RESULT:

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:
- 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;
%}

%%
```

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```
"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 294_ex3.31
[root@fedora student]# lex 294_ex3.1
[root@fedora student]# cc lex.yy.c
[root@fedora student]# ./a.out
#include<stdio.h> void main(){ int a,b;
#include<stdio.h> processor Directive
void return type
main() Function
{ others
int keywords
a Identifier
, others
b Identifier
; others
} others
```

RESULT:

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