

Details :

- SRN : PES2UG20CS237
- Name : P K Navin Shrinivas
- Section : D

Lex file :

```
%{
#include <stdio.h>
#include "y.tab.h"
extern yylval;
}%
%%
[0-9]* {yylval = atoi(yytext);return NUMBER;}
"+" {return PLUS;}
"-" {return MINUS;}
"*" {return MULTIPLY;}
"/" {return DIVIDE;}
[)] {return LEFTBRACKET;}
[(] {return RIGHTBRACKET;}
\n {return LINEEND;}
. {;}
%%
int yywrap(void){
    printf("End of file");
    return 1;
}
```

Yacc file :

```
%{
    #include <stdio.h>
    #include<stdlib.h>
    #include<stdbool.h>
    int yylex();
    int yyerror();
}%
%%
%token NUMBER PLUS MINUS MULTIPLY DIVIDE LINEEND LEFTBRACKET
RIGHTBRACKET;
```

```

%left PLUS MINUS;
%left MULTIPLY DIVIDE;
%start input;
input:exp LINEEND{printf("%d\n", $$);return 0;}
exp:exp PLUS exp {$$=$1+$3;}
    |exp MINUS exp {$$=$1-$3;}
    |exp MULTIPLY exp {$$=$1*$3;}
    |exp DIVIDE exp { if($3==0){printf("Divide by Zero
error\n");exit(0);} else {$$=$1/$3;}
    |RIGHTBRACKET exp LEFTBRACKET {$$=$2;}
    |NUMBER{$$=$1;};
%%
int yyerror()
{
printf("error");
exit(0);
}
int main() {
while(true){
    yyparse();
}
return 1;
}

```

Compilation :

```

→ lab2 git:(main) × lex PES2UG20CS237.l
→ lab2 git:(main) × yacc -d PES2UG20CS237.y
→ lab2 git:(main) × gcc y.tab.c lex.yy.c
PES2UG20CS237.l:4:9: warning: type defaults to 'int' in declaration of 'yylval' [-Wimplicit-int]
    4 | extern  yyval;
      |         ^~~~~~
→ lab2 git:(main) ×

```

Testing :

<pre> → lab2 git:(main) × cat lab2-sums.txt 1+4 2-9 6+5 98-7 (12*67)-(98*56) 123+567 ((123+89)/34)*67 12/0 → lab2 git:(main) × </pre>	<pre> → lab2 git:(main) × ./a.out < lab2-sums.txt 5 -7 11 91 -4684 690 402 Divide by Zero error → lab2 git:(main) × </pre>
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