

## Lex Specification File

```
%{  
  
#include <stdio.h>  
  
#include <stdlib.h>  
  
#include <string.h>  
  
int currentLine = 1;  
  
%}  
  
  
%option noyywrap  
  
  
IDENTIFIER      _[a-zA-Z0-9]+_*  
NUMBER_CONST    ^0|([+|-][1-9]([0-9])*)|([1-9]([0-9])*)*$  
STRING_CONST    ^"[a-zA-Z0-9_?!#*./%+=<>)]({ })+"  
CHAR_CONST      ^'[a-zA-Z0-9_?!#*./%+=<>)]({ }'  
  
  
%%  
  
"integer"|"char"|"string"|"FOR"|"WHILE"|"if"|"elseif"|"else"|"puts"|"break"|"return"|"next"|"end"  
    {printf("Reserved word: %s\n", yytext);}  
  
"+"|"-"|"*"|"/"|"%"| "<="|">="|"=="|"!="|"<"|">"|"="      {printf("Operator: %s\n", yytext);}  
  
"{"|"}"|"("|")"|"["|"]"|" ":"|";"|" ,"|""|"\""  
    {printf("Separator: %s\n", yytext);}  
  
{IDENTIFIER}          {printf("Identifier: %s\n", yytext);}  
  
{NUMBER_CONST}        {printf("Number: %s\n", yytext);}  
  
{STRING_CONST}        {printf("String: %s\n", yytext);}  
  
{CHAR_CONST}          {printf("Character: %s\n", yytext);}  
  
  
[ \t]+                {}
```

```
[\n]+ {currentLine++;}
```

```
[a-zA-Z0-9]+_ * {printf("Illegal identifier at line %d\n", currentLine);}
```

```
[+|-]0 {printf("Illegal numeric constant at line %d\n", currentLine);}
```

```
[+|-]?[0][0-9]*([.][0-9]*)? {printf("Illegal numeric constant at line %d\n", currentLine);}
```

```
['\"][a-zA-Z0-9 ]{2,}[\']|[\"][a-zA-Z0-9 ][a-zA-Z0-9 ][\'] {printf("Illegal character constant at line %d\n", currentLine);}
```

```
\"[a-zA-Z0-9_]+|[a-zA-Z0-9_]+\" {printf("Illegal string constant at line %d\n", currentLine);}
```

```
%%
```

```
void main(argc, argv)
```

```
int argc;
```

```
char** argv;
```

```
{
```

```
if (argc > 1)
```

```
{
```

```
FILE *file;
```

```
file = fopen(argv[1], "r");
```

```
if (!file)
```

```
{
```

```
fprintf(stderr, "Could not open %s\n", argv[1]);
```

```
exit(1);
```

```
}
```

```
yyin = file;
```

```
}
```

```
yylex();
```

```
}
```

## Demo

First run:

```
E:\AAFacultate\Anul 3 Semestrul 1\Formal Languages and Compiler Design\Labs\Lab8>flex lang.lxi
```

Then run:

```
E:\AAFacultate\Anul 3 Semestrul 1\Formal Languages and Compiler Design\Labs\Lab8>gcc lex.yy.c
```

Then run:

```
E:\AAFacultate\Anul 3 Semestrul 1\Formal Languages and Compiler Design\Labs\Lab8>a.exe Program1.txt
Reserved word: integer
Identifier: _nr1_
Operator: =
Illegal identifier at line 1
Reserved word: integer
Identifier: _nr2_
Operator: =
Illegal identifier at line 2
Reserved word: integer
Identifier: _nr3_
Operator: =
Illegal identifier at line 3
Reserved word: integer
Identifier: _nr4_
Operator: =
Illegal identifier at line 4
Reserved word: if
Identifier: _nr1_
Operator: >
Identifier: _nr2_
Identifier: _leftmax_
```

Or the error one:

```
Reserved word: if
Illegal identifier at line 9
Operator: >
Illegal identifier at line 9
Identifier: _rightmax_
Operator: =
```