

**Name and Roll No : Yash Ginoya (20BCE075)**

**Course and Course code : Compiler Construction (2CS701)**

**Practical 5 :**

**To implement a calculator in YACC , Syntax Directed Transitions.**

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**Code: For file : calc.l**

```
%{
#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;
}
```

**Code: For file calc.y**

```
%{
/* 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");
```

```
    yyparse();
```

```
    if(flag==0)
```

```
        printf("\nEnter arithmetic expression is Valid\n\n");
```

```
}
```

```
void yyerror()
```

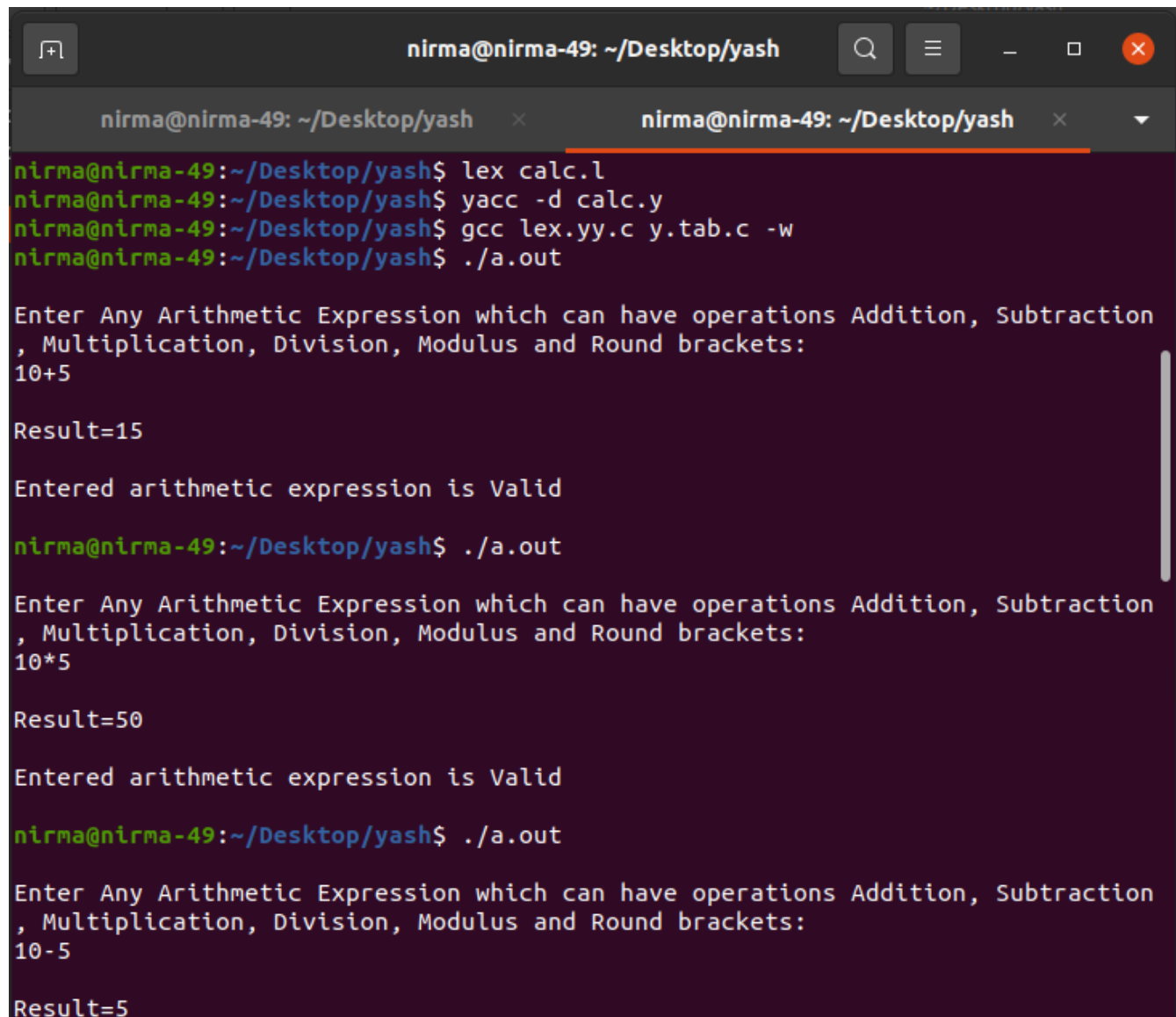
```
{
```

```
    printf("\nEnter arithmetic expression is Invalid\n\n");
```

```
    flag=1;
```

```
}
```

Output :



```
nirma@nirma-49: ~/Desktop/yash
nirma@nirma-49:~/Desktop/yash$ lex calc.l
nirma@nirma-49:~/Desktop/yash$ yacc -d calc.y
nirma@nirma-49:~/Desktop/yash$ gcc lex.yy.c y.tab.c -w
nirma@nirma-49:~/Desktop/yash$ ./a.out

Enter Any Arithmetic Expression which can have operations Addition, Subtraction
, Multiplication, Division, Modulus and Round brackets:
10+5

Result=15

Entered arithmetic expression is Valid

nirma@nirma-49:~/Desktop/yash$ ./a.out

Enter Any Arithmetic Expression which can have operations Addition, Subtraction
, Multiplication, Division, Modulus and Round brackets:
10*5

Result=50

Entered arithmetic expression is Valid

nirma@nirma-49:~/Desktop/yash$ ./a.out

Enter Any Arithmetic Expression which can have operations Addition, Subtraction
, Multiplication, Division, Modulus and Round brackets:
10-5

Result=5
```

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