

```

%{
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int numberOfLine = 0;
%}

%option noyywrap

IDENTIFIER  [a-zA-Z_][a-zA-Z0-9_]*
INTEGER    0|[+|-]?[1-9][0-9]*([.][0-9]*)?[+|-]?0[.][0-9]*
STRING     ["'][a-zA-Z0-9_]+["']
CHAR       ['\'][a-zA-Z0-9_]['\']

%%

"HELLO"|"BYE"|"func"|"read"|"write"|"if"|"elif"|"else"|"loop"|"while"|"int"|"string"|"char"|"boo
l" {printf("Reserved word: %s\n", yytext);}
"+"|"-"|"*"|"/"|"%"|"<="|">="|"="|"!="|"<"|>"|"&&"|"||" {printf("Operator: %s\n", yytext);}
 "{"|"}"|"["|"]|"("|")"|"["|"]|":"|";"|"'"|"#"|"\" {printf("Separator: %s\n", yytext);}
{IDENTIFIER} {printf("Identifier: %s\n", yytext);}
{INTEGER} {printf("Integer: %s\n", yytext);}
{STRING} {printf("String: %s\n", yytext);}
{CHAR} {printf("Char: %s\n", yytext);}

[ \t]+ {}
[\n]+ {numberOfLine++;}

[0-9][a-zA-Z0-9_]* {printf("Invalid identifier at line %d\n", numberOfLine);}
[+|-]0 {printf("Invalid integer at line %d\n", numberOfLine);}
[+|-]?0[0-9]*([.][0-9]*)? {printf("Invalid integer at line %d\n", numberOfLine);}
['\'][a-zA-Z0-9_]{2,}['\']|['\'][a-zA-Z0-9_][a-zA-Z0-9_]['\'] {printf("Invalid char at line %d\n",
numberOfLine);}
["'][a-zA-Z0-9_]+| [a-zA-Z0-9_]+["'] {printf("Invalid string at line %d\n", numberOfLine);}
. {printf("ERROR! Invalid symbol: %s at line: %d\n", yytext, numberOfLine+1);}

%%

int main( argc, argv )
int argc;
char **argv;
{
    ++argv, --argc; /* skip over program name */
    if ( argc > 0 )
        yyin = fopen( argv[0], "r" );
    else
        yyin = stdin;

```

```
yylex();  
}
```

DEMO

Run these commands first.

```
C:\Users\andre\Documents\GitHub\flcd\lab8>flex lang.lxi  
C:\Users\andre\Documents\GitHub\flcd\lab8>gcc lex.yy.c
```

Run the executable with the filename you want to test. This is a successful case:

```
C:\Users\andre\Documents\GitHub\flcd\lab8>a.exe p1.txt  
Reserved word: HELLO  
Identifier: var  
Identifier: a  
Separator: #  
Reserved word: int  
Separator: ;  
Identifier: var  
Identifier: b  
Separator: #  
Reserved word: int  
Separator: ;  
Identifier: var  
Identifier: c  
Separator: #  
Reserved word: int  
Separator: ;  
Reserved word: if  
Identifier: a  
Operator: >=  
Identifier: b  
Operator: &&  
Identifier: a  
Operator: >=  
Identifier: c  
Separator: :  
Reserved word: write  
Separator: (  
Identifier: a  
Separator: )  
Separator: ;  
Reserved word: if  
Identifier: b  
Operator: >=  
Identifier: a  
Operator: &&  
Identifier: b  
Operator: >=  
Identifier: c  
Separator: :  
Reserved word: write  
Separator: (  
Identifier: b  
Separator: )  
Separator: ;  
Reserved word: if
```

This is an error case:

```
C:\Users\andre\Documents\GitHub\flcd\lab8>a.exe p1_err.txt
Reserved word: HELLO
Identifier: var
Identifier: a
Separator: #
Reserved word: int
Separator: ;
Identifier: var
Identifier: b
Separator: #
Reserved word: int
Separator: ;
Identifier: var
Identifier: c
Separator: #
Reserved word: int
Separator: ;
Identifier: var
Invalid identifier at line 4
```