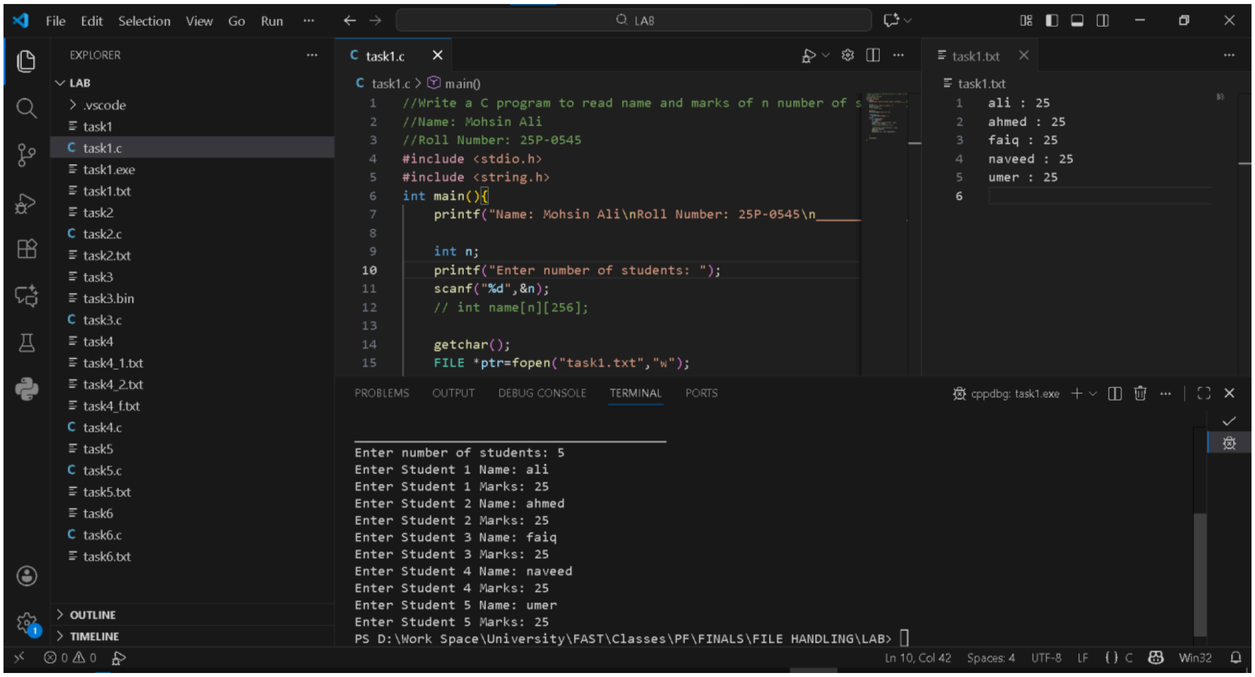
PROGRAMMING FUNDAMENTALS - LAB

Name: Mohsin Ali
Roll Number: 25P-0545

Q#1: Write a C program to read name and marks of n number of students and store them in a file



```c
//Write a C program to read name and marks of n number of s
//Name: Mohsin Ali
//Roll Number: 25P-0545
#include <stdio.h>
#include <string.h>
int main(){
    printf("Name: Mohsin Ali\nRoll Number: 25P-0545\n______

    int n;
    printf("Enter number of students: ");
    scanf("%d",&n);
    // int name[n][256];

    getchar();
    FILE *ptr=fopen("task1.txt","w");
```

task1.txt

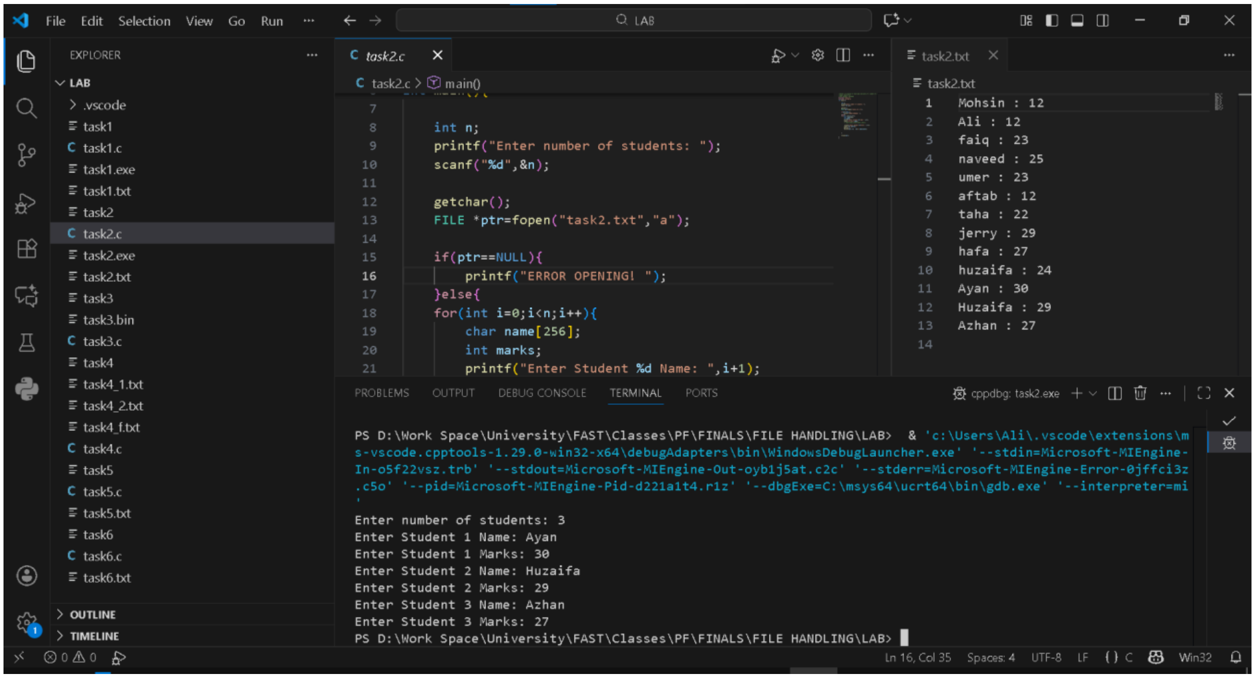
```
ali : 25
ahmed : 25
faiq : 25
naveed : 25
umer : 25
```

```
________________________________________
Enter number of students: 5
Enter Student 1 Name: ali
Enter Student 1 Marks: 25
Enter Student 2 Name: ahmed
Enter Student 2 Marks: 25
Enter Student 3 Name: faiq
Enter Student 3 Marks: 25
Enter Student 4 Name: naveed
Enter Student 4 Marks: 25
Enter Student 5 Name: umer
Enter Student 5 Marks: 25
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>
```

CODE:

```c
//Write a C program to read name and marks of n number of students and store them in a file
//Name: Mohsin Ali
//Roll Number: 25P-0545
#include <stdio.h>
#include <string.h>
int main(){
    printf("Name: Mohsin Ali\nRoll Number: 25P-0545\n____________________________________________\n");

    int n;
    printf("Enter number of students: ");
    scanf("%d",&n);
    // int name[n][256];


    getchar();
    FILE *ptr=fopen("task1.txt","w");


    if(ptr==NULL){
        printf("ERROR OPENING! ");
    }else{
    for(int i=0;i<n;i++){
        char name[256];
        int marks;
        printf("Enter Student %d Name: ",i+1);
        scanf("%[^\n]s",name);
        // fgets(name,sizeof(name),stdin);


         printf("Enter Student %d Marks: ",i+1);
        scanf("%d",&marks);
        getchar();
        fprintf(ptr,"%s : %d\n",name,marks);
    }
    fclose(ptr);
}
}
```

Q#2: Write C program to read name and marks of n number of students from and store them in a file. If the file previously exits, add the information to the file.



```
    int n;
    printf("Enter number of students: ");
    scanf("%d",&n);

    getchar();
    FILE *ptr=fopen("task2.txt","a");

    if(ptr==NULL){
        printf("ERROR OPENING! ");
    }else{
    for(int i=0;i<n;i++){
        char name[256];
        int marks;
        printf("Enter Student %d Name: ",i+1);
```

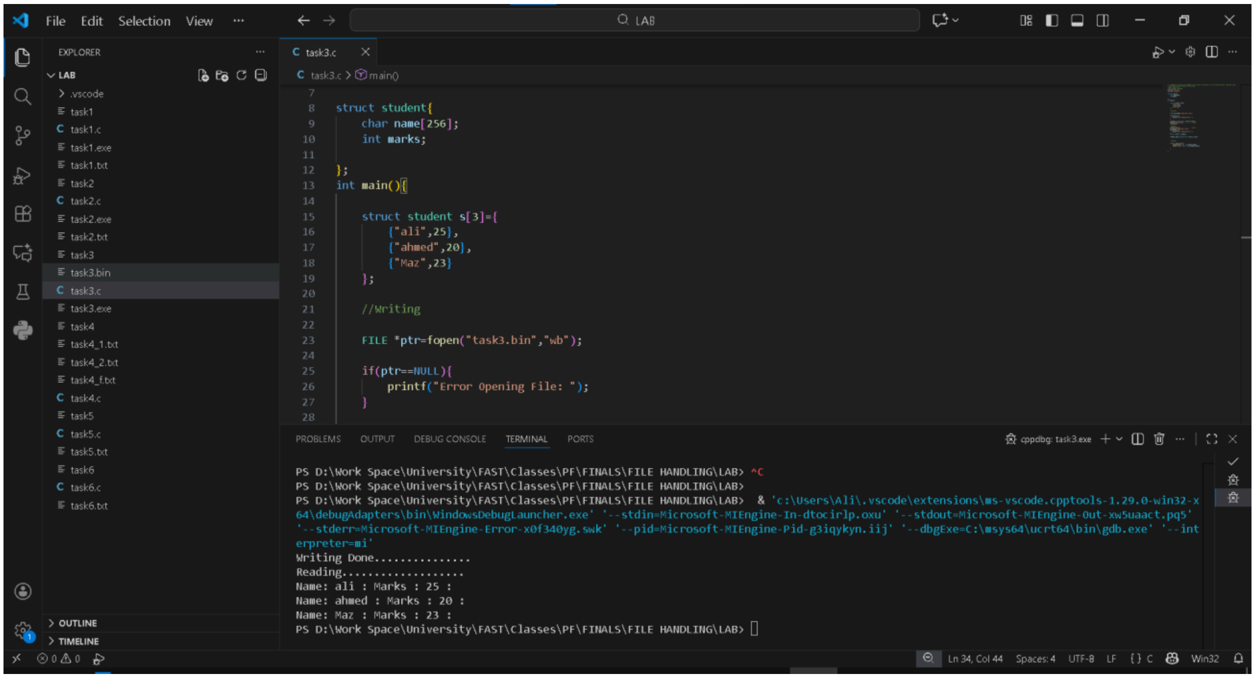
```
Mohsin : 12
Ali : 12
faiq : 23
naveed : 25
umer : 23
aftab : 12
taha : 22
jerry : 29
hafa : 27
huzaifa : 24
Ayan : 30
Huzaifa : 29
Azhan : 27

```

```
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>  & 'c:\Users\Ali\.vscode\extensions\m
s-vscode.cpptools-1.29.0-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-
In-o5f22vsz.trb' '--stdout=Microsoft-MIEngine-Out-oyb1j5at.c2c' '--stderr=Microsoft-MIEngine-Error-0jffci3z
.c5o' '--pid=Microsoft-MIEngine-Pid-d221a1t4.r1z' '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--interpreter=mi
'
Enter number of students: 3
Enter Student 1 Name: Ayan
Enter Student 1 Marks: 30
Enter Student 2 Name: Huzaifa
Enter Student 2 Marks: 29
Enter Student 3 Name: Azhan
Enter Student 3 Marks: 27
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>
```

CODE:

```
//Write a C program to read name and marks of n number of students and store them in a file
//Name: Mohsin Ali
//Roll Number: 25P-0545
#include <stdio.h>
#include <string.h>
int main(){
    int n;
    printf("Enter number of students: ");
    scanf("%d",&n);
    getchar();
    FILE *ptr=fopen("task2.txt","a");
    if(ptr==NULL){
      printf("ERROR OPENING! ");
    }else{
    for(int i=0;i<n;i++){
        char name[256];
        int marks;
        printf("Enter Student %d Name: ",i+1);
        scanf("%[^\n]s",name);
        // fgets(name,sizeof(name),stdin);
         printf("Enter Student %d Marks: ",i+1);
        scanf("%d",&marks);
        getchar();
        fprintf(ptr,"%s : %d\n",name,marks);
    }
    fclose(ptr);
}
}
```

Q#3: C program to write all the members of an array of structures to a file using fwrite(). Read the array from the file and display on the screen.



```c

struct student{
    char name[256];
    int marks;

};
int main(){

    struct student s[3]={
        {"ali",25},
        {"ahmed",20},
        {"Maz",23}
    };

    //Writing

    FILE *ptr=fopen("task3.bin","wb");

    if(ptr==NULL){
        printf("Error Opening File: ");
    }

```

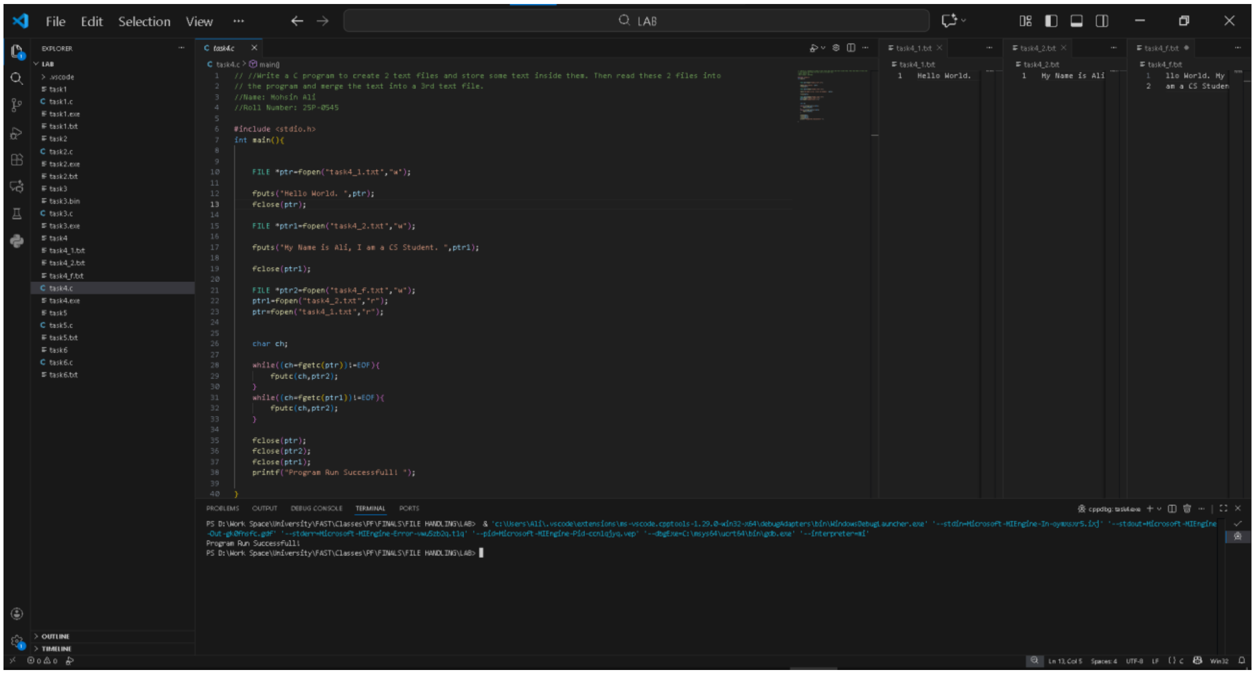
```
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB> ^C
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>  & 'c:\Users\Ali\.vscode\extensions\ms-vscode.cpptools-1.29.0-win32-x
64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-dtocirlp.oxu' '--stdout=Microsoft-MIEngine-Out-xw5uaact.pq5'
'--stderr=Microsoft-MIEngine-Error-x0f340yg.swk' '--pid=Microsoft-MIEngine-Pid-g3iqykyn.iij' '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--int
erpreter=mi'
Writing Done..............
Reading..................
Name: ali : Marks : 25 :
Name: ahmed : Marks : 20 :
Name: Maz : Marks : 23 :
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB> 
```

CODE:

```c
// C program to write all the members of an array of structures to a file using fwrite(). Read the array

// from the file and display on the screen.

//Name: Mohsin Ali

//Roll Number: 25P-0545

#include <stdio.h>

#include <string.h>


struct student{

    char name[256];

    int marks;
```

```
};
int main(){

    struct student s[3]={
        {"ali",25},
        {"ahmed",20},
        {"Maz",23}
    };

    //Writing

    FILE *ptr=fopen("task3.bin","wb");

    if(ptr==NULL){
        printf("Error Opening File: ");
    }

    fwrite(s,sizeof(struct student),3,ptr);
    printf("Writing Done...............\n");
    fclose(ptr);

    //Reading
    printf("Reading..................\n");
    ptr=fopen("task3.bin","rb");
    if(ptr==NULL){
        printf("Error Opening File: ");
    }
    struct student s_read[3];

    fread(s_read,sizeof(struct student),3,ptr);



    //Display

    for(int i=0;i<3;i++){
        printf("Name: %s : ",s_read[i].name);
        printf("Marks : %d : \n",s_read[i].marks);

    }

}
```

Q#4: Write a C program to create 2 text files and store some text inside them. Then read these 2 files into the program and merge the text into a 3rd text file.



```c
// //Write a C program to create 2 text files and store some text inside them. Then read these 2 files into
// the program and merge the text into a 3rd text file.
//Name: Mohsin Ali
//Roll Number: 25P-0545

#include <stdio.h>
int main(){


    FILE *ptr=fopen("task4_1.txt","w");

    fputs("Hello World. ",ptr);
    fclose(ptr);

    FILE *ptr1=fopen("task4_2.txt","w");

    fputs("My Name is Ali, I am a CS Student. ",ptr1);

    fclose(ptr1);

    FILE *ptr2=fopen("task4_f.txt","w");
    ptr1=fopen("task4_2.txt","r");
    ptr=fopen("task4_1.txt","r");


    char ch;

    while((ch=fgetc(ptr))!=EOF){
        fputc(ch,ptr2);
    }
    while((ch=fgetc(ptr1))!=EOF){
        fputc(ch,ptr2);
    }

    fclose(ptr);
    fclose(ptr2);
    fclose(ptr1);
    printf("Program Run Successfull! ");

}
```

task4_1.txt

```
1   Hello World.
```

task4_2.txt

```
1   My Name is Ali
```

task4_f.txt

```
1   llo World. My
2   am a CS Studen
```

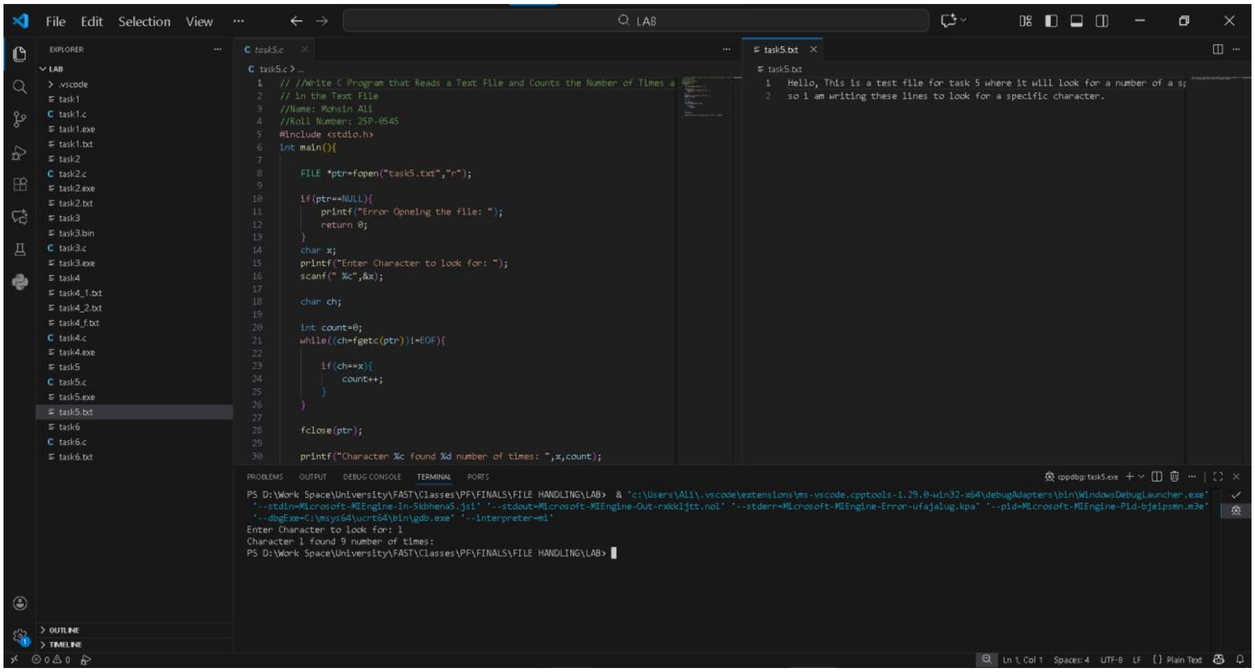
```
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>  & 'c:\Users\Ali\.vscode\extensions\ms-vscode.cpptools-1.29.0-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-oymxsxr5.ixj' '--stdout=Microsoft-MIEngine-Out-gk0fnsfc.gdf' '--stderr=Microsoft-MIEngine-Error-vwu5zb2q.t1q' '--pid=Microsoft-MIEngine-Pid-ccnlqjyq.vep' '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--interpreter=mi'
Program Run Successfull!
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB> 
```

CODE:

```c
// //Write a C program to create 2 text files and store some text inside them. Then read these 2 files into

// the program and merge the text into a 3rd text file.

//Name: Mohsin Ali

//Roll Number: 25P-0545

#include <stdio.h>

int main(){

   FILE *ptr=fopen("task4_1.txt","w");

   fputs("Hello World. ",ptr);

   fclose(ptr);

   FILE *ptr1=fopen("task4_2.txt","w");

   fputs("My Name is Ali, I am a CS Student. ",ptr1);

   fclose(ptr1);
```

```
    FILE *ptr2=fopen("task4_f.txt","w");
    ptr1=fopen("task4_2.txt","r");
    ptr=fopen("task4_1.txt","r");
    char ch;
    while((ch=fgetc(ptr))!=EOF){
        fputc(ch,ptr2);
    }
    while((ch=fgetc(ptr1))!=EOF){
        fputc(ch,ptr2);
    }
    fclose(ptr);
    fclose(ptr2);
    fclose(ptr1);
    printf("Program Run Successfull! ");
}
```

Q#5: Write C Program that Reads a Text File and Counts the Number of Times a Certain Letter Appears in the Text File



```c
// //Write C Program that Reads a Text File and Counts the Number of Times a
// in the Text File
//Name: Mohsin Ali
//Roll Number: 25P-0545
#include <stdio.h>
int main(){

    FILE *ptr=fopen("task5.txt","r");

    if(ptr==NULL){
        printf("Error Opneing the file: ");
        return 0;
    }
    char x;
    printf("Enter Character to look for: ");
    scanf(" %c",&x);

    char ch;

    int count=0;
    while((ch=fgetc(ptr))!=EOF){

        if(ch==x){
            count++;
        }
    }

    fclose(ptr);

    printf("Character %c found %d number of times: ",x,count);
```

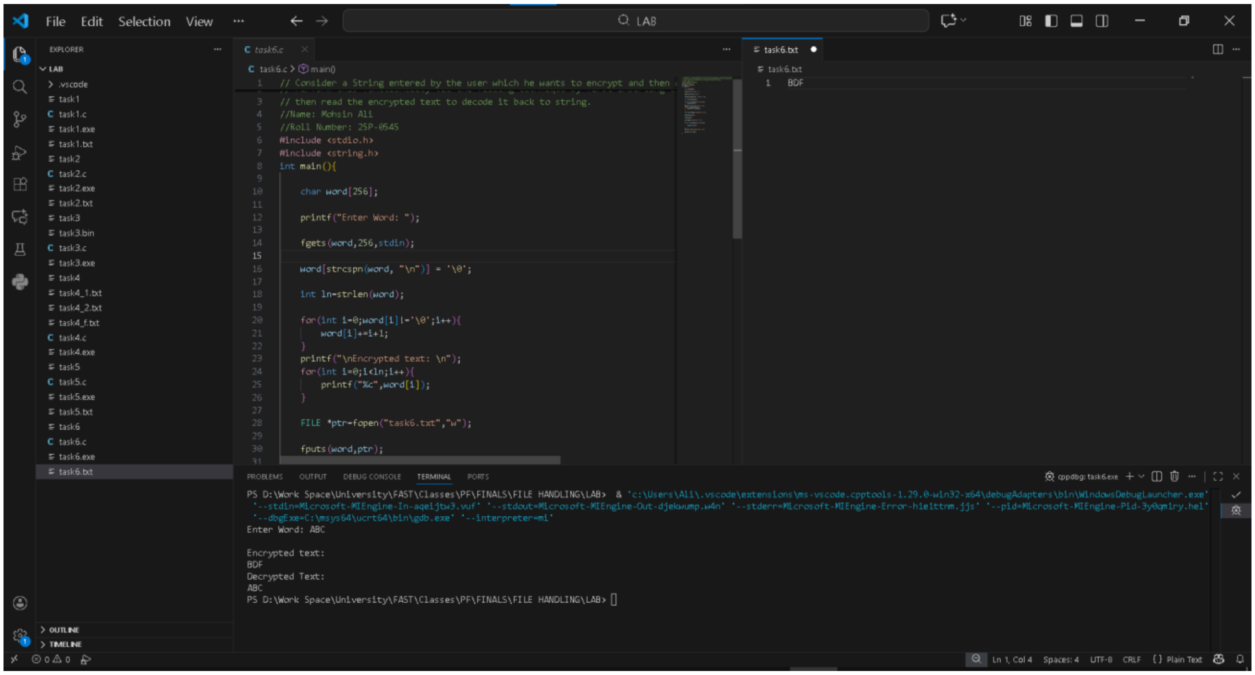
```
Hello, This is a test file for task 5 where it will look for a number of a s
so i am writing these lines to look for a specific character.
```

```
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>  & 'c:\Users\Ali\.vscode\extensions\ms-vscode.cpptools-1.29.0-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe'
 '--stdin=Microsoft-MIEngine-In-5kbhena5.jsi' '--stdout=Microsoft-MIEngine-Out-rxkkljtt.nol' '--stderr=Microsoft-MIEngine-Error-ufajalug.kpa' '--pid=Microsoft-MIEngine-Pid-bjeipsmn.m3e'
 '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--interpreter=mi'
Enter Character to look for: l
Character l found 9 number of times:
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB> 
```

CODE:

```c
// //Write C Program that Reads a Text File and Counts the Number of Times a Certain Letter Appears

// in the Text File

//Name: Mohsin Ali

//Roll Number: 25P-0545

#include <stdio.h>

int main(){

    FILE *ptr=fopen("task5.txt","r");

    if(ptr==NULL){

        printf("Error Opneing the file: ");

        return 0;

    }

    char x;
    printf("Enter Character to look for: ");

    scanf(" %c",&x);

    char ch;

    int count=0;

    while((ch=fgetc(ptr))!=EOF){

        if(ch==x){

            count++;

        }

    }

    fclose(ptr);

    printf("Character %c found %d number of times: ",x,count);

}
```

Q#6: Consider a String entered by the user which he wants to encrypt and then decrypt the information. Perform this functionality via the filling technique by first inserting the encrypted text in the file then read the encrypted text to decode it back to string.



```
// Consider a String entered by the user which he wants to encrypt and then
// then read the encrypted text to decode it back to string.
//Name: Mohsin Ali
//Roll Number: 25P-0545
#include <stdio.h>
#include <string.h>
int main(){

    char word[256];

    printf("Enter Word: ");

    fgets(word,256,stdin);

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

    int ln=strlen(word);

    for(int i=0;word[i]!='\0';i++){
        word[i]+=i+1;
    }
    printf("\nEncrypted text: \n");
    for(int i=0;i<ln;i++){
        printf("%c",word[i]);
    }

    FILE *ptr=fopen("task6.txt","w");

    fputs(word,ptr);
```

task6.txt

```
BDF
```

```
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB>  & 'c:\Users\Ali\.vscode\extensions\ms-vscode.cpptools-1.29.0-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe'
 '--stdin=Microsoft-MIEngine-In-aqeijtw3.vuf' '--stdout=Microsoft-MIEngine-Out-djekwump.w4n' '--stderr=Microsoft-MIEngine-Error-h1e1ttrm.jjs' '--pid=Microsoft-MIEngine-Pid-3y0qm1ry.hel'
 '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--interpreter=mi'
Enter Word: ABC

Encrypted text:
BDF
Decrypted Text:
ABC
PS D:\Work Space\University\FAST\Classes\PF\FINALS\FILE HANDLING\LAB> 
```

CODE:

```
// Consider a String entered by the user which he wants to encrypt and then decrypt the information.

// Perform this functionality via the filling technique by first inserting the encrypted text in the file

// then read the encrypted text to decode it back to string.

//Name: Mohsin Ali

//Roll Number: 25P-0545

#include <stdio.h>

#include <string.h>

int main(){

    char word[256];


    printf("Enter Word: ");
```

```
fgets(word,256,stdin);

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

int ln=strlen(word);

for(int i=0;word[i]!='\0';i++){
    word[i]+=i+1;
}
printf("\nEncrypted text: \n");
for(int i=0;i<ln;i++){
    printf("%c",word[i]);
}

FILE *ptr=fopen("task6.txt","w");

fputs(word,ptr);

fclose(ptr);

ptr=fopen("task6.txt","r");

for(int i=0;word[i]!='\0';i++){

    word[i]-=(i+1);
    }
    printf("\nDecrypted Text: \n");

    printf("%s",word);
}
```