EXP NO: 4 **DATE:7/3/25**

DESIGN AND IMPLEMENT A DESK CALCULATOR USING THE LEX TOOL

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

// To keep track of errors
int error_flag = 0;
%}

DIGIT       [0-9]
NUMBER      {DIGIT}+(\.{DIGIT}+)?

%%
[ \t]+                  ; // ignore whitespace
"("                    { printf("LEFT PARENTHESIS\n"); }
")"                    { printf("RIGHT PARENTHESIS\n"); }
"+"                    { printf("PLUS OPERATOR\n"); }
"-"                    { printf("MINUS OPERATOR\n"); }
"*"                    { printf("MULTIPLY OPERATOR\n"); }
"/"                    { printf("DIVIDE OPERATOR\n"); }
{NUMBER}               { printf("NUMBER: %s\n", yytext); }
.                      { printf("INVALID CHARACTER: %s\n", yytext); error_flag = 1; }
\n                     {
                          if (error_flag == 0)
                              printf("Valid arithmetic expression.\n");
                          else
                              printf("Invalid arithmetic expression.\n");
                          error_flag = 0;
                       }
%%

int main() {
    printf("Enter an arithmetic expression:\n");
    yylex();
    return 0;
}

int yywrap() {
    return 1;
}
```

```
[cdlab68@localhost 220701068]$ vi calc.l
[cdlab68@localhost 220701068]$ lex calc.l
[cdlab68@localhost 220701068]$ gcc lex.yy.c
[cdlab68@localhost 220701068]$ ./a.out
Enter an arithmetic expression:
3+4-2
NUMBER: 3
PLUS OPERATOR
NUMBER: 4
MINUS OPERATOR
NUMBER: 2
Valid arithmetic expression.
```