

ASSIGNMENT: 05

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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:

1. if(i>0)

```
{  
    a=10;  
}
```

2. if)i>0(

Code:

Ass5.y –

```
% {
```

```
#include <stdio.h>
```

```
void yyerror(char *);
```

```
int yylex();
```

```
% }
```

```
%token IF ELSE ELSEIF AND OR NTEQ EQ LT LTEQ GT GTEQ ID NUM  
NOT OP
```

```
% %
```

elcond : ifcondition elsec | ifcondition | ifcondition elifc | ifcondition elifc
elifscond ;

elifscond : elsec | elifc elifscond;

ifcondition: IF '(' cond ')' '{' stmt '}' {printf("Parsing Successful of if
Condition\n");}
;

elifc: ELSEIF '(' cond ')' '{' stmt '}' {printf("\nParsing Successful of elseif\n");}
;

elsec: ELSE '{' stmt '}' {printf("\nParsing Successful of else\n");}
;

cond : scond | scond logop scond ;

stmt : A | A stmt;

scond : nid | nid relop nid ;

nid : ID | NUM ;

A : ID '=' nid OP nid ';' | ID '=' nid ';;

logop : AND | OR | NOT ;

```
relop : NTEQ | EQ | LT | LTEQ | GT | GTEQ ;
```

```
%%
```

```
int yywrap()
```

```
{  
    return 1;  
}
```

```
void yyerror(char *s)
```

```
{  
    printf("\nInvalid Statement\n");  
}
```

```
int main()
```

```
{  
    yyparse();  
    return 0;  
}
```

Ass5.1 –

```
% {  
#include "y.tab.h"  
void yyerror(char *);  
% }
```

```

%%
"if" {return IF;}
"else" {return ELSE;}
"else if" {return ELSEIF;}
"+"|"-"|"*"|" "/"|"%"|"^" {return OP;}
"&&" {return AND;}
"!" {return NOT;}
"||" {return OR;}
"!=" {return NTEQ;}
"==" {return EQ;}
"<" {return LT;}
"<=" {return LTEQ;}
">" {return GT;}
">=" {return GTEQ;}

[=,{ }();] {return *yytext;}
[ \t\n]+ ;
[a-zA-Z_][a-zA-Z0-9_]* {return ID;}
[0-9]+ {return NUM;}
. {printf("\n\nlex err");}

%%

```

Output:

```
oblivion@oblivion-VirtualBox: ~/Documents/TY/Sem VI/CD/Ass5
oblivion@oblivion-VirtualBox:~/Documents/TY/Sem VI/CD/Ass5$ lex ass5.l
oblivion@oblivion-VirtualBox:~/Documents/TY/Sem VI/CD/Ass5$ yacc ass5.y
oblivion@oblivion-VirtualBox:~/Documents/TY/Sem VI/CD/Ass5$ yacc -d ass5.y
oblivion@oblivion-VirtualBox:~/Documents/TY/Sem VI/CD/Ass5$ gcc lex.yy.c y.tab.c -ll -lm
oblivion@oblivion-VirtualBox:~/Documents/TY/Sem VI/CD/Ass5$ ./a.out
if(i>0)
{
a=10;
}
Parsing Successful of if Condition
if)i>0(

Invalid Statement
oblivion@oblivion-VirtualBox:~/Documents/TY/Sem VI/CD/Ass5$
```