PRACTICAL-4

AIM:

Implement a Calculator using LEX and YACC.

IMPLEMENTATION:

- lex <filename with .l extension>
- yacc <filename with .y extension>
- gcc <newly created .c file from yacc> -o <file name for exe file>
- <filename of exe file>

PROGRAM CODE:

LEX FILE:

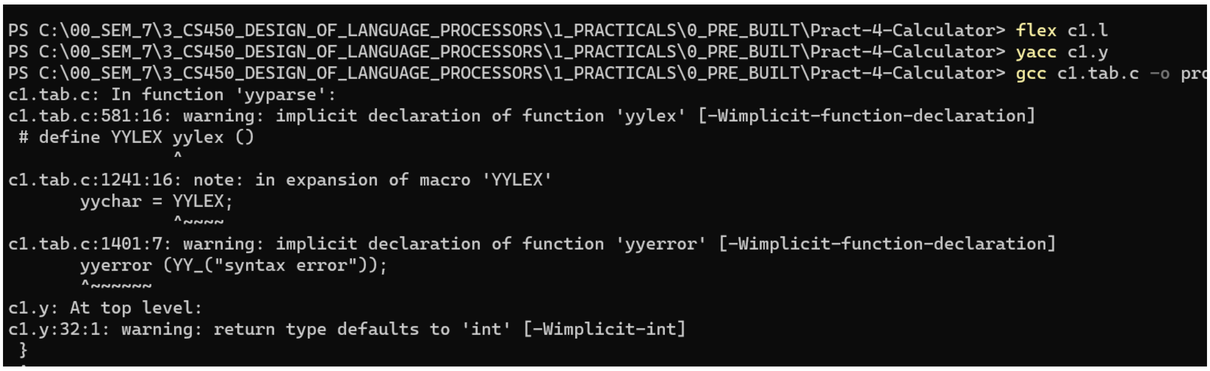
```
DIGIT [0-9]
%option noyywrap

%%

{DIGIT} { yylval=atof(yytext); return NUM;}
\n|. {return yytext[0];}
```

YACC FILE:

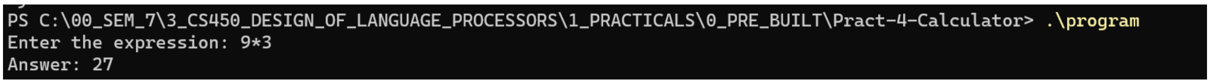
```
%{
#include<ctype.h>
#include<stdio.h>
#define YYSTYPE double
%}
%token NUM

%left '+' '-'
```

```
%left '*' '/'

%%

S : E '\n' { printf("Answer: %g \nEnter:\n", $1); }
;

E : E '+' E { $$ = $1 + $3;}
| E'-'E { $$=$1-$3;}
| E'*'E {$$=$1*$3;}
| E'/'E {$$=$1/$3;}
| NUM
;

%%

#include "lex.yy.c"

int main()
{
printf("\nPARTH PATEL\n19DCS098\n");
printf("Enter the expression: ");
yyparse();
}
yyerror (char * s)
{
printf ("% s \n", s);
exit (1);
}
```

OUTPUT:



```
PS C:\00_SEM_7\3_CS450_DESIGN_OF_LANGUAGE_PROCESSORS\1_PRACTICALS\0_PRE_BUILT\Pract-4-Calculator> flex c1.l
PS C:\00_SEM_7\3_CS450_DESIGN_OF_LANGUAGE_PROCESSORS\1_PRACTICALS\0_PRE_BUILT\Pract-4-Calculator> yacc c1.y
PS C:\00_SEM_7\3_CS450_DESIGN_OF_LANGUAGE_PROCESSORS\1_PRACTICALS\0_PRE_BUILT\Pract-4-Calculator> gcc c1.tab.c -o pro
c1.tab.c: In function 'yyparse':
c1.tab.c:581:16: warning: implicit declaration of function 'yylex' [-Wimplicit-function-declaration]
 # define YYLEX yylex ()
                ^
c1.tab.c:1241:16: note: in expansion of macro 'YYLEX'
       yychar = YYLEX;
                ^~~~~
c1.tab.c:1401:7: warning: implicit declaration of function 'yyerror' [-Wimplicit-function-declaration]
       yyerror (YY_("syntax error"));
       ^~~~~~~
c1.y: At top level:
c1.y:32:1: warning: return type defaults to 'int' [-Wimplicit-int]
 }
```



```
PS C:\00_SEM_7\3_CS450_DESIGN_OF_LANGUAGE_PROCESSORS\1_PRACTICALS\0_PRE_BUILT\Pract-4-Calculator> .\program
Enter the expression: 9*3
Answer: 27
```