NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR

Cachar, Assam

B.Tech. VIth Sem

Subject Code: CS-316

Subject Name: Compiler Design Lab

Submitted By:

Name   : Subhojit Ghimire

Sch. Id.   : 1912160

Branch   : CSE – B

1.   **Write a lex program to identify keywords, symbols and operators.**
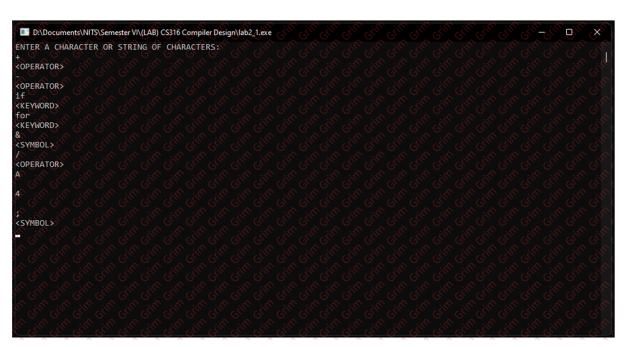
➔   **CODE:**

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

%%
if|else|for|while|do|switch|int|char|float { printf ("keywords ");}
[a-zA-Z0-9]([a-zA-Z]|[0-9])* {}
"+"|"-"|"*"|"/"|"%" { printf ("operators ");}
. { printf ("symbols ");}
%%

yywrap(){
return 1;
}

main(){
printf ("write something \n");
yylex();
}
```

OUTPUT:

2. **Write a lex program, which takes a C program as input, and display the list of identifiers and operators.**

➔ **CODE:**

```
%{
#include<stdio.h>
#include<string.h>
char store[100][100];
int ii=0;
%}

%%
"\n" {++ii;}
"auto"|"double"|"main"|"int"|"struct" {strcat (store[ii], "<KEYWORD>
");}
"break"|"else"|"long"|"switch"|"case"|"printf" {strcat (store[ii],
"<KEYWORD> ");}
"enum"|"register"|"typedef"|"char" {strcat (store[ii], "<KEYWORD> ");}
"for"|"signed"|"void"|"do"|"if" {strcat (store[ii], "<KEYWORD> ");}
"extern"|"return"|"union"|"continue" {strcat (store[ii], "<KEYWORD>
");}
"static"|"while"|"default"|"goto" {strcat (store[ii], "<KEYWORD> ");}
"sizeof"|"volatile"|"const"|"float"|"short" {strcat (store[ii],
"<KEYWORD> ");}
"#include"[ \<a-z.A-Z\>]* {strcat (store[ii], "<HEADER FILE>");}
[{;}] {strcat (store[ii], " <SEPARATOR>");}
[,()] {strcat (store[ii], " <SEPARATOR> ");}
[+-/=*%] {strcat (store[ii], "<OPERATOR> ");}
[a-zA-Z][a-zA-Z0-9_]* {strcat (store[ii], "<IDENTIFIER> ");}
[0-9]* {strcat (store[ii], "<VALUE> ");}
. {}
%%

int yywrap() {
return 1;
}

int main () {
printf ("WRITE YOUR C PROGRAM:\n");
yylex();
int jj;
for (jj=0; jj<ii; ++jj)
printf ("%s ", store[jj]);
return 0;
}
```

OUTPUT:

```
D:\Documents\NITS\Semester VI\(LAB) CS316 Compiler Design\lab2_2.exe                    —    □    ×
WRITE YOUR C PROGRAM:
#include <stdio.h>
int main () {
        int ii = 0;
        for (ii; ii < 10; ++ii) {
                printf ("Hello");
        }
        return 0;
}
^Z
<HEADER FILE>
 <KEYWORD> <KEYWORD>  <SEPARATOR>  <SEPARATOR>  <SEPARATOR>
 <KEYWORD> <IDENTIFIER> <OPERATOR> <VALUE>  <SEPARATOR>
 <KEYWORD>  <SEPARATOR> <IDENTIFIER>  <SEPARATOR>
<IDENTIFIER> <VALUE>  <SEPARATOR>
<OPERATOR> <OPERATOR> <IDENTIFIER>  <SEPARATOR>  <SEPARATOR>
 <KEYWORD>  <SEPARATOR> <IDENTIFIER>  <SEPARATOR>  <SEPARATOR>
  <SEPARATOR>
 <KEYWORD> <VALUE>  <SEPARATOR>
  <SEPARATOR>
```

NOTE: **For linux users, the EOF trigger is Ctrl+D**
        For Windows users, the EOF trigger is Ctrl+Z+Return/Enter.
(when to use EOF trigger? After you write your expression in q2 program, the program pauses, i.e., valid/invalid statements are not executed instantly. Trigger EOF to execute statements after yylex())