EXP NO – 3

DEVELOP A LEXICAL ANALYZER TO RECOGNIZE A FEW PATTERNS IN C. (EX.IDENTIFIERS, CONSTANTS, COMMENTS, AND OPERATORS , ETC.) USING LEX TOOL.

AIM:

To develop a Lexical Analyzer using the LEX tool that recognizes different tokens in a given C program snippet, including Identifier, Constants, Comments, Operators, Keywords, Special Symbols.

PROGRAM: LEX.L

```
%{
#include <stdio.h>
%}

%option noyywrap

%%

"int"|"float"|"char"|"double"|"if"|"else"|"return"|"for"|"while"|"do"    { printf("Keyword: %s\n", yytext); }
[a-zA-Z_][a-zA-Z0-9_]*   { printf("Identifier: %s\n", yytext); }
[0-9]+(\.[0-9]+)?        { printf("Constant: %s\n", yytext); }
"++"|"--"|"=="|"!="|"<="|">="|"&&"|"||"|"="|"+"|"-"|"*"|"/"|"<"|">"   { printf("Operator: %s\n", yytext); }
"//".*                   { printf("Single-line Comment: %s\n", yytext); }
"/*"[^*]*\**([^*/][^*]*\**)"/"  { printf("Multi-line Comment: %s\n", yytext); }
[\[\]{}();,:]            { printf("Special Symbol: %s\n", yytext); }
[\t\n ]+                 ; // ignore whitespace
.                        { printf("Unrecognized Character: %s\n", yytext); }
%%

int main() {
    printf("Enter a C code snippet:\n");
    yylex();
    return 0;
}
```

KAMALI K A - 220701118

OUTPUT

```
kamali@Kamali:~$ lex lex.l
kamali@Kamali:~$ gcc lex.yy.c -o lexer
kamali@Kamali:~$ ./lexer
Enter a C code snippet:
#include<stdio.h> int main(){ printf("hello"); return 0; }
Unrecognized Character: #
Identifier: include
Operator: <
Identifier: stdio
Unrecognized Character: .
Identifier: h
Operator: >
Keyword: int
Identifier: main
Special Symbol: (
Special Symbol: )
Special Symbol: {
Identifier: printf
Special Symbol: (
Unrecognized Character: "
Identifier: hello
Unrecognized Character: "
Special Symbol: )
Special Symbol: ;
Keyword: return
Constant: 0
Special Symbol: ;
Special Symbol: }
```

RESULT:

Thus the above program reads a C code snippet, tokenizes it using LEX rules, recognizes and categorizes keywords, identifiers, constants, operators, comments, and special symbols, and then displays each token along with its type.

KAMALI K A - 220701118