Ex No: 3
Date:

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.

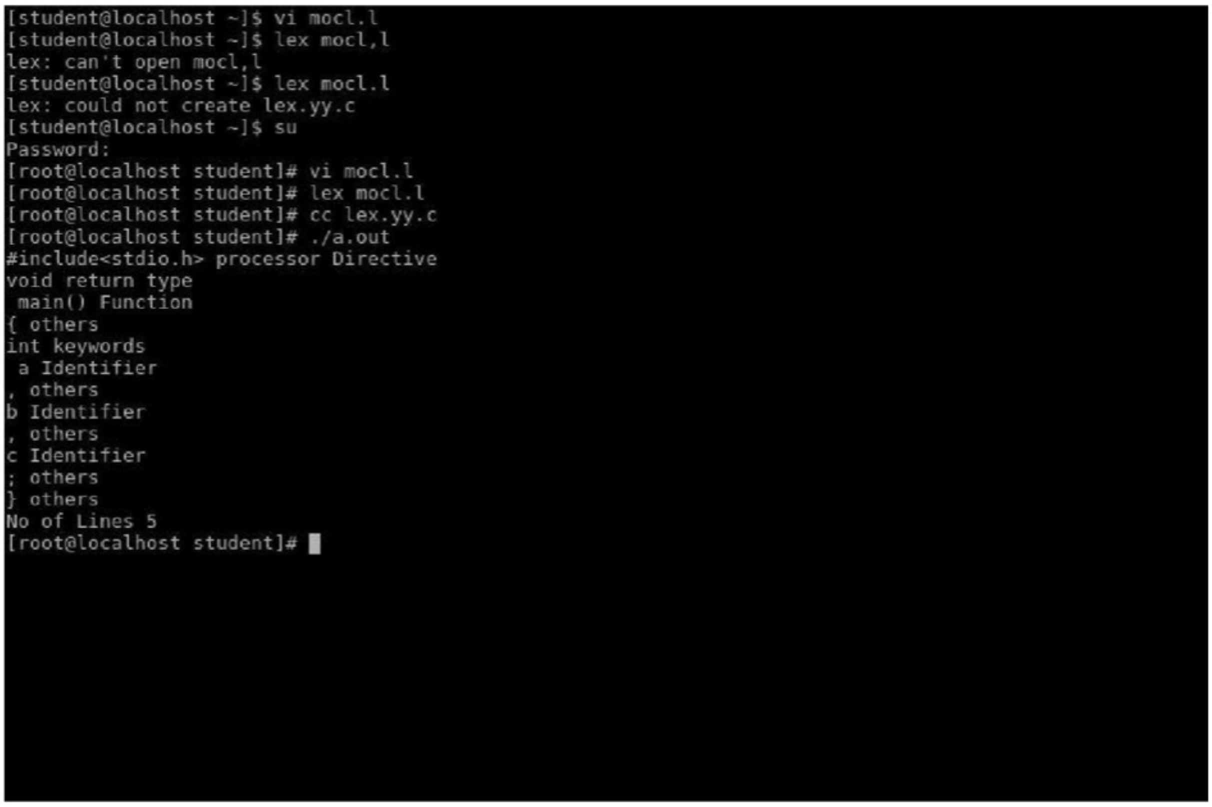
ALGORITHM:

- Configure lexer options with `%option noyywrap`.
- Define regular expressions for tokens like `letter`, `digit`, and `id`.
- Initialize a counter variable `n` to track line count.
- Define rules to identify language constructs such as keywords, function names, identifiers, numbers, operators, and preprocessor directives.
- Increment the line count for each newline character encountered.
- In the `main()` function, open the file "sample.c", perform lexical analysis with `yylex()`, and print the total number of lines processed. ●

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:



```
[student@localhost ~]$ vi mocl.l
[student@localhost ~]$ lex mocl,l
lex: can't open mocl,l
[student@localhost ~]$ lex mocl.l
lex: could not create lex.yy.c
[student@localhost ~]$ su
Password:
[root@localhost student]# vi mocl.l
[root@localhost student]# lex mocl.l
[root@localhost student]# cc lex.yy.c
[root@localhost student]# ./a.out
#include<stdio.h> processor Directive
void return type
 main() Function
{ others
int keywords
 a Identifier
, others
b Identifier
, others
c Identifier
; others
} others
No of Lines 5
[root@localhost student]# 
```

RESULT: