Exp No: 4

Date:

DESIGN A DESK CALCULATOR USING LEX TOOL

AIM:

To create a calculator that performs addition, subtraction, multiplication and division using lex tool.

ALGORITHM:

1. Initialize variables and declare a function prototype.
2. Define patterns for digits, arithmetic operations, and line breaks.
3. Implement lexical rules to perform actions based on matched patterns.
4. Define a function to convert tokens to floats and perform arithmetic operations.
5. Invoke lexical analysis in the main function.
6. Indicate the end of input with the yywrap() function.

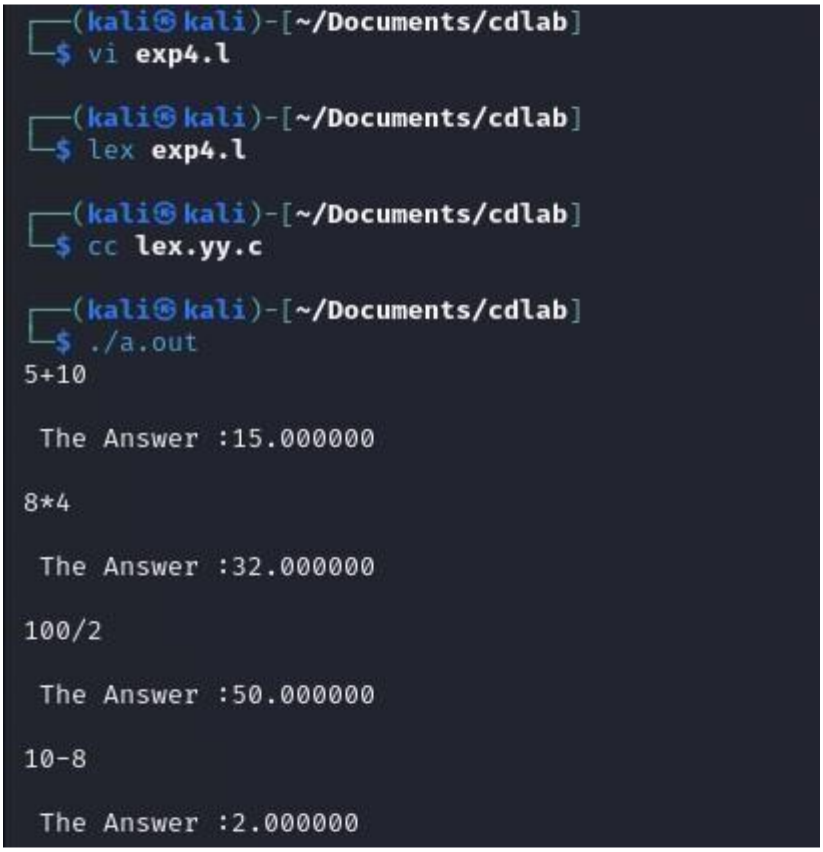
PROGRAM:

```
%{
int op = 0,i;
float  a,  b;
int digi();
%}

dig [0-9]+|([0-9]*)"."([0-9]+)
add  "+"
sub   "-"
mul "*"
div "/"
pow "^"
ln \n

%%

{dig} {digi();} {add}
{op=1;}
{sub} {op=2;}
{mul} {op=3;}
{div} {op=4;}
{pow} {op=5;}
{ln} {printf("\n The Answer :%f\n\n",a);}

%%

int digi() { if(op==0)
/* atof() is used to convert
        - the ASCII input to float */
a=atof(yytext); else{
```

NAME ; KRISHNAKUMAR R
ROLL NUMBER : 210701126

```
b=atof(yytext);
switch(op) { case
1:a=a+b; break;
case 2:a=a-b;
break;     case
3:a=a*b;
break;     case
4:a=a/b;
break;
case 5:for(i=a;b>1;b--)
a=a*i; break; } op=0; }
}
int main(int argv,char *argc[]) {
yylex(); } int yywrap() { return
1;
}
```

OUTPUT:



```
┌──(kali㉿kali)-[~/Documents/cdlab]
└─$ vi exp4.l

┌──(kali㉿kali)-[~/Documents/cdlab]
└─$ lex exp4.l

┌──(kali㉿kali)-[~/Documents/cdlab]
└─$ cc lex.yy.c

┌──(kali㉿kali)-[~/Documents/cdlab]
└─$ ./a.out
5+10

 The Answer :15.000000

8*4

 The Answer :32.000000

100/2

 The Answer :50.000000

10-8

 The Answer :2.000000
```

RESULT:

Thus, a calculator that performs addition, subtraction, multiplication and division using lex tool is implemented.

NAME ; KRISHNAKUMAR R
ROLL NUMBER : 210701126