**Name: Mohammad Awais**

**Class: BSCS-8-A  
CMS: 242554**

# Compiler Construction Lab 7

## Code

#### < calc.l >

%{

#include "calculator.tab.h"

%}

%%

[0-9]+ { yylval.i = atoi(yytext); return T\_int;}

[0-9]+[.][0-9]+ {yylval.f = atof(yytext); return T\_float;}

[-+\*/^()\n] { return yytext[0];}

[l][o][g] { return func\_log;}

[e][x][p] { return func\_exp;}

. { /\* ignore everything else \*/ }

%%

#### < calculator.y >

%{

#include <stdio.h>

#include <math.h>

#define YYDEBUG 1

void Push(double data);

double Pop();

double Top();

%}

%union {

int i;

float f;

};

%token T\_float

%token T\_int

%token func\_exp

%token func\_log

%%

S : S E '\n' { printf("= %.3lf\n", Top()); }

|

;

E : E '+' T { Push(Pop() + Pop()); }

| E '-' T { double op2 = Pop(); Push(Pop() - op2); }

| T;

T : T '\*' F { Push(Pop() \* Pop()); }

| T '/' F { double op2 = Pop(); Push(Pop() / op2); }

| B;

B : B '^' F { int power = Pop(); double x = Pop(); double res = 1; for(int i =0; i<power ; i++){ res \*=x;} Push(res); res = 1;}

| func\_exp '(' B ')' { Push(exp(Pop()));}

| func\_log '(' B ')' { Push(log(Pop()));}

| F

F : '(' E ')'

| id ;

id : T\_int {Push(yylval.i);}

| T\_float {Push(yylval.f);}

%%

const int MAXSIZE = 40;

static double stack[40];

void Push(double data){

for (int i = MAXSIZE-1; i>0;i--){

stack[i]=stack[i-1];

}

stack[0] = data;

}

double Pop(){

double data = stack[0];

for (int i = 0; i<MAXSIZE;i++){

stack[i]=stack[i+1];

}

return data;

}

double Top(){

return stack[0];

}

int main() {

return yyparse();

}

## Output

