Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering
Semester: (Summer, Year: 2022), BSC in CSE (Day)

Course Title: Structured Programming
Course Code: CSE 103 Section: 221D4

Assignment

Student Details

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Submission Date: **11 September, 2022**
Course Teacher's Name: **Humayan Kabir Rana**

[For Teachers use only: Don't Write Anything inside this box]

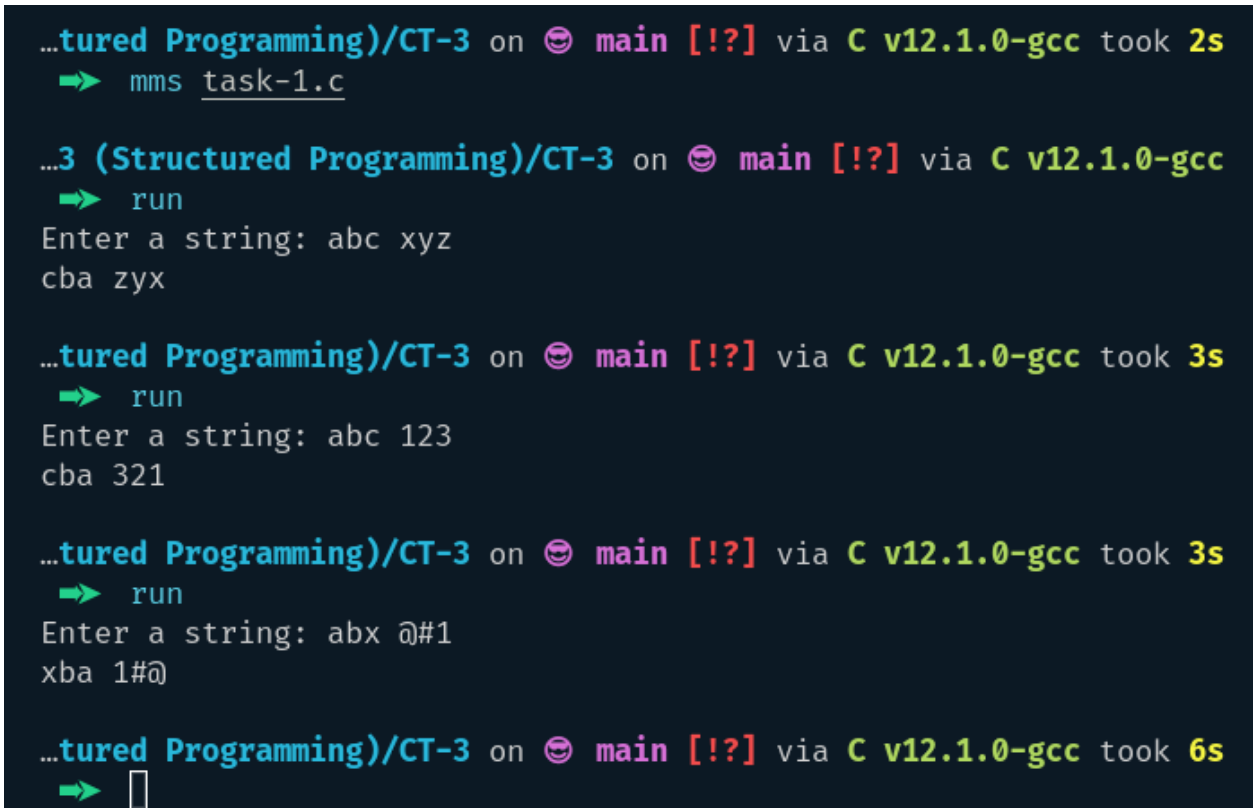
Lab Project Status

Marks: …… **Signature: .....**

Comments: ..... **Date: .....**

Task-1:

```c
// Write a C program that takes a string as input and reverses each of the word
without using built in function

#include <stdio.h>

int main() {
#ifndef ONLINE_JUDGE
freopen("input.txt", "r", stdin);
freopen("output.txt", "w", stdout);
#endif
    char str1[100], str2[100];
    printf("Enter a string: ");
    scanf("%s", str1);
    scanf("%s", str2);

    int i = 0, j = 0;
    // 1st string
    while (str1[i] != '\0') {
        i++;
    }
    i--;
    while (i >= 0) {
        printf("%c", str1[i]);
        i--;
    }
    printf(" ");

    // 2nd string
    while (str2[j] != '\0') {
        j++;
    }
    j--;

    while (j >= 0) {
        printf("%c", str2[j]);
        j--;
    }
    printf("\n");
return 0;
}
```


…tured Programming)/CT-3 on main [!?] via C v12.1.0-gcc took 2s
mms task-1.c
…3 (Structured Programming)/CT-3 on main [!?] via C v12.1.0-gcc
run
Enter a string: abc xyz
cba zyx
…tured Programming)/CT-3 on main [!?] via C v12.1.0-gcc took 3s
run
Enter a string: abc 123
cba 321
…tured Programming)/CT-3 on main [!?] via C v12.1.0-gcc took 3s
run
Enter a string: abx @#1
xba 1#@
…tured Programming)/CT-3 on main [!?] via C v12.1.0-gcc took 6s

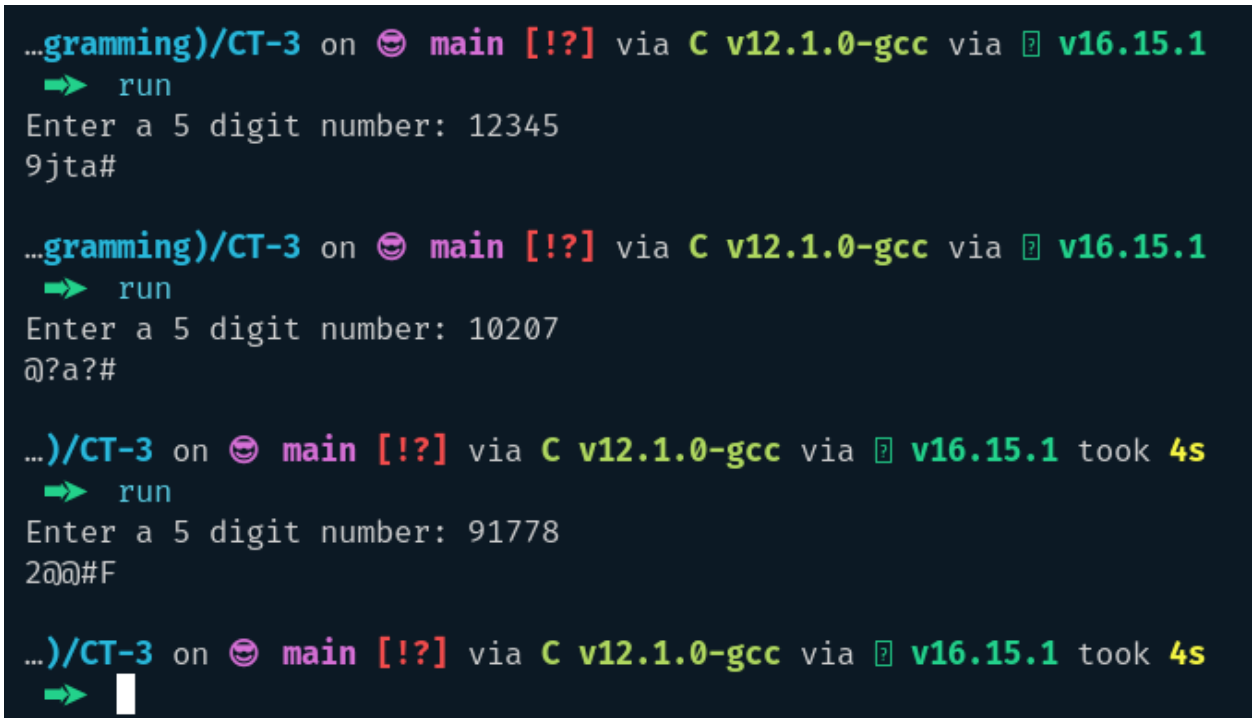
Task-2:

```c
// Write a C program that takes a string as input and finds the length of that
string using recursive function

#include <stdio.h>

int length(char str[]) {
    if (str[0] == '\0') {
        return 0;
    }
    return 1 + length(str + 1);
}

int main(){
#ifndef ONLINE_JUDGE
freopen("input.txt", "r", stdin);
freopen("output.txt", "w", stdout);
#endif
    char str[100];
    printf("Enter a string: ");
    scanf("%[^\n]s", str);

    printf("Length of the string is %d\n", length(str));
    return 0;
}
```

```
…tured Programming)/CT-3 on  main [!?] via C v12.1.0-gcc took 6s
 ➜ mms task-2.c

…3 (Structured Programming)/CT-3 on  main [!?] via C v12.1.0-gcc
 ➜ run
Enter a string: abc xyz
Length of the string is 7

…ured Programming)/CT-3 on  main [!?] via C v12.1.0-gcc took 11s
 ➜ run
Enter a string: abc 12
Length of the string is 6

…tured Programming)/CT-3 on  main [!?] via C v12.1.0-gcc took 2s
 ➜ run
Enter a string: abx@#
Length of the string is 5

…tured Programming)/CT-3 on  main [!?] via C v12.1.0-gcc took 6s
 ➜
```

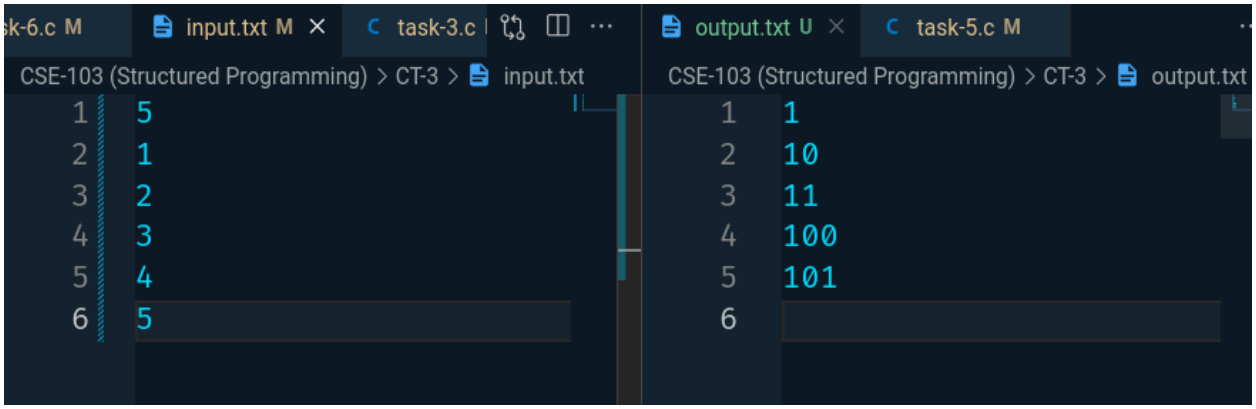
Task-4:

```c
// Cyber Security is a key issue to protect our daily documents and applications stored and submitted
in various platforms. Having a robust encryption system to our generated password is very essential in
this perspective. Your task is to create a nice and smooth encrypted password generator. Follow the
instructions carefully to build the password generator.

#include <stdio.h>

void password_generator(char ch){
    printf("%c", ch);
}
void character_extractor(int n){
    int temp = n;
    int i = 0;
    char ch;
    while(temp != 0){
        int digit = temp % 10;
        temp /= 10;
        if(digit == 1){
            // printf("%c", '#');
            ch = '#';
        }else if(digit == 2){
            // printf("%c", 'a');
            ch = 'a';
        }else if(digit == 3){
            // printf("%c", 't');
            ch = 't';
        }else if(digit == 4){
            // printf("%c", 'j');
            ch = 'j';
        }else if(digit == 5){
            // printf("%c", '9');
            ch = '9';
        }else if(digit == 6){
            // printf("%c", 'E');
            ch = 'E';
        }else if(digit == 7){
            // printf("%c", '@');
            ch = '@';
        }else if(digit == 8){
            // printf("%c", '2');
            ch = '2';
        }else if(digit == 9){
            // printf("%c", 'F');
            ch = 'F';
        }else if(digit == 0){
            // printf("%c", '?');
            ch = '?';
        }
        i++;
        password_generator(ch);
    }
}
void Input_Number(int n){
    // length of the number
    int len = 0;
    int temp = n;
    while(temp != 0){
        temp /= 10;
        len++;
    }
    if(len != 5){
        printf("Wrong input\n");
    }else{
        character_extractor(n);
    }
}
int main(){
    int n;
    printf("Enter a 5 digit number: ");
    scanf("%d", &n);
    Input_Number(n);
    printf("\n");
    return 0;
}
```


…gramming)/CT-3 on main [!?] via C v12.1.0-gcc via v16.15.1
run
Enter a 5 digit number: 12345
9jta#
…gramming)/CT-3 on main [!?] via C v12.1.0-gcc via v16.15.1
run
Enter a 5 digit number: 10207
@?a?#
…)/CT-3 on main [!?] via C v12.1.0-gcc via v16.15.1 took 4s
run
Enter a 5 digit number: 91778
2@@#F
…)/CT-3 on main [!?] via C v12.1.0-gcc via v16.15.1 took 4s

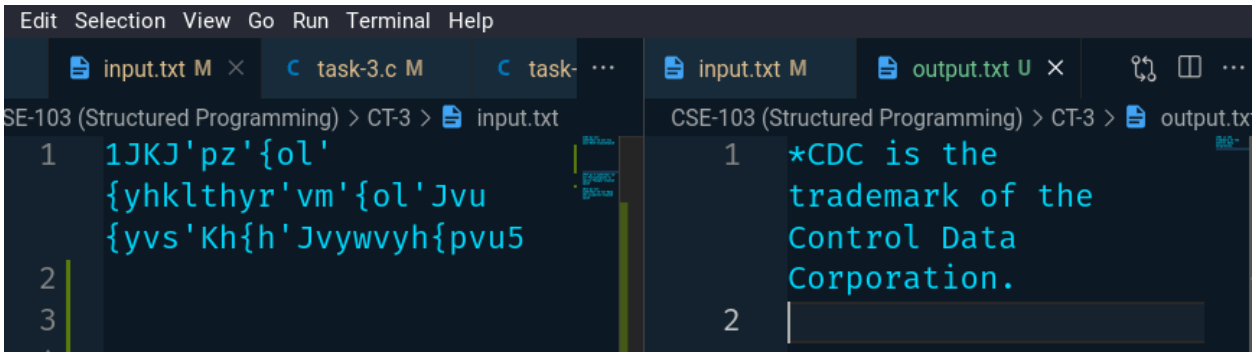
Task-5:

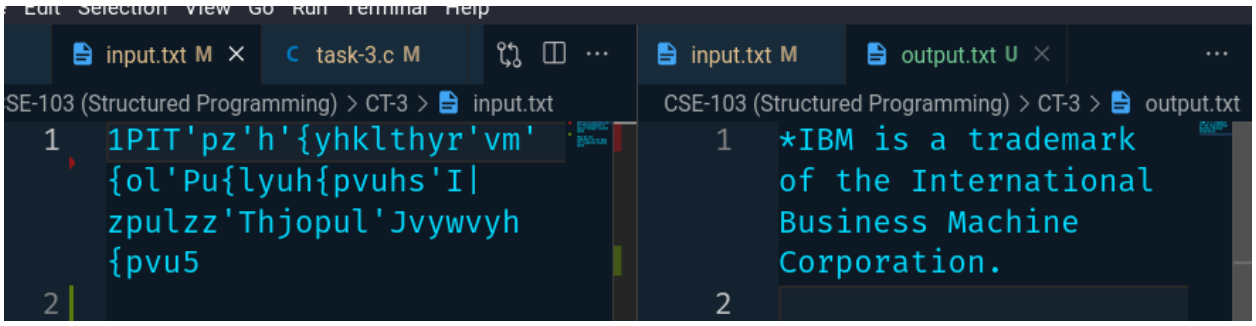
```c
// Write a program using recursive function that can convert a Decimal number to
its equivalent Binary number.

#include <stdio.h>

int decToBinder(int n){
    if(n == 0){
        return 0;
    }
    else{
        return (n % 2) + 10 * decToBinder(n / 2);
    }
}

int main() {
#ifndef ONLINE_JUDGE
freopen("input.txt", "r", stdin);
freopen("output.txt", "w", stdout);
#endif
    int t;
    scanf("%d", &t);

    while(t--){
        int n;
        scanf("%d", &n);
        printf("%d\n", decToBinder(n));
    }

    return 0;
}
```



Task-6:

```c
// Write a program that will correctly decode a set of characters into a valid
message. Your program should read a given file of a simple coded set of characters
and print the exact message that the characters contain. The code key for this
simple coding is a one for one character substitution based upon a single
arithmetic manipulation of the printable portion of the ASCII character set.

#include <stdio.h>

int main(){
#ifndef ONLINE_JUDGE
freopen("input.txt", "r", stdin);
freopen("output.txt", "w", stdout);
#endif

    // decode the message
    char str[100];
    scanf("%[^\n]s", str);

    int i = 0;
    while (str[i] != '\0') {
        str[i] = str[i] - 7;
        i++;
    }

    printf("%s\n", str);
    return 0;
}
```


Edit Selection View Go Run Terminal Help
input.txt M
task-3.c M
input.txt M
output.txt U
CSE-103 (Structured Programming) > CT-3 > input.txt
CSE-103 (Structured Programming) > CT-3 > output.tx
1JKJ'pz'{ol'
{yhklthyr'vm'{ol'Jvu
{yvs'Kh{h'Jvywvyh{pvu5
*CDC is the
trademark of the
Control Data
Corporation.


input.txt M
task-3.c M
input.txt M
output.txt U
CSE-103 (Structured Programming) > CT-3 > input.txt
CSE-103 (Structured Programming) > CT-3 > output.txt
1PIT'pz'h'{yhklthyr'vm'
{ol'Pu{lyuh{pvuhs'I|
zpulzz'Thjopul'Jvywvyh
{pvu5
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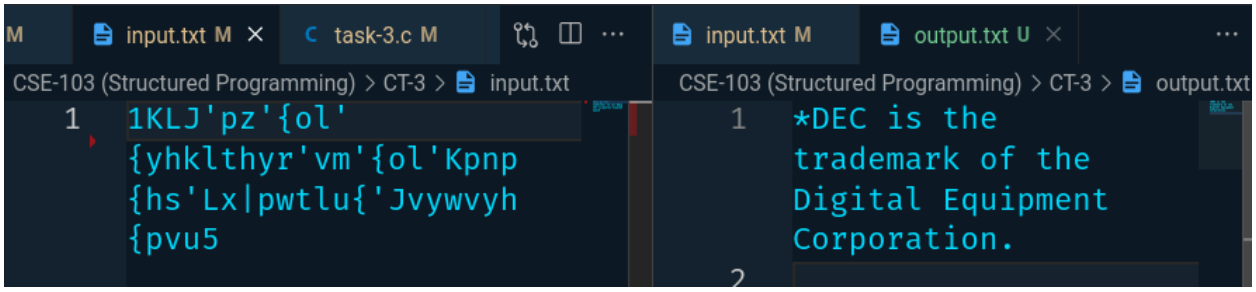
input.txt M
task-3.c M
input.txt M
output.txt U
CSE-103 (Structured Programming) > CT-3 > input.txt
CSE-103 (Structured Programming) > CT-3 > output.txt
1KLJ'pz'{ol'
{yhklthyr'vm'{ol'Kpnp
{hs'Lx|pwtlu{'Jvywvyh
{pvu5
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