



Green University of Bangladesh
Department of Computer Science and Engineering (CSE)
Faculty of Sciences and Engineering
Semester: (Spring, Year:2024), B.Sc. in CSE (Day)

Lab Report # 02
Course Title: Compiler Lab

Course Code: CSE 306 Section: 222 D2

Lab Experiment Name: Write a C program to separate tokens.

Student Details

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Submission Date : 03/03/2024
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Lab Report Status

Marks:

Signature:.....

Comments:.....

Date:.....

1. EXPERIMENT NAME:

- Write a program to recognize comments and how many letters are in these comments.
- Write a program to recognize the types of comments.
- Write a program to find the number of lines where the comments are written.

2. OBJECTIVES

- ★ To recognize comments in code
- ★ Identify the types of comments
- ★ To find the line number where comments appear.

3. INTRODUCTION

Comments are an important part of any programming language. They allow developers to add notes and explanations to their code without affecting the execution. Comments make code more readable and maintainable.

4. ALGORITHM

Task 1:

1. Read each line of code as a string
2. Check if the string starts with // or /* to detect comments
3. If a comment is detected, count the number of letters in it and print
4. Move to the next line and repeat

Task 2:

1. Read each line of code as a string
2. Check if the string starts with //
- If yes, print "Single-line comment"
3. Check if the string starts with /*
- If yes, check if it ends with */
- If yes, print "Multi-line comment"
- If no, move to next line and continue checking
4. Move to next line and repeat

Task 3:

1. Initialize line number counter to 1
2. Read each line of code as a string
3. Check if the string starts with // or /* to detect comments
4. If a comment is detected, print the current line number
5. Increment line number counter and move to next line

5. PROCEDURE

Implementation:

```
#include <stdio.h>
#include <string.h>
#include <ctype.h>

int main() {
    char com[100];
    int i = 2, a = 0;
    int letterCount = 0;
    int lineCount = 1;

    printf("Enter comment: ");

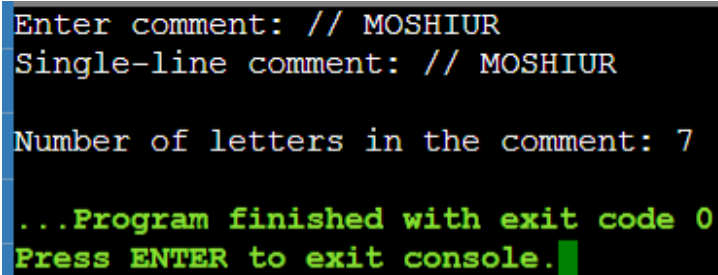
    while (fgets(com, sizeof(com), stdin) != NULL) {
        if (com[0] == '/') {
            if (com[1] == '/') {
                printf("Single-line comment at line %d: %s", lineCount, com);
                for (i = 2; i < strlen(com); i++) {
                    if (isalpha(com[i])) {
                        letterCount++;
                    }
                }
            }
        } else if (com[1] == '*') {
            printf("Multi-line comment starts at line %d: %s", lineCount, com);
            for (i = 2; i < strlen(com); i++) {
                if (com[i] == '*' && com[i + 1] == '/') {
                    a = 1;
                    break;
                }
                if (isalpha(com[i])) {
                    letterCount++;
                }
            }
        } else {
        }
        } else {
        }

    if (a == 0 && (com[1] == '/' || com[1] == '*')) {
```

```
    printf("\nNumber of letters in the comment: %d\n", letterCount);  
    break;  
}  
  
    lineCount++;  
}  
  
    return 0;  
}
```

6. OUTPUT

Single line comment with number of letters:



```
Enter comment: // MOSHIUR  
Single-line comment: // MOSHIUR  
  
Number of letters in the comment: 7  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

Recognize comments and how many letters are in this comments.

```
main.c
15     printf("Single-line comment: %s", com);
16     for (i = 2; i < strlen(com); i++) {
17         if (isalpha(com[i])) {
18             letterCount++;
19         }
20     }
21     } else if (com[1] == '*') {
22     printf("Multi-line comment: %s", com);
23     for (i = 2; i < strlen(com); i++) {
24         if (com[i] == '*' && com[i + 1] == '/') {
25             a = 1;
26             break;
27         }
28         if (isalpha(com[i])) {
29             letterCount++;
30         }
31     }
32     } else {
33     printf("It is not a comment");
34     }
35     } else {
36     printf("It is not a comment");
37     }
38
39     if (a == 0) {
40     printf("\nNumber of letters in the comment: %d", letterCount);
41     }
42
43     return 0;
44 }
45

input
Enter comment: //MOSHIUR
Single-line comment: //MOSHIUR

Number of letters in the comment: 7

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

number of line where the comments are written:

```
Enter comment: /* Md. Moshir Rahman 221 */
Multi-line comment starts at line 1: /* Md. Moshir Rahman 221 */
```

7. ANALYSIS AND DISCUSSION

The main steps involved in analyzing comments are:

1. Detecting comments by checking for // and /* */ delimiters.
2. Counting letters in single-line comments simply by counting string length after //.
3. Tracking line numbers and printing when comments are detected.