Course: CL1002 – Programming Fundamentals.

Instructor: Sir Muhammad Usman.

Submitted by: Muhammad Rehan

Roll no. 22P-9106

Class: BSE-1A (Fall 2022)

Lab Task no. 11

Date: November 30th, 2022.

Department of Computer Science

Sir, I know I updated it late. I forgot to upload it on time. I know, my bad 😐.

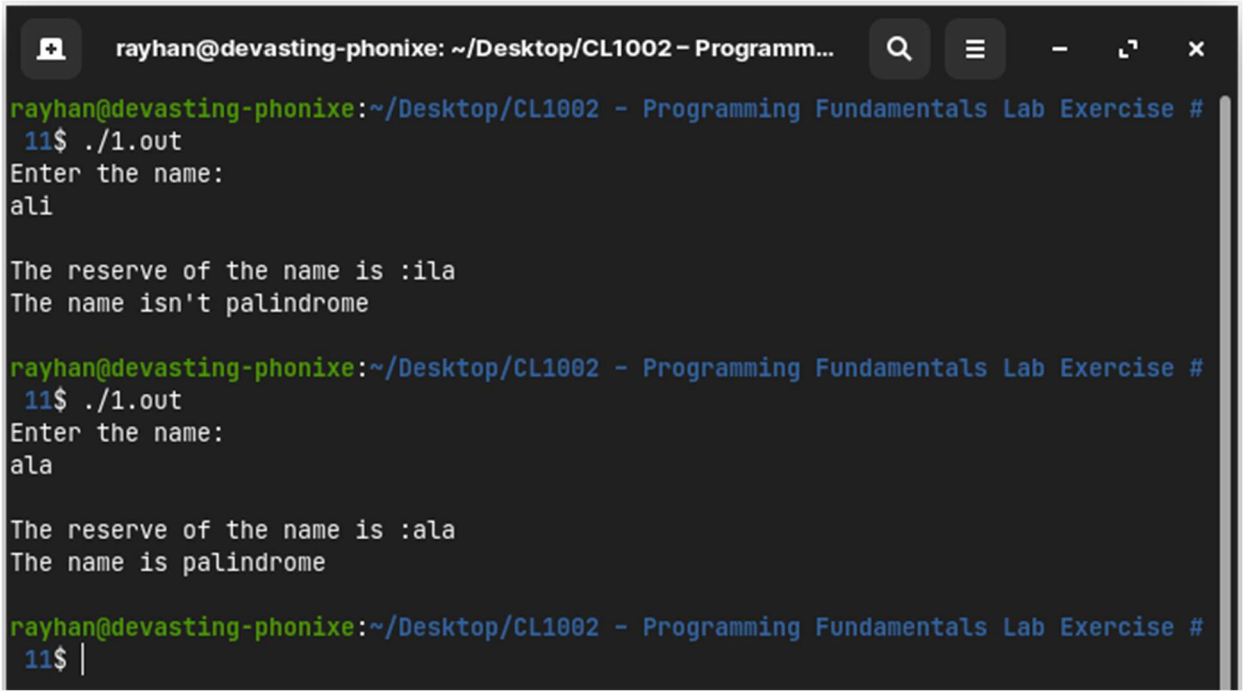
Problem 01:

Code:

Sir, this Code works on all kinds of strings with no tolerance or chance of error.

```c
#include <stdio.h>
#include <string.h>
void palindrome(char name[]);
char reserve();
int main()
{
    char name[50];
    puts("Enter the name:");
    scanf("%s",name);
    palindrome(name);
    return 0;
}
void palindrome(char name[])
{
    int equal;
    int size = strlen(name);
    char reserve[50];
    for (int i = 0; i < size; i++)
    {
        reserve[i] = name[(size - i) - 1];
    }
    printf("\nThe reserve of the name is :%s", reserve);
    equal=strcmp(name, reserve);
    if (equal == 0)
    {
        puts("\nThe name is palindrome\n");
    }
    else
    {
        puts("\nThe name isn't palindrome\n");
    }
}
```

Screenshots:



Problem 02:

Code:

Sir, This Code checks everything and even tells you if no character is repeated by showing the message, "No character is frequent in the string.".The special thing is that while joining two strings, it shows you the resultant string with a space between them.

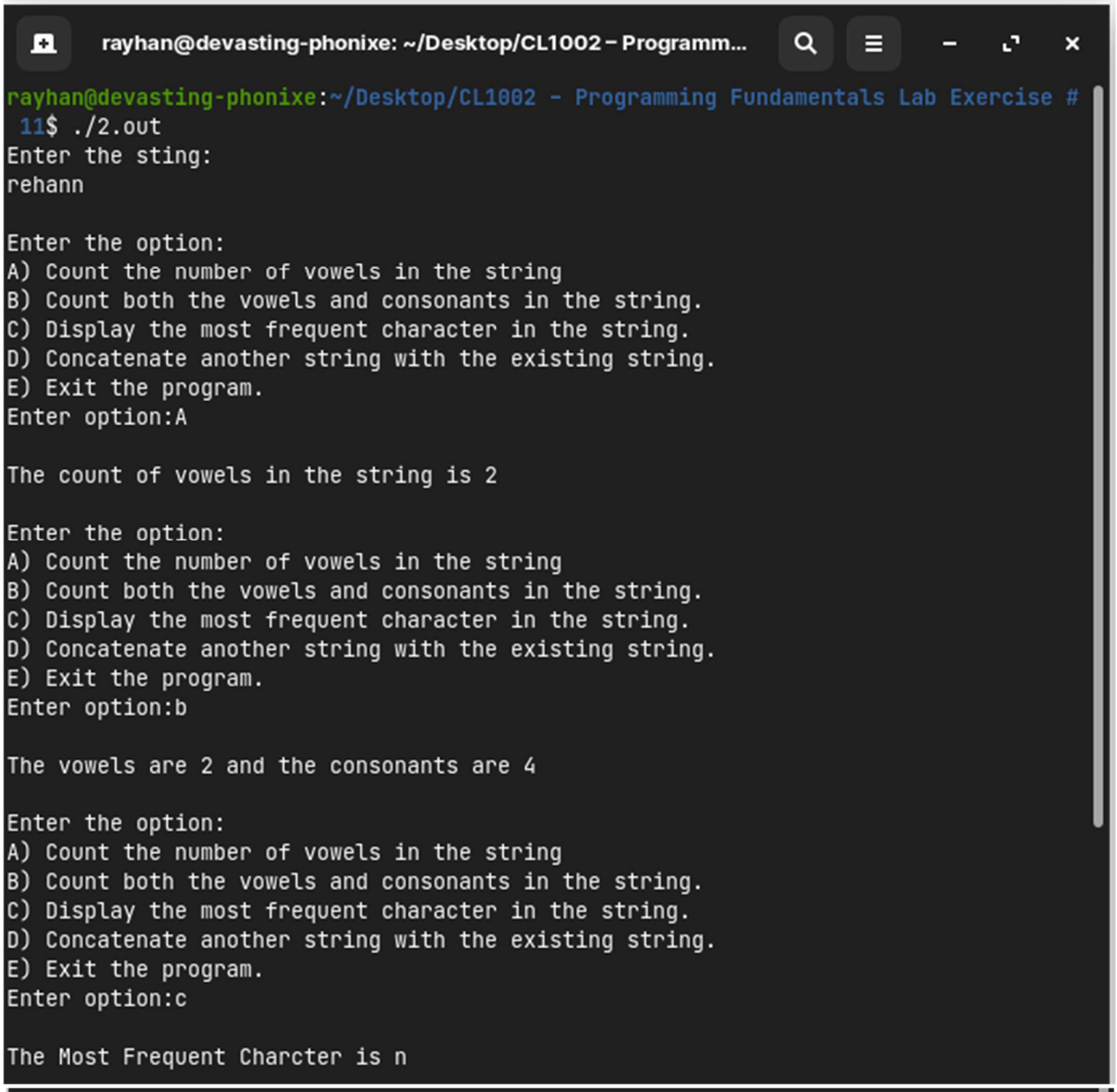
```c
//Code Created by Muhammad Rehan, 22P-9106, BSSE 1A,
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
void operations(char string[], int size);
void vowel(char string[], int size);
void vandc(char string[], int size);
void Frechar(char string[], int size);
void Cont(char string[], int size);
int main()
{
    char string[50];
    puts("Enter the sting:");
    scanf("%s", string);
    int size = strlen(string);
    operations(string, size);
    return 0;
```

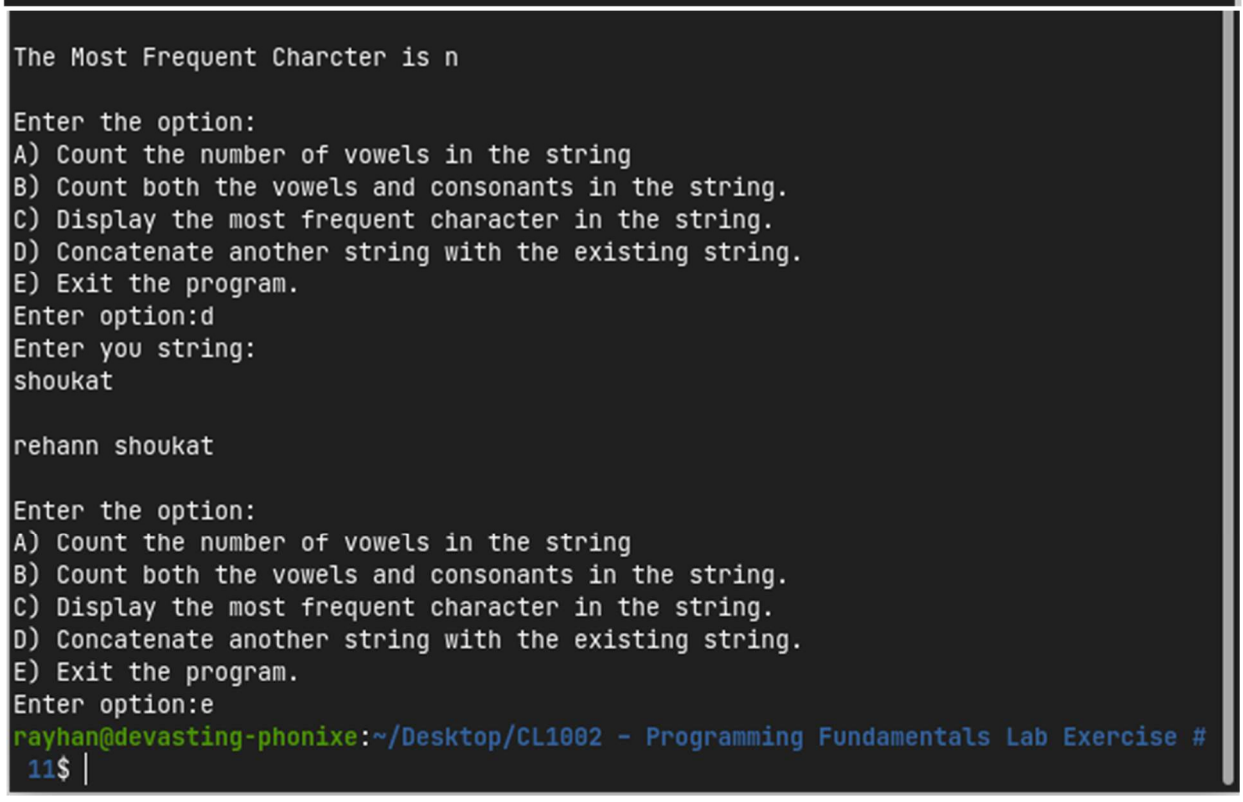
```
}
void operations(char string[], int size)
{

    printf("\nEnter the option:\nA) Count the number of
vowels in the string\nB) Count both the vowels and
consonants in the string.\nC) Display the most frequent
character in the string.\nD) Concatenate another string
with the existing string.\nE) Exit the program.");
    char option;
    printf("\nEnter option:");
    scanf("\n%c", &option);
    switch (option)
    {
    case 'A':
        vowel(string, size);
        break;
    case 'a':
        vowel(string, size);
        break;
    case 'B':
        vandc(string, size);
        break;
    case 'b':
        vandc(string, size);
        break;
    case 'C':
        Frechar(string, size);
        break;
    case 'c':
        Frechar(string, size);
        break;
    case 'D':
        Cont(string, size);
        break;
    case 'd':
        Cont(string, size);
        break;
    case 'E':
        exit(1);
        break;
```

```
    case 'e':
        exit(1);
        break;
    default:
        puts("\nEnter a valid input.\n");
        break;
    }}
void vowel(char string[], int size)
{
    int count = 0;
    char vow[] = {'a', 'e', 'i', 'o', 'u', 'A', 'E', 'I',
'O', 'U'};
    for (int i = 0; i < size; i++)
    {
        for (int j = 0; j < 11; j++)
        {
            if (string[i] == vow[j])
                count++;
        }}
    printf("\nThe count of vowels in the string is %d\n",
count);
    operations(string, size);
}
void vandc(char string[], int size)
{
    int count = 0;
    char vow[] = {'a', 'e', 'i', 'o', 'u', 'A', 'E', 'I',
'O', 'U'};
    for (int i = 0; i < size; i++)
    {
        for (int j = 0; j < 11; j++)
        {
            if (string[i] == vow[j])
                count++;
        }
    }
    printf("\nThe vowels are %d and the consonants are
%d\n", count, size - count);
    operations(string, size);
}
void Frechar(char string[], int size)
```

```
{
    char character = string[0];
    int sum = 0, count = 0;
    for (int i = 0; i < size; i++)
    {
        count = 0;
        for (int j = 0; j < size; j++)
        {
            if (string[i] == string[j])
            {
                count++;
                if (count > sum)
                {
                    sum = count;
                    character = string[i];
                }
            }}
    }
    if (count == 1)
    {
        printf("\nThe frequency of all characters are
same.\n");
    }
    else
    {
        printf("\nThe Most Frequent Charcter is %c\n",
character);
    }
    operations(string, size);
}

void Cont(char string[], int size)
{
    char co[50];
    puts("Enter you string:");
    scanf("%50s", co);
    printf("\n%s \n",strcat(strcat(string," "),co));
    operations(string, size);
}
```

Screenshot:


rayhan@devasting-phonixe: ~/Desktop/CL1002 – Programm...
rayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./2.out
Enter the sting:
rehann
Enter the option:
A) Count the number of vowels in the string
B) Count both the vowels and consonants in the string.
C) Display the most frequent character in the string.
D) Concatenate another string with the existing string.
E) Exit the program.
Enter option:A
The count of vowels in the string is 2
Enter the option:
A) Count the number of vowels in the string
B) Count both the vowels and consonants in the string.
C) Display the most frequent character in the string.
D) Concatenate another string with the existing string.
E) Exit the program.
Enter option:b
The vowels are 2 and the consonants are 4
Enter the option:
A) Count the number of vowels in the string
B) Count both the vowels and consonants in the string.
C) Display the most frequent character in the string.
D) Concatenate another string with the existing string.
E) Exit the program.
Enter option:c
The Most Frequent Charcter is n


The Most Frequent Charcter is n
Enter the option:
A) Count the number of vowels in the string
B) Count both the vowels and consonants in the string.
C) Display the most frequent character in the string.
D) Concatenate another string with the existing string.
E) Exit the program.
Enter option:d
Enter you string:
shoukat
rehann shoukat
Enter the option:
A) Count the number of vowels in the string
B) Count both the vowels and consonants in the string.
C) Display the most frequent character in the string.
D) Concatenate another string with the existing string.
E) Exit the program.
Enter option:e
rayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$

Problem 03:

Code:

Code works on any exception. Whether the alphabets are upper or lower case or the string is mixed of upper and lower alphabets, it will cipher them, even maintaining the spaces between them.

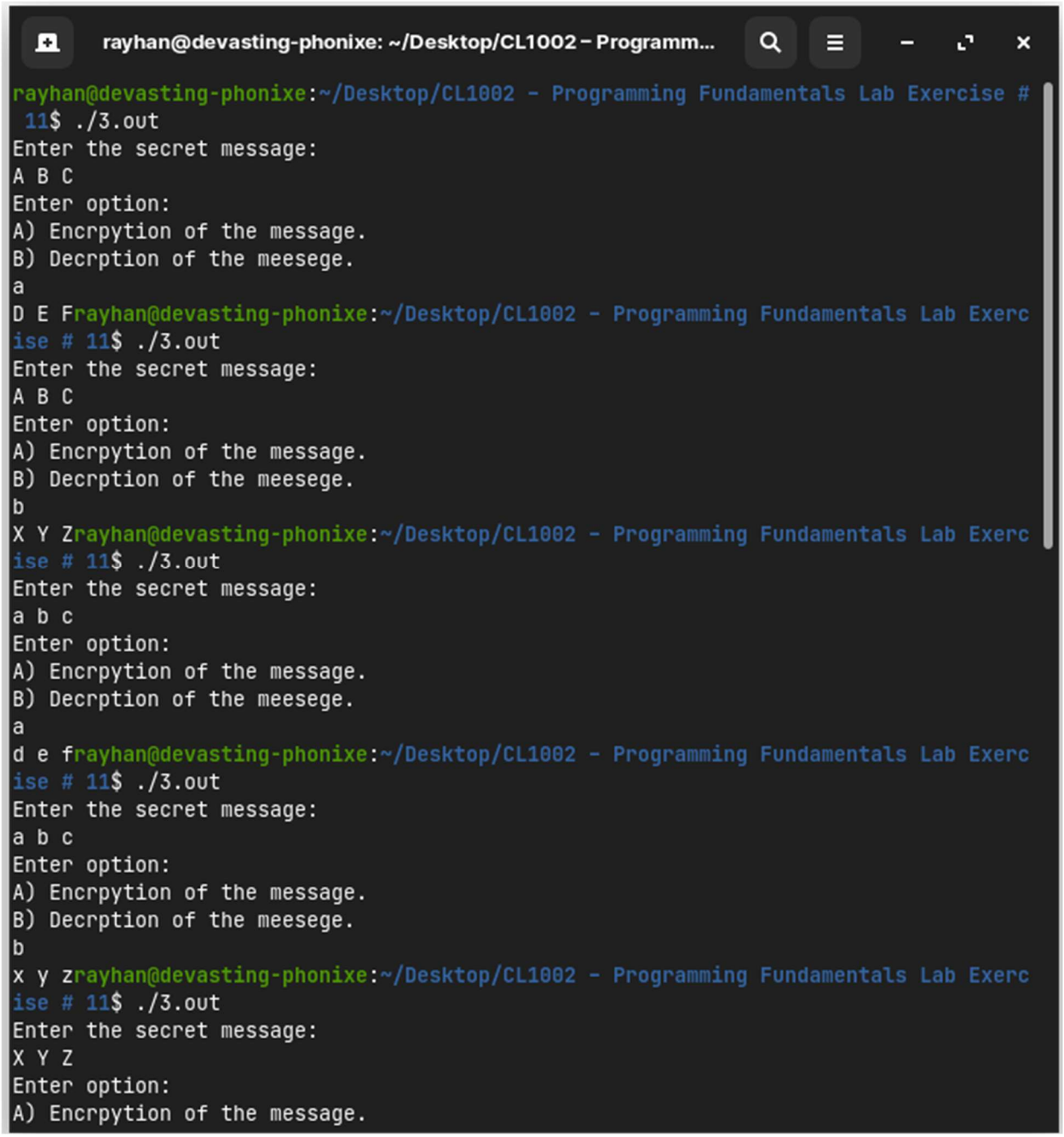
```
// Code Written by Muhammad Rehan 22P-9106 BSE 1A
// This Code run on smaller letter and
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <ctype.h>
void operation(char foo[], char option);
void encrypt(char foo[]);
void decrypt(char foo[]);
int main()
{
    char foo[50];
    puts("Enter the secret message:");
    fgets(foo, sizeof(foo), stdin);
    puts("Enter option:\nA) Encrpytion of the message.\nB)
Decrption of the meesege.");
    char option;
    scanf("%c", &option);
    operation(foo, option);
    return 0;
}
void operation(char foo[], char option)
{
    switch (option)
    {
    case 'A':
        encrypt(foo);
        break;
    case 'a':
        encrypt(foo);
        break;
    case 'B':
        decrypt(foo);
        break;
    case 'b':
```

```
        decrypt(foo);
        break;
    default:
        break;
    }
}
void encrypt(char foo[])
{
    int i;
    int len = strlen(foo);
    char encrypt[len];
    for (i = 0; i < len - 1; i++)
    {
        int spacechecker = isspace(foo[i]);
        if (spacechecker != 0)
        {
            encrypt[i] = ' ';
        }
        else
        {
            encrypt[i] = foo[i] + 3;
        }
    }
    for (int j = 0; j < len; j++)
    {
        int spacechecker = isspace(encrypt[j]);
        if (encrypt[0] >= 65 && encrypt[len - 2] <= 96)
        {
            if (encrypt[j] >= 90)
            {
                if (spacechecker != 0)
                {
                    encrypt[j] = ' ';
                }
                else
                {
                    encrypt[j] = encrypt[j] - 26;
                }
            }
        }
        else
```

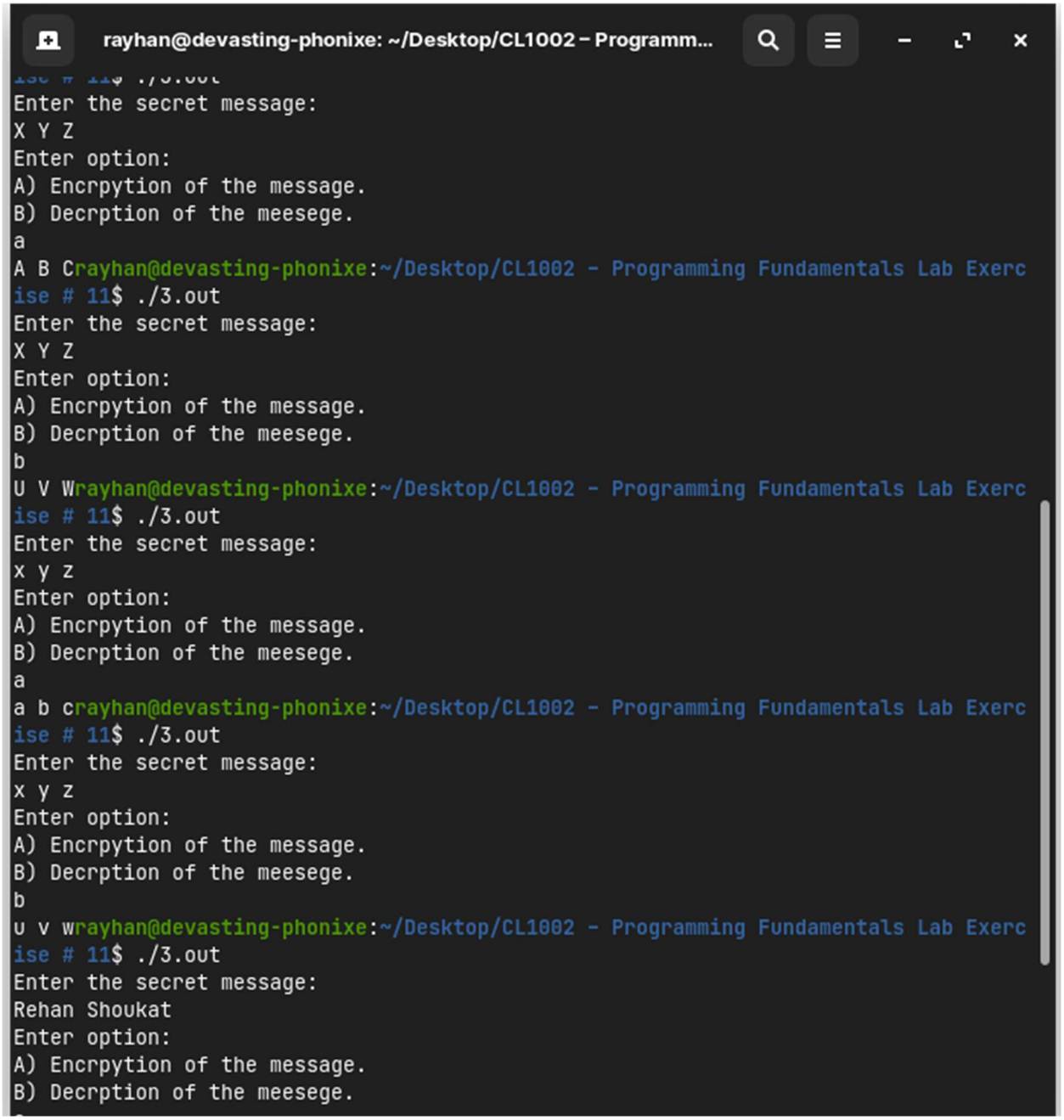
```
        {
            if (encrypt[j] >= 122)
            {
                if (spacechecker != 0)
                {
                    encrypt[j] = ' ';
                }
                else
                {
                    encrypt[j] = encrypt[j] - 26;
                }
            }
        }
    }
    printf("%s", encrypt);
}
void decrypt(char foo[])
{
    int i;
    int len = strlen(foo);
    char dencrypt[len];
    for (i = 0; i < len - 1; i++)
    {
        int spacechecker = isspace(foo[i]);
        if (spacechecker != 0)
        {
            dencrypt[i] = ' ';
        }
        else
        {
            dencrypt[i] = foo[i] - 3;
        }
    }

    for (int j = 0; j < len-1; j++)
    {
        int spacechecker = isspace(dencrypt[j]);
        if (dencrypt[0] >= 65 && dencrypt[len - 2] <= 90)
        {
            if (dencrypt[j] <= 65)
            {
```

```
                if (spacechecker != 0)
                {
                    dencrypt[j] = ' ';
                }
                else
                {
                    dencrypt[j] = dencrypt[j] + 26;
                }
            }
        }
        else
        {
            if (dencrypt[j] <= 97)
            {
                if (spacechecker != 0)
                {
                    dencrypt[j] = ' ';
                }
                else
                {
                    dencrypt[j] = dencrypt[j] + 26;
                }
            }
        }
    }
    printf("%s", dencrypt);
}
```

Screenshot:


rayhan@devasting-phonixe: ~/Desktop/CL1002 – Programm...
rayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
A B C
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
a
D E Frayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
A B C
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
b
X Y Zrayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
a b c
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
a
d e frayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
a b c
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
b
x y zrayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
X Y Z
Enter option:
A) Encrpytion of the message.


ise # 11$ ./3.out
Enter the secret message:
Rehan Shoukat
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
a
Uhkdq VkrxndwUrayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals


rayhan@devasting-phonixe: ~/Desktop/CL1002 – Programm...
Enter the secret message:
X Y Z
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
a
A B Crayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
X Y Z
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
b
U V Wrayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
x y z
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
a
a b crayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
x y z
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.
b
u v wrayhan@devasting-phonixe:~/Desktop/CL1002 - Programming Fundamentals Lab Exercise # 11$ ./3.out
Enter the secret message:
Rehan Shoukat
Enter option:
A) Encrpytion of the message.
B) Decrption of the meesege.