**SSN COLLEGE OF ENGINEERING, KALAVAKKAM**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**UCS1602 - Compiler Design Programming**

**Assignment-5**

**Implementation of Desk Calculator using Yacc Tool**

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**calc.l:**

%{

#include<stdio.h>

#include<stdlib.h>

#include"y.tab.h"

void yyerror(char\*);

extern int yylval;

%}

num [0-9]+

Op "+"|"-"|"\*"|"/"|"%"|"^"|"&&"|"||"|"!"|">>"|"<<"

paran "("|")"

%%

{num} {yylval=atoi(yytext);return id;}

{Op} return \*yytext;

{paran} return \*yytext;

[\t] ;

[\n] return 0;

. {yyerror("Invalid Character in input!!!");exit(1);}

%%

int yywrap(void)

{

return 1;

}

**calc.y:**

%{

#include<stdio.h>

#include<stdlib.h>

#include<math.h>

#include"y.tab.h"

int yylex(void);

void yyerror(char \*str);

%}

%token id

%left '+' '-'

%left '\*' '/'

%left '^'

%left '(' ')'

%left '!' '&&' '||'

%left '>>' '<<'

%%

Expr: E {

printf("Result is %d\n\n", $$);

return 0;

};

E: E'+'E {$$=$1+$3;}

|E'-'E {$$=$1-$3;}

|E'\*'E {$$=$1\*$3;}

|E'/'E {$$=$1/$3;}

|E'^'E {$$=pow($1,$3);}

|'('E')' {$$=$2;}

|E'&&'E {$$=$1&&$3;}

|E'||'E {$$=$1||$3;}

|'!'E {$$=!$2;}

|E'<<'E {$$=$1<<$3;}

|E'>>'E {$$=$1>>$3;}

| id {$$=$1;}

;

%%

void yyerror(char \*str)

{

fprintf(stderr,"%s\n",str);

}

void main()

{

for(int i=0;i<5;i++){

printf("Enter Expression:");

yyparse();

}

exit(0);

}

**Sample I/O:**

Enter Expression:5+6

Result is 11

Enter Expression:(6\*7)\*6

Result is 252

Enter Expression:5-3

Result is 2

Enter Expression:9-

syntax error

Enter Expression:(7\*5

syntax error

**Learning Outcomes:**

This assignment helped me

1. To understand the implementation of calculator using yacc tool

2. To understand how yacc tool helps in parsing the input expression.