

6a) Program to recognize a valid arithmetic expression that uses operators +, -, *, and /.

6a.l

```
% {  
#include "y.tab.h"  
% }  
%%  
[0-9]+(\.[0-9]+)? { return NUM; }  
[a-zA-Z][_a-zA-Z0-9]* { return ID; }  
\t ;  
\n { return 0; }  
. { return yytext[0]; }  
%%  
int yywrap() { }
```

6a.y

```
% {  
#include<stdio.h>  
% }  
%token NUM ID  
%left '+' '-'  
%left '*' '/'  
%%  
expr:e { printf("This is Valid Expression"); exit(0); }  
e:e+'e  
| e '-' e  
| e '*' e  
| e '/' e
```

```
| '('e')'  
| NUM  
| ID    ;  
%%
```

```
int main()  
{  
    printf("\nType the expression to be tested\n");  
    yyparse();  
    return 0;  
}
```

```
int yyerror()  
{  
    printf("\n Invalid expression! \n");  
    exit(0);  
}
```

Commands For Execution

```
lex 6b.l  
yacc 6b.y  
yacc -y -d 6b.y  
gcc lex.yy.c y.tab.c -o 6b.exe  
6b.exe
```

Output

```
C:\windows\system32\cmd.exe
C:\Users\Prameetha\Desktop\SS\ss>6a.exe
ec Type the expression to be tested
a+b
W This is Valid Expression
C:\Users\Prameetha\Desktop\SS\ss>6a.exe
J Type the expression to be tested
5*4
This is Valid Expression
C:\Users\Prameetha\Desktop\SS\ss>6a.exe

Type the expression to be tested
3*
= Invalid expression!
ex
.b
.ak
```