

Ex 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:

- In the headers section declare the variables that is used in the program including header files if necessary.
- In the definitions section assign symbols to the function/computations we use along with REGEX expressions.
- In the rules section assign dig() function to the dig variable declared.
- In the definition section increment the values accordingly to the arithmetic functions respectively.
- In the user defined section convert the string into a number using atof() function.
- Define switch case for different computations.
- Define the main () and yywrap() function.

PROGRAM:

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

```
digi()
{
if(op==0)
a=atof(yytext);
else
{
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;
}
}
main(int argv,char *argc[])
{
yylex();
}
yywrap()
{
return 1;
}
```

OUTPUT:

```
./a.out
→ ~ vi 275_ex4.l
→ ~ flex 275_ex4.l
→ ~ gcc lex.yy.c
275_ex4.l: In function 'yylex':
275_ex4.l:13:2: warning: implicit declaration of function 'digi' [-Wimplicit-function-declaration]
   13 | {digi} {digi();}
      |           ^~~~~~
275_ex4.l: At top level:
275_ex4.l:21:1: warning: return type defaults to 'int' [-Wimplicit-int]
   21 | digi()
      |      ^~~~~~
275_ex4.l:45:1: warning: return type defaults to 'int' [-Wimplicit-int]
   45 | main(int argv,char *argc[])
      |      ^~~~~~
275_ex4.l:49:1: warning: return type defaults to 'int' [-Wimplicit-int]
   49 | yywrap()
      |      ^~~~~~
→ ~ ./a.out
2+7

The Answer :9.000000
```

RESULT: