Ex No: 3
**Date: 13/02/24**

# DEVELOP A LEXICAL ANALYZER TO RECOGNIZE TOKENS USING LEX TOOL

**AIM:**

To implement the program to identify C keywords, identifiers, operators, end statements like [], {} using LEX tool.

**ALGORITHM**

- Define patterns for C keywords, identifiers, operators, and end statements using regular expressions. Use %option noyywrap to disable the default behavior of yywrap.
- Utilize regular expressions to match patterns for C keywords, identifiers, operators, and end statements. Associate each pattern with an action to be executed when matched.
- Define actions to print corresponding token categories for matched patterns. Handle special cases like function declarations, numeric literals, and processor directives separately.
- Open the input file (sample.c in this case) for reading. Start lexical analysis using yylex() to scan the input and apply defined rules.
- Increment a counter (n) each time a newline character is encountered. Print the total number of lines at the end of the program execution.

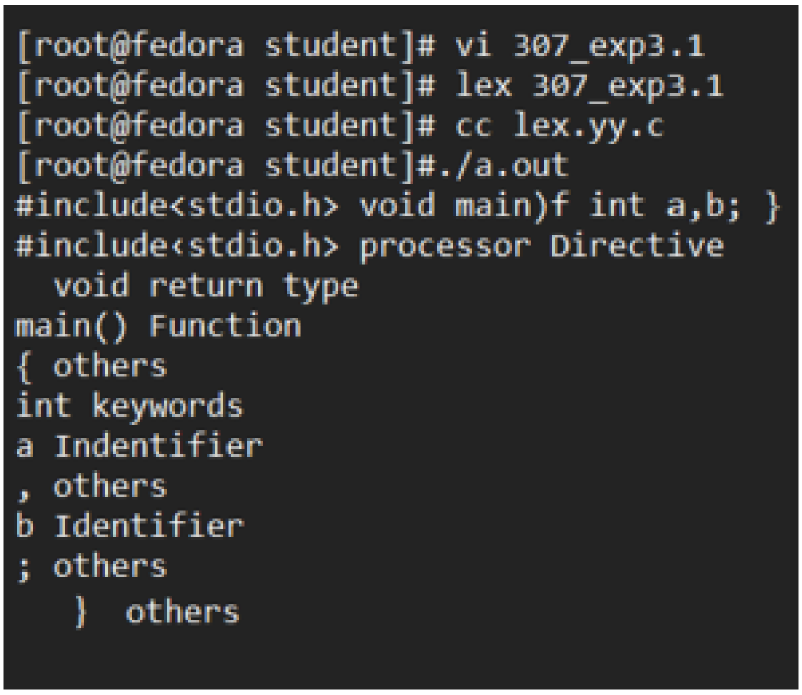
**PROGRAM**

```
%option noyywrap
letter [a-zA-Z]
digit [0-9]
id [_|a-zA-Z]
AO [+|-|/|%|*]
RO [<|>|<=|>=|==]
pp [#]
%{
int n=0;
%}

%%
"void" printf("%s return type\n",yytext);
{letter}*[(][)] printf("%s Function\n",yytext);
"int"|"float"|"if"|"else" printf("%s keywords\n",yytext);
"printf" printf("%s keywords\n",yytext);
```

```
{id}({id}|{digit})* printf("%s Identifier\n",yytext);
{digit}{digit}* printf("%d Numbers\n",yytext);
{AO} printf("%s Arithmetic Operators\n",yytext); {RO} printf("%s Relational
Operators\n",yytext);
```

```
{pp}{letter}*[<]{letter}*[.]{letter}[>] printf("%s processor
Directive\n",yytext); [\n] n++;
"."|","|"}"|"{"|";" printf("%s others\n",yytext);

%%
int main()
{
        yyin=fopen("sample.c","r");
        yylex();
        printf("No of Lines %d\n",n);
}
```

**OUTPUT:**



```
[root@fedora student]# vi 307_exp3.1
[root@fedora student]# lex 307_exp3.1
[root@fedora student]# cc lex.yy.c
[root@fedora student]#./a.out
#include<stdio.h> void main)f int a,b; }
#include<stdio.h> processor Directive
  void return type
main() Function
{ others
int keywords
a Indentifier
, others
b Identifier
; others
   } others
```

**RESULT:** To implement the program to identify C keywords, identifiers, operators, end statements like [], {} using LEX tool has been verifyed