NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR

Cachar, Assam

B.Tech. VIth Sem

Subject Code: CS-316

Subject Name: Compiler Design Lab

Submitted By:

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Branch : CSE – B

1. Write a lex program to identify keywords, symbols and operators.

➔ **CODE:**

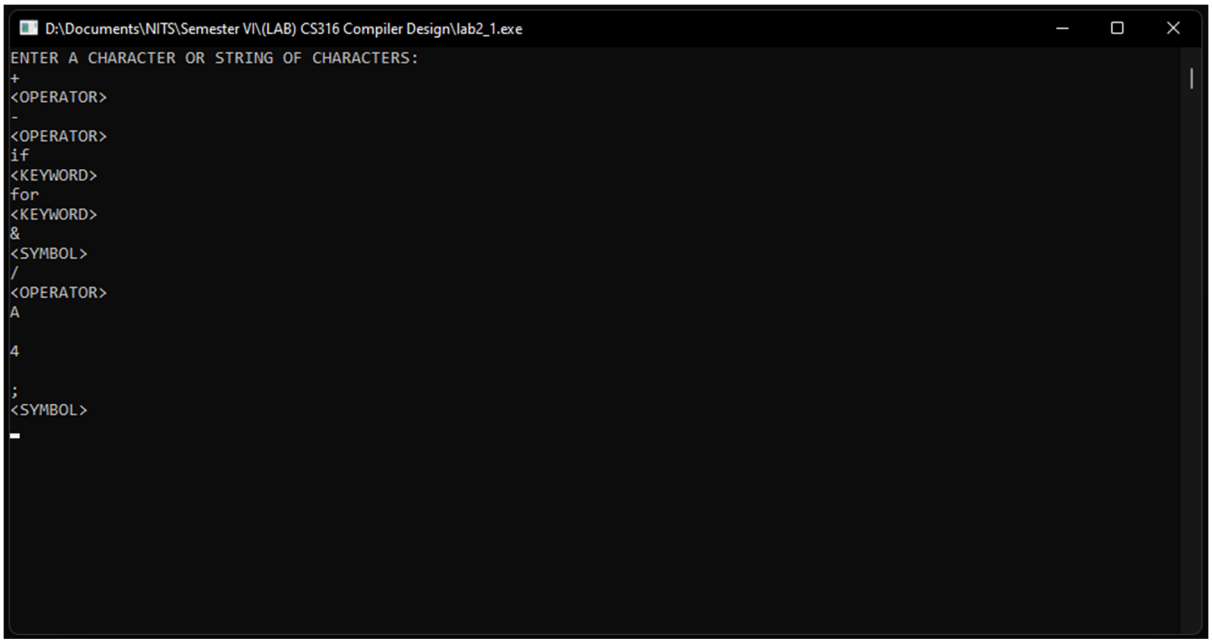
```
%{
    #include <stdio.h>
%}

%%
if|else|for|while|do|switch|int|char|float { printf ("<KEYWORD>");}
[a-zA-Z]([a-zA-Z]|[0-9])* { /*<IDENTIFIER>*/}
[0-9]* { /*<NUMBER>*/}
"+"|"-"|"*"|"/"|"%" { printf ("<OPERATOR>");}
. { printf ("<SYMBOL>");}
%%

yywrap(){
    return 1;
}

main (){
    printf ("ENTER A CHARACTER OR STRING OF CHARACTERS:\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>
    #include <conio.h>
    char store[50][500];
    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>\n");}
[{;}] {strcat (store[ii], " <SEPARATOR>\n");}
[,()] {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]);
    getch();
    return 0;
}
```

OUTPUT:

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())