



**SYMBIOSIS INTERNATIONAL (DEEMED  
UNIVERSITY)**

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Founder: Prof. Dr. S. B. Mujumdar, M.Sc., Ph.D. (Awarded Padma Bhushan and Padma Shri by President of India)

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Compiler 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

```