LAB REPORT

Course Code: CSE332

Course Title: Compiler Design Lab

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Submission Date : 29/10/2024

1. Problem Statement: Write a C Program to concatenate two strings.

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

int main() {
   char str1[100], str2[100];

   printf("String 1: ");
   fgets(str1, sizeof(str1), stdin);
   str1[strcspn(str1, "\n")] = '\0';

   printf("String 2: ");
   fgets(str2, sizeof(str2), stdin);
   str2[strcspn(str2, "\n")] = '\0';
   strcat(str1, str2);

   printf("Concatenated string: %s\n", str1);

   return 0;
}
```

```
sakibnjr@fedora ~/Desktop/compiler cd "/home/sakibnjr/Desktop/compiler/" &
c solve1.c -o solve1 && "/home/sakibnjr/Desktop/compiler/"solve1
String 1: Hi, I am Sa
String 2: kib Nahid ID:4575
Concatenated string: Hi, I am Sakib Nahid ID:4575
sakibnjr@fedora ~/Desktop/compiler
```

2. Problem Statement: Write a C Program to Scan and Count the number of characters, words, and lines (input string from command prompt).

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

int main() {
   char input[1000];
   int characters = 0, words = 0, lines = 0;
   int i = 0;
   int in_word = 0;

   printf("Enter the Identifier input string (End with Ctrl+D in Linux or
Ctrl+Z in Windows):\n");
```

```c
    while ((input[i] = getchar()) != EOF) {
        characters++;

        if (input[i] == '\n') {
            lines++;
            if (in_word) {
                words++;
                in_word = 0;
            }
        }

        if (isspace(input[i])) {
            if (in_word) {
                words++;
                in_word = 0;
            }
        } else {
            in_word = 1;
        }

        i++;
    }
     if (in_word) {
        words++;
        lines++;
    }

    if (characters > 0 && lines == 0) {
        lines = 1;
    }

    printf("\nNo of characters: %d\n", characters);
    printf("No of words: %d\n", words);
    printf("No of lines: %d\n", lines);

    return 0;
}
```

```
sakibnjr@fedora ~/Desktop/compiler cd "/home/sakibnjr/Desktop/compiler/" && g
c solve2.c -o solve2 && "/home/sakibnjr/Desktop/compiler/"solve2
Enter the Identifier input string (End with Ctrl+D in Linux or Ctrl+Z in Windows):
Hey there
ABCD xyz
one two three

No of characters: 33
No of words: 7
No of lines: 3
sakibnjr@fedora ~/Desktop/compiler
```

3. Problem Statement: Write a C Program to Scan and Count the number of characters, words, and lines (input string from file).

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

int main() {
    FILE *file;
    char filename[100];
    char ch;
    int characters = 0, words = 0, lines = 0;
    int in_word = 0;

    printf("Enter the Identifier input file: ");
    scanf("%s", filename);

    file = fopen(filename, "r");
    if (file == NULL) {
        printf("Error: Could not open file %s\n", filename);
        return 1;
    }

    while ((ch = fgetc(file)) != EOF) {
        characters++;

        if (ch == '\n') {
            lines++;
            if (in_word) {
                words++;
                in_word = 0;
            }
        }

        if (isspace(ch)) {
            if (in_word) {
                words++;
                in_word = 0;
            }
        } else {
            in_word = 1;
        }
    }

    if (in_word) {
        words++;
        lines++;
    }
```

```c
    if (characters > 0 && lines == 0) {
        lines = 1;
    }

    fclose(file);

    printf("\nNo of characters: %d\n", characters);
    printf("No of words: %d\n", words);
    printf("No of lines: %d\n", lines);

    return 0;
}
```

```
sakibnjr@fedora ~/Desktop/compiler cd "/home/sakibnjr/Desktop/
Enter the Identifier input file: /home/sakibnjr/Desktop/msg.txt

No of characters: 48
No of words: 10
No of lines: 4
sakibnjr@fedora ~/Desktop/compiler
```