

CD Assignment 5

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Question:

Design a YACC and corresponding LEX specification to check the syntax of if and if .. else statement of C language. Consider Assignment statement/s in the body of if and else part. Detect atleast one syntactic error. Upload a single file with input , output and YACC and LEX specification code.

Input :

if(a==1) then b=1; else b=5;

Output :

```
yashoswal@balckdex in ~/Documents/TY-SEM6/Assignments/CD/ASS5 took 16s
λ ./ass5
Enter the exp: if(a==1) then b=1; else b=5;
Input accepted.

yashoswal@balckdex in ~/Documents/TY-SEM6/Assignments/CD/ASS5 took 17s
λ ./ass5
Enter the exp: if(a==1) print(b);
parsing error
```

Code:

ass5.l :

```
%option noyywrap
%{
#include "y.tab.h"
%}
alpha [A-Za-z]
digit [0-9]
%%
[ \t\n]
if      {return IF;}
then    {return THEN;}
else    {return ELSE;}
```

```

{digit}+    return NUM;
{alpha}({alpha}|{digit})*    {return ID;}
"<="    {return LE;}
">="    {return GE;}
"=="    {return EQ;}
"!="    {return NE;}
"||"    {return OR;}
"&&"    {return AND;}
.    return yytext[0];
%%

```

ass5.y:

```

%{
#include <stdio.h>
#include <stdlib.h>
void yyerror(char *);
%}
%token ID NUM IF THEN LE GE EQ NE OR AND ELSE
%right '='
%left AND OR
%left '<' '>' LE GE EQ NE
%left '+' '-'
%left '*' '/'
%right UMINUS
%left '!'

S      : ST {printf("Input accepted.\n");exit(0);};
ST     : IF '(' E2 ')' THEN ST1';' ELSE ST1';'
        | IF '(' E2 ')' THEN ST1';'
        ;
ST1    : ST
        | E
        ;
E      : ID '=' E
        | E '+' E
        | E '-' E
        | E '*' E
        | E '/' E
        | E '<' E
        | E '>' E
        | E LE E
        | E GE E
        | E EQ E
        | E NE E
        | E OR E
        | E AND E

```

```

        | ID
        | NUM
        ;
E2  : E'<'E
    | E'>'E
    | E LE E
    | E GE E
    | E EQ E
    | E NE E
    | E OR E
    | E AND E
    | ID
    | NUM
    ;

```

```

%%
void yyerror(char *s)
{
    printf("\nparsing error");
}
int main()
{
    printf("Enter the exp: ");
    yyparse();
    return 0;
}

```