = %s at line %d\n", msg, line);
64 }
65
66 void yywrap() {
67     printf("==== %d Line Passed ====\n", line);
68 }
69 }
```

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19043.1237]
(c) Microsoft Corporation. All rights reserved.

C:\Dev-Cpp\MinGW64\bin>bison -yd test.y
test.y:20:5: symbol x is used, but is not defined as a token and has no rules
C:\Dev-Cpp\MinGW64\bin>bison -yd test.y
conflicts: 1 shift/reduce
C:\Dev-Cpp\MinGW64\bin>flex test.l
C:\Dev-Cpp\MinGW64\bin>gcc y.tab.c lex.yy.c
C:\Dev-Cpp\MinGW64\bin>
```