

**20BCE057**

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## **Practical 5:**

**To implement a calculator in YACC:**

**Syntax Directed**

**Translation**

p5.l file:

```
%{
/* Definition section */
#include<stdio.h>
#include "y.tab.h"
extern int yylval;
}%

/* Rule Section */
%%
[0-9]+ {
    yyval=atoi(yytext);
    return NUMBER;

}
[t] ;

[n] return 0;

. return yytext[0];

%%

int yywrap()
{
    return 1;
}
```

P5.y file:

```
%{
```

```

/* Definition section */
#include<stdio.h>
int flag=0;
%}

%token NUMBER

%left '+' '-'

%left '*' '/' '%'

%left '(' ')'

/* Rule Section */
%%

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;}

;

%%

//driver code
void main()
{

```

```

printf("\nEnter Any Arithmetic Expression which can have operations Addition, Subtraction,
Multiplication, Division, Modulus and Round brackets:\n");
yyvsparse();
if(flag==0)
printf("\nEnter arithmetic expression is Valid\n\n");
}

void yyerror()
{
printf("\nEnter arithmetic expression is Invalid\n\n");
flag=1;
}

```

Output:

```

@Devasy23 → /workspaces/College/SEM7/CC (master) $ lex p5.1
@Devasy23 → /workspaces/College/SEM7/CC (master) $ yacc -d p5.y
@Devasy23 → /workspaces/College/SEM7/CC (master) $ gcc lex.yy.c y.tab.c -w
@Devasy23 → /workspaces/College/SEM7/CC (master) $ ./a.out

Enter Any Arithmetic Expression which can have operations Addition, Subtraction, Multiplication, Division, Modulus and Round brackets:
99+99

Result=198

Entered arithmetic expression is Valid

@Devasy23 → /workspaces/College/SEM7/CC (master) $ ./a.out

Enter Any Arithmetic Expression which can have operations Addition, Subtraction, Multiplication, Division, Modulus and Round brackets:
2+2*3

Result=8

Entered arithmetic expression is Valid

@Devasy23 → /workspaces/College/SEM7/CC (master) $ ./a.out

Enter Any Arithmetic Expression which can have operations Addition, Subtraction, Multiplication, Division, Modulus and Round brackets:
2+2*

Entered arithmetic expression is Invalid

@Devasy23 → /workspaces/College/SEM7/CC (master) $

```