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:

```
→ exp3 lex 278.l
→ exp3 cc lex.yy.c
278.l: In function ‘yylex’:
278.l:18:8: warning: format ‘%d’ expects argument of type ‘int’, but argument 2 has type ‘char *’ [-Wformat=]
   18 | {digit}{digit}*         printf("%d Numbers\n",yytext);
      |        ^~~~~~~~~~~~~~ ~~~~~~
      |                       |
      |                       char *
→ exp3 ./a.out
#include<conio.h> processor Directive
void return type
 main()  Function
{ others
  int keywords
 k Identifier
, others
llm Identifier
, others
kl Identifier
; others
} others
No of Lines 8
```

RESULT: