19CSE401 Compiler

Design Lab

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CSE-B, 4th year

Lab Exercises -04

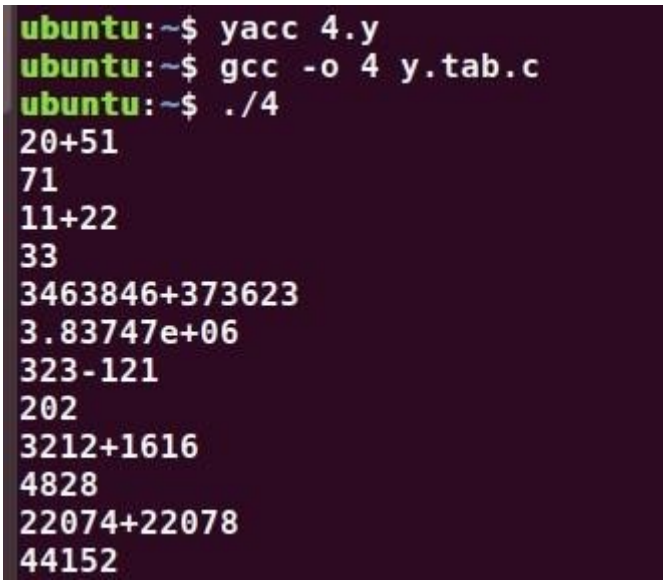
Aim: To write a program in YACC for parser generation.

Code:

```
%{
#include <stdio.h>
#include <ctype.h>
#define YYSTYPE double

int yylex();
int yyerror(const char *s);
%}
%token NUMBER
%left '+' '-'
%left '*' '/'
%right UMINUS
%%
lines:
    lines expr '\n' {
        printf("%g\n", $2);
    }
  | lines '\n'
  | /* empty */
;
expr:
    expr '+' expr { $$ = $1 + $3; }
  | expr '-' expr { $$ = $1 - $3; }
  | expr '*' expr { $$ = $1 * $3; }
  | expr '/' expr { $$ = $1 / $3; }
  | '-' expr %prec UMINUS { $$ = -$2; }
  | '(' expr ')' { $$ = $2; }
  | NUMBER
;
%%
int yylex() {
    int c;

    // Skip whitespace
    while ((c = getchar()) == ' ' || c == '\t');

    if (c == '.' || isdigit(c)) {
        ungetc(c, stdin);
        scanf("%lf", &yylval);
        return NUMBER;
    }    return c;
}
int yyerror(const char *s) {
```

```
}
int yyerror(const char *s) {
    fprintf(stderr, "Error: %s\n", s);
    return 1;
}
int main() {
    return yyparse();
}
int yywrap() {
    return 1;
}
```

Output:



Results:

The program in YACC for parser generation has been executed successfully