

```
// Name: AHAN BANDYOPADHYAY
```

```
// Roll No.: 211210008
```

```
// CSB353 Compiler Design Lab5
```

```
//http://portcse.blogspot.com/2017/11/yacc-program-to-check-whether.html
```

```
/* Q. Write a Yacc program to check if the entered statement is a valid arithmetic expression.*/
```

```
//declaration section
```

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

```
// Definition section
```

```
// token from lex file
```

```
%token NUMBER ID
```

```
// LL(1) grammar
```

```
%left '+' '-' // left associative
```

```
%left '*' '/'
```

```
%%
```

```
// grammar production rule
```

```
expr: expr '+' expr
```

```
      |expr '-' expr
```

```
      |expr '*' expr
```

```
      |expr '/' expr
```

```
      |'NUMBER'
```

```
      |'ID'
```

```
      |'('expr')'
```

```
      |NUMBER
```

```
      |ID
```

```
      ;
```

```
%%
```

```
//main function
int main()
{
    printf("Enter the arithmetic expression: \n");

    yyparse();

    printf("\nThe given arithmetic expression is VALID\n");
    exit(0);
}
```

```
//if error occurred
int yywrap(){}
int yyerror(char *s)
{
    printf("\nThe given arithmetic expression is INVALID\n");

    exit(0);
}
```

```
/*
// Name: AHAN BANDYOPADHYAY
// Roll No.: 211210008
// CSB353 Compiler Design Lab5
//http://portcse.blogspot.com/2017/11/yacc-program-to-check-whether.html
*/
```

/\* Q. Write a Yacc program to check if the entered statement is a valid arithmetic expression.\*/

/\* declaration section in this sections we will declare the different value and include the header file which we are using in this program \*/

```
%{
#include"y.tab.h"
extern int yylval;
%}
```

```
/* defined section */
```

```
%%
```

```
[0-9]+ {yyval=atoi(yytext); return NUMBER;} //this is send to the yacc code as token  
INTEGER
```

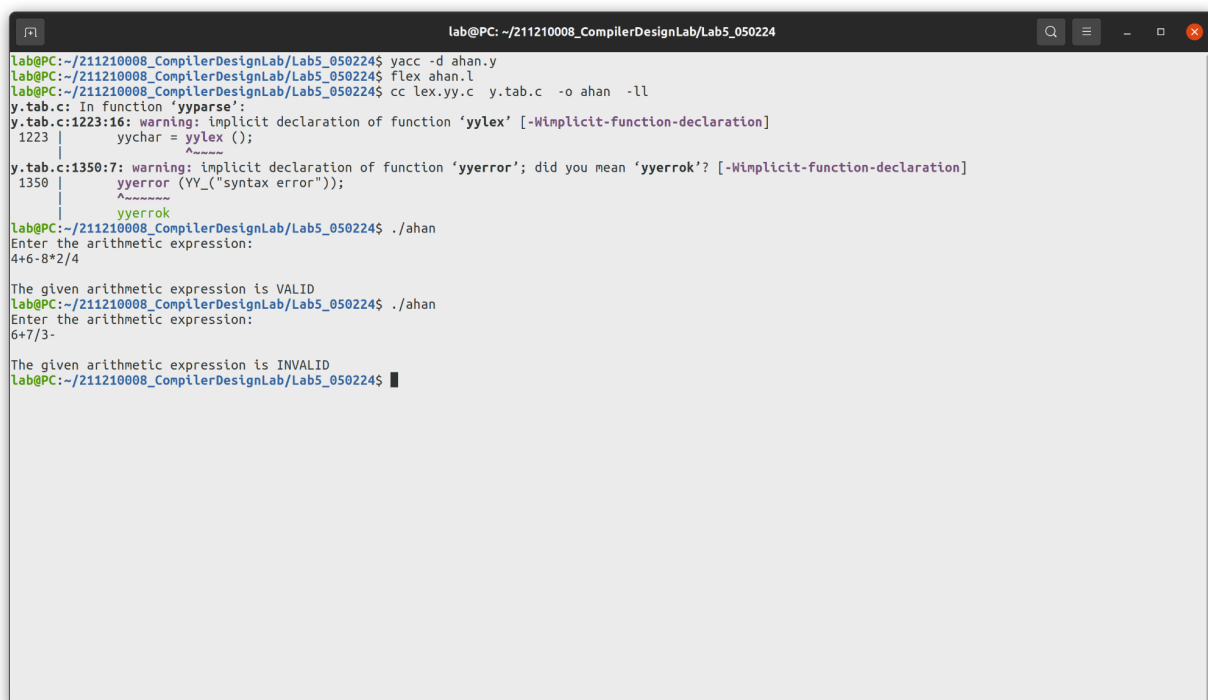
```
[a-zA-Z]+ {return ID;} //this is send to the yacc code as token  
ID
```

```
[\t]+ ;
```

```
\n {return 0;}
```

```
. {return yytext[0];}
```

```
%%
```



```
lab@PC: ~/211210008_CompilerDesignLab/Lab5_050224
lab@PC:~/211210008_CompilerDesignLab/Lab5_050224$ yacc -d ahan.y
lab@PC:~/211210008_CompilerDesignLab/Lab5_050224$ flex ahan.l
lab@PC:~/211210008_CompilerDesignLab/Lab5_050224$ cc lex.yy.c y.tab.c -o ahan -ll
y.tab.c: In function 'yyparse':
y.tab.c:1223:16: warning: implicit declaration of function 'yylex' [-Wimplicit-function-declaration]
1223 |         yychar = yylex ();
      |                ^~~~~~
y.tab.c:1350:7: warning: implicit declaration of function 'yyerror'; did you mean 'yyerrok'? [-Wimplicit-function-declaration]
1350 |         yyerror (YY_("syntax error"));
      |         ^~~~~~
      |         yyerrok
lab@PC:~/211210008_CompilerDesignLab/Lab5_050224$ ./ahan
Enter the arithmetic expression:
4+6-8*2/4
The given arithmetic expression is VALID
lab@PC:~/211210008_CompilerDesignLab/Lab5_050224$ ./ahan
Enter the arithmetic expression:
6+7/3-
The given arithmetic expression is INVALID
lab@PC:~/211210008_CompilerDesignLab/Lab5_050224$
```