Cycle 2

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CS7B – Roll No :31

Question 2

Implementation of Calculator using LEX and YACC

Program :

Lex:

```
%{

#include<stdio.h>

#include "y.tab.h"

extern int yylval;

%}


%%

[0-9]+ {

    yylval=atoi(yytext);

    return NUMBER;

  }

[\t] ;

[\n] return 0;

. return yytext[0];

%%

int yywrap()

{

return 1;
```

}

<u>Yacc :</u>

```
%{
    #include<stdio.h>

    int flag=0;


%}
%token NUMBER


%left '+' '-'

%left '*' '/' '%'

%left '(' ')'

%%

ArithmeticExpression: E{

    printf("\nResult=%d\n",$$);

    return 0;

    };

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

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

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

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

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

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

```
    | NUMBER {$$=$1;}

;

%%


void main()

{

  printf("\nEnter Any Arithmetic Expression which can have operations
Addition, Subtraction, Multiplication, Divison, Modulus and Round
brackets:\n");

  yyparse();

 if(flag==0)

  printf("\nEntered arithmetic expression is Valid\n\n");



}

void yyerror()

{

  printf("\nEntered arithmetic expression is Invalid\n\n");

  flag=1;

}
```

Output :

```
C:\Users\malav\OneDrive\Documents\CDLab\Cycle2\Pg5>bison -dy
 variable.y
bison: cannot open file `variable.y': No such file or direct
ory

C:\Users\malav\OneDrive\Documents\CDLab\Cycle2\Pg5>bison -dy
 calc.y

C:\Users\malav\OneDrive\Documents\CDLab\Cycle2\Pg5>flex calc
.l

C:\Users\malav\OneDrive\Documents\CDLab\Cycle2\Pg5>gcc lex.y
y.c y.tab.c
```

```
C:\Users\malav\OneDrive\Documents\CDLab\Cycle2\Pg5>a

Enter Any Arithmetic Expression which can have operations Ad
dition, Subtraction, Multiplication, Divison, Modulus and Ro
und brackets:
4+5

Result=9

Entered arithmetic expression is Valid


C:\Users\malav\OneDrive\Documents\CDLab\Cycle2\Pg5>a

Enter Any Arithmetic Expression which can have operations Ad
dition, Subtraction, Multiplication, Divison, Modulus and Ro
und brackets:
5/10

Result=0

Entered arithmetic expression is Valid


C:\Users\malav\OneDrive\Documents\CDLab\Cycle2\Pg5>a

Enter Any Arithmetic Expression which can have operations Ad
dition, Subtraction, Multiplication, Divison, Modulus and Ro
und brackets:
5+

Entered arithmetic expression is Invalid
```