LAB REPORT

Report No: 04

Course Code: CSE332

Course Title: Compiler Design Lab

Submitted By:

Md. Najmus Sakib Nahid
ID : 213-15-4575
Section : 60_A2
Dept. of CSE
Daffodil International University

Submitted To:

Ms. Fatama Jannat Tisha
Lecturer
Dept. of CSE
Daffodil International University

Submission Date : 31/10/2024

1. Problem Statement: Write a C program that will Remove special character from a string.

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

void remove_special_characters(const char *str, char *result) {
    int j = 0;
    for (int i = 0; str[i] != '\0'; i++) {

        if (isalnum(str[i])) {
            result[j++] = str[i];
        }
    }
    result[j] = '\0';
}

int main() {
    char str[100];
    char result[100];

    printf("Enter the Identifier input string:\n");
    fgets(str, sizeof(str), stdin);

    str[strcspn(str, "\n")] = '\0';

    remove_special_characters(str, result);

    printf("Output:\n%s\n", result);

    return 0;
}
```

```
sakibnjr@fedora ~/Desktop/compiler/lab4 cd "/home/sakibnjr/Desktop/
olve1
Enter the Identifier input string:
Daff$$od@i#l
Output:
Daffodil
sakibnjr@fedora ~/Desktop/compiler/lab4
```

2. Problem Statement: Write a C program that will count the articles of a given string.

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

```c
#include <ctype.h>
#include <stdlib.h>

void count_articles(const char *str, int *count_a, int *count_an, int
*count_the) {
    char *token;
    char *temp_str = strdup(str);

    *count_a = *count_an = *count_the = 0;

    token = strtok(temp_str, " ");
    while (token != NULL) {

        if (strcasecmp(token, "a") == 0) {
            (*count_a)++;
        } else if (strcasecmp(token, "an") == 0) {
            (*count_an)++;
        } else if (strcasecmp(token, "the") == 0) {
            (*count_the)++;
        }
        token = strtok(NULL, " ");
    }
    free(temp_str);
}

int main() {
    char str[256];
    int count_a, count_an, count_the;

    printf("Enter the Identifier input string:\n");
    fgets(str, sizeof(str), stdin);
    str[strcspn(str, "\n")] = '\0';

    count_articles(str, &count_a, &count_an, &count_the);

    printf("Output:\n");
    printf("Count of 'a': %d\n", count_a);
    printf("Count of 'an': %d\n", count_an);
    printf("Count of 'the': %d\n", count_the);

    return 0;
}
```

```
● sakibnjr@fedora ~/Desktop/compiler/lab4 cd "/home/sakibnjr/Desktop/compiler/
olve2
Enter the Identifier input string:
The quick brown fox jumps over the lazy dog a an the
Output:
Count of 'a': 1
Count of 'an': 1
Count of 'the': 3
```

3. Problem Statement: Write a C program that will take multiple lines as input and identify the comments if there any.

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

#define MAX_LINES 100
#define MAX_LENGTH 256

void identify_comments(char lines[MAX_LINES][MAX_LENGTH], int line_count) {
   for (int i = 0; i < line_count; i++) {
       char *single_line_comment = strstr(lines[i], "//");
       char *multi_line_comment_start = strstr(lines[i], "/*");
       char *multi_line_comment_end = strstr(lines[i], "*/");
       if (single_line_comment != NULL) {
           printf("Single-line comment: %s\n", single_line_comment);
       }

       if (multi_line_comment_start != NULL) {

           printf("Multi-line comment: %s", multi_line_comment_start);

           if (multi_line_comment_end != NULL) {
               printf("\n");
           } else {

               for (i++; i < line_count; i++) {
                   printf("%s", lines[i]);

                   if (strstr(lines[i], "*/") != NULL) {
                       break;
                   }
               }
           }
       }
   }
}

int main() {
   char lines[MAX_LINES][MAX_LENGTH];
   int line_count = 0;

      printf("Enter the Identifier input (press Ctrl+D or Ctrl+Z to end
input):\n");

           while (line_count < MAX_LINES && fgets(lines[line_count],
sizeof(lines[line_count]), stdin) != NULL) {
       line_count++;
   }

   identify_comments(lines, line_count);

   return 0;
}
```

```
sakibnjr@fedora ~/Desktop/compiler/lab4 cd "/home/sakibnjr/Desktop/compiler/lab4/" && gcc solve3.c
olve3
Enter the Identifier input (press Ctrl+D or Ctrl+Z to end input):
// single line
printf("Hello");
/* multi line */
Single-line comment: // single line

Multi-line comment: /* multi line */

sakibnjr@fedora ~/Desktop/compiler/lab4
```