

# Compiler lab

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## 1 Introduction

A compiler is a special program that processes statements written in a particular programming language and turns them into machine language or "code" that a computer's processor uses. Typically, a programmer writes language statements in a language such as Pascal or C one line at a time using an editor. The file that is created contains what are called the source statements. The programmer then runs the appropriate language compiler, specifying the name of the file that contains the source statements.

## 2 Details of assignment 1

In this first problem, we need to remove comments and white spaces from a given C program file. The file should be taken as input. The output file will contain much simpler texts, with comments and white spaces filtered out.

## 3 Details of assignment 2

The second problem is a bit complex. The filtered file from the first problem will now go as input and the lexemes such as keywords, identifiers, operators etc have to be separated. Then lexemes should be categorized under the categories kw for keyword, id for identifiers etc.

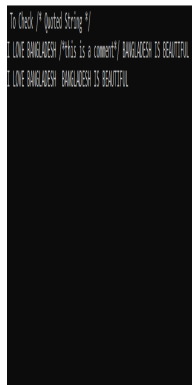
## 4 Screenshots of code

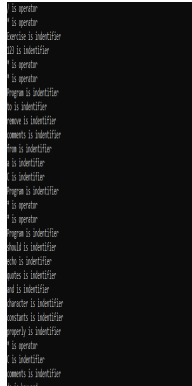
```

1  /* Exercise 1.23
2  *
3  * Program to remove comments from a C Program.
4  *
5  * Program should echo quotes and character comments
6  * C comments do not exist
7  *
8  */
9
10 #include <stdio.h>
11
12 void remove_comments(char c);
13 void remove_comments(void);
14 void echo_quote(char c);
15
16 int main(void)
17 {
18     int c;
19     printf("To Check /* Quoted String */\n");
20     while ((c = getchar()) != EOF)
21         remove_comments(c);
22     return 0;
23 }
24
25 void remove_comments(char c)
26 {
27     int d;
28     if (c == '/')
29     {
30         if (getchar() == '/')
31             remove_comments();
32         else if (d == '/')
33         {
34             putchar(c);
35             remove_comments();
36         }
37         else
38         {
39             putchar(c);
40             putchar(d);
41         }
42     }
43 }
44
45 #include <stdio.h>
46 #include <stdlib.h>
47 #include <string.h>
48 #include <ctype.h>
49
50 int is_operator(char buffer[])
51 {
52     char operators[] = "+-/*%<br>";
53     int i;
54     for (i = 0; i < sizeof(operators) - 1; i++)
55         if (buffer[i] == operators[i])
56             return 1;
57     return 0;
58 }
59
60 int main()
61 {
62     char ch, buffer[10], operators[] = "+-/*%<br>";
63     FILE *fp;
64     int i, j;
65     if (fp = fopen("program.txt", "r"))
66     {
67         printf("Error while opening the file\n");
68         exit(1);
69     }
70     while ((ch = fgetc(fp)) != EOF)
71     {
72         due to i < i; i++
73         if (ch == operators[i])
74             printf("%c is operator\n", ch);
75         if (isalnum(ch))
76             buffer[i++] = ch;
77         else if (ch == ' ' || ch == '\n' || ch == '\t')
78             buffer[i] = '\0';
79         i = 0;
80     }
81     if (isOperator(buffer))
82         printf("%c is %s\n", buffer[i], buffer[i]);
83 }

```

## 5 Screenshots of outputs





## 6 Acknowledgement

I would like to thanks our honorable teacher Khan Md. Hasib sir for his time and support he has given for this project