

## PRACTICAL-3

**Aim : Write a C program to develop a lexical analyzer to recognize a few tokens in C.(Note: Read the small C program from file and recognize a tokens like Identifiers, Operators, Comments, Constants, Special Symbols etc.)**

**Code:**

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<ctype.h>
int isKeyword(char buffer[]){
    char keywords[32][10] = {"auto","break","case","char","const","continue","default",
    "do","double","else","enum","extern","float","for","goto",
    "if","int","long","register","return","short","signed",
    "sizeof","static","struct","switch","typedef","union",
    "unsigned","void","volatile","while"};
    int i, flag = 0;
    for(i = 0; i < 32; ++i){
        if(strcmp(keywords[i], buffer) == 0){
            flag = 1;
            break;
        }
    }
    return flag;
}
int main(){
    char ch, buffer1[100], buffer2[100], operators[] = "+-/*=", special_char[] =
"!@#$$%^&(){}[];:<>?^\\\"; // \\\"";
    FILE *fp;
    int i,j=0,k=0, l=0;
    fp = fopen("code.c", "r");
    if(fp == NULL){
        printf("error while opening the file\n");
    }
```

```
    exit(0);
}
while((ch = fgetc(fp)) != EOF){
    for(i = 0; i < 6; ++i){
        if(ch == operators[i])
            printf("%c is operator\n", ch);
    }
    for(i = 0; i < 23; ++i){
        if(ch == special_char[i])
            printf("%c is special character\n", ch);
    }
    if(isalpha(ch) || ch == '\'' || ch == '\"){
        buffer1[j++] = ch;
    }
    else if((ch == ' ' || ch == '\n' || ch == '=' || ch == '(' || ch == ';') && (j != 0)){
        buffer1[j] = '\0';
        j = 0;
        if(isKeyword(buffer1) == 1)
            printf("%s is keyword\n", buffer1);
        else if(buffer1[0] == "")
            printf("%s is string\n", buffer1);
        else if(buffer1[0] == "\")
            printf("%s is character\n", buffer1);
        else
            printf("%s is identifier\n", buffer1);
    }
    if(isdigit(ch) || ch == '.'){
        buffer2[k++] = ch;
    }
    else if((ch == '\n' || ch == '=' || ch == ';') && (k != 0)){
        buffer2[k] = '\0';
        k=0;
        printf("%s is constant\n",buffer2);
    }
}
fclose(fp);
return 0;
}
```

## Input

```
void ex()
{
    int b=10;
    printf("%d hello",b);
}
```

## Output

```
void is keyword
( is special character
ex is identifier
) is special character
{ is special character
int is keyword
= is operator
b is identifier
; is special character
10 is constant
( is special character
printf is identifier
% is operator
% is special character
"d is string
) is special character
; is special character
hello"b is identifier
} is special character

...Program finished with exit code 0
Press ENTER to exit console.
```