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Complier Construction Lab 9

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Parser for "FOR" loop statements:

Code:

Lex:

```
%{
#include "as9.tab.h"
extern int yylval;
%}

alpha [A-Za-z]
digit [0-9]

%%

[\t \n]
    /* Ignore whitespace */

for return FOR;
{digit}+ return NUM;
{alpha}({alpha}|{digit})* return ID;

"<=" return LE;
">=" return GE;
"==" return EQ;
"!=" return NE;
"||" return OR;
"&&" return AND;
```

```
.       return yytext[0];

%%
```

Yacc:

```
%{
#include <stdio.h>
#include <stdlib.h>
%}

%token ID NUM FOR LE GE EQ NE OR AND
%right "="
%left OR AND
%left '>' '<' LE GE EQ NE
%left '+' '-'
%left '*' '/'
%right UMINUS
%left '!'
%%

S : ST { printf("Input accepted\n"); exit(0); }

ST : FOR '(' E ';' E2 ';' E ')' DEF
;

DEF : '{' BODY '}'
    | E ';'
    | ST
    |
;

BODY : BODY BODY
    | E ';'
    | ST
    |
;

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
        | E '+' '+'
        | 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
;
%%
void yyerror(const char* s) {
    fprintf(stderr, "Error: %s\n", s);
}

int yywrap() {
    return 1;
}

int main() {
    printf("Enter the expression:\n");
    yyparse();
}
```

Output:

```
Enter the expression:
for(i=0;i<n;i++)
i=i+2;
Input accepted
```