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{
```

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```
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]
$ 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.

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