

## 5b. Program to evaluate an arithmetic expression involving operators +, -, \* and /

### 5b.1

```
%{
#include "y.tab.h"

%}

%%

[0-9]+ {yylval=atoi(yytext);return NUM;}

[\t]    ;

\n      return 0;

.       return yytext[0];

%%

int yywrap() { }
```

### 5b.y

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

%token NUM

%left '+' '-'

%left '/' '*'

%%

expr:e {printf("Valid expression\n"); printf("Result : %d\n", $1); return 0;}

e:e+'e'      {$$=$1+$3;}
| e-'e'      {$$=$1-$3;}
| e'*'e      {$$=$1*$3;}
| e/'e'      {$$=$1/$3;}
| '('e')'    {$$=$2;}
| NUM        {$$=$1;}

%%

int main()
{
printf("\nEnter an arithmetic expression\n");

    yyparse();

    return 0;
}
```

```

}

int yyerror()
{
    printf("\nInvalid expression\n");
    return 0;
}

```

### Command for execution

lex 5b.l

yacc 5b.y

yacc -y -d 5b.y

gcc lex.yy.c y.tab.c -o 5b.exe

5b.exe

```

C:\windows\system32\cmd.exe

C:\Users\Prameetha\Desktop\SS\ss>lex 5b.l
C:\Users\Prameetha\Desktop\SS\ss>yacc 5b.y
C:\Users\Prameetha\Desktop\SS\ss>yacc -y -d 5b.y
C:\Users\Prameetha\Desktop\SS\ss>gcc lex.yy.c y.tab.c -o 5b.exe
y.tab.c: In function 'yyparse':
y.tab.c:583:16: warning: implicit declaration of function 'yylex' [-Wimplicit-function-declar
583 | # define YYLEX yylex ()
    |                  ^~~~~~
y.tab.c:1243:16: note: in expansion of macro 'YYLEX'
1243 |     yychar = YYLEX;
    |             ^~~~~~
y.tab.c:1415:7: warning: implicit declaration of function 'yyerror'; did you mean 'yyerrok'?
1415 |     yyerror (YY_("syntax error"));
    |     ^~~~~~
    |     yyerrok
C:\Users\Prameetha\Desktop\SS\ss>5b.exe
Enter an arithmetic expression
1+5+3
Valid expression
Result : 8

```