CYBER MANAGEMENT SYSTEM

Aim & Abstract of the project:

The project, Cyber Management System utilizes various features of C programming like Socket Multithreading, which helps us to connect a client to a server and more. This is a program which interconnects different computers, which allows users to communicate over the computer network and provide security from unauthorized users by a secure login system into the client server. The project aims at managing the cyber cafe with multiple clients and to give the clients access of services that the cyber network can provide when someone logs in. The clients can log in as a member or guest and use the services that the cyber network is providing.

I will be using File handling as a database to store records. The whole project will be divided into parts, one for the client and one for the server. The different source codes in this project on Cyber Management System in will be: one for the client functions and other for the server functions. The server program is for managing settings and client requests whereas, the client program gives clients access to the various cyber services (by using .txt files).

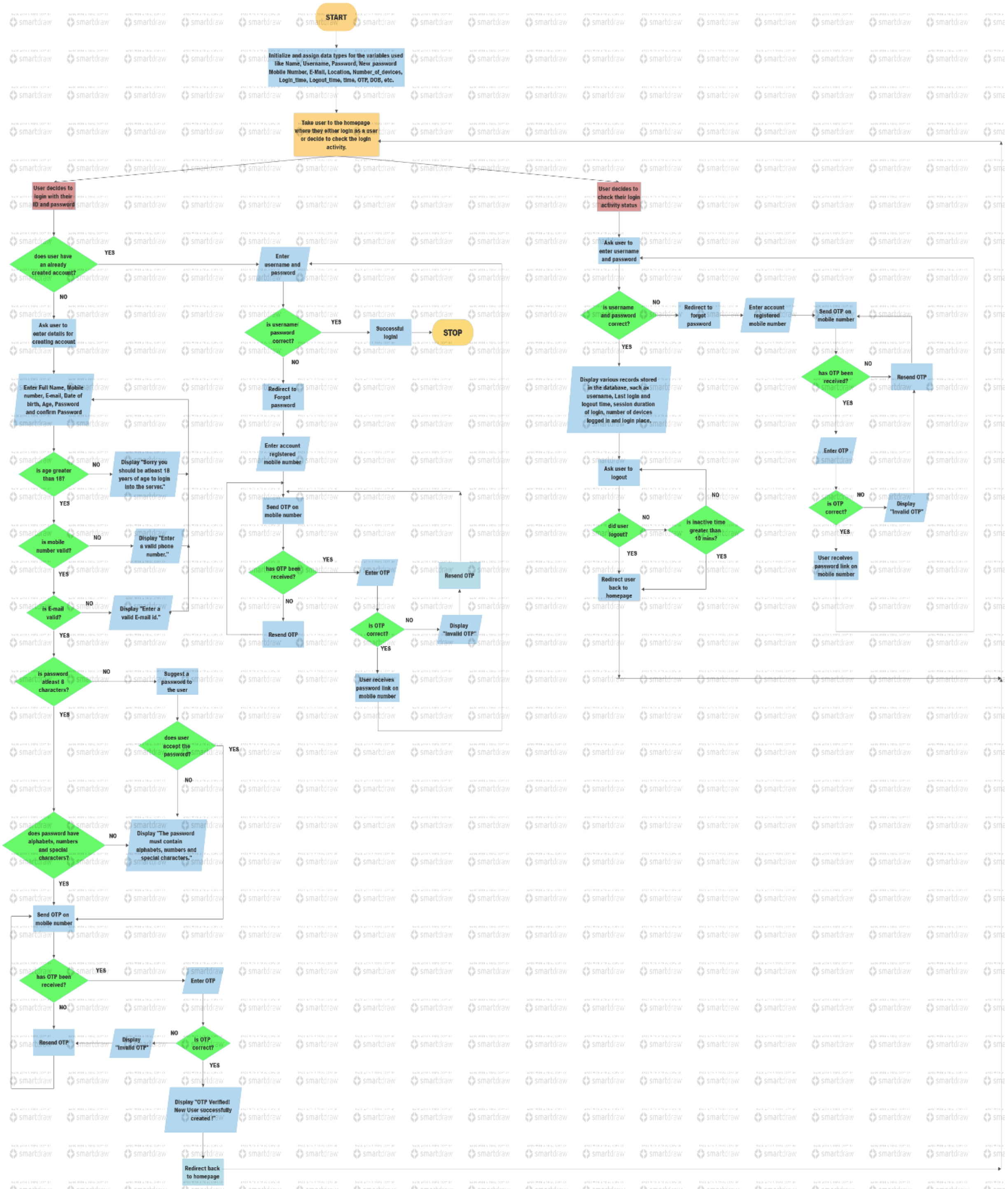
This will be providing a secure way for the users to log into their database or create a new login id. I will ask them to input the required personal details and suggest to create a safe and strong password which will be hidden, for their account. OTP generation will be used as a two-step verification process to ensure enhanced security. On secure login, the user can utilize the available services.

Algorithm:

1. Start.
2. Declare variables with their data types; name, username, password, new_password, mobile number, e-mail, location, number_of_devices, login_time, time, DOB, OTP.
3. Display homepage where user decides whether they want to login into their account or see their login activity.
4. If option1 is opted, display login page asking for their ID and password.
5. Check if user has an already created account.
6. If YES display page to enter username and password and if NO, display a page to enter your details to create a new account.
7. In case of creating new account, read name, mobile number, email, DOB, password and confirm password.
8. If age is greater than 18, let user continue else, display "Sorry you should be at least 18 years of age to login into the server."
9. Check If mobile number and E-mail are valid, and if not, then ask user to enter a valid phone number and E-mail.
10. Check If password created is at least 8 characters and has alphabets, numbers and special characters else suggest a password to a user or display the error message.
11. Send an OTP to the user for final verification and creation of the account.
12. If the OTP is not received, resend it or in case of wrong OTP, display error message.
13. If correct OTP is entered, display "Successful Login created" and then redirect to homepage.

14. Now user id is created and they can login with it.
15. While logging in, if they forget the password, they can click on forgot password and enter registered mobile number.
16. On the registered mobile number, they will receive an OTP.
17. If OTP is received, enter it else, resend the OTP, from here they can proceed to verify it, and if correct, will receive a password reset link, from where they can update the password.
18. If option2 is opted to check the login activity, redirect user to second page.
19. Read username and password.
20. If username and password is correct display username, last login, logout time, session duration, number of devices logged in and login place.
21. After displaying the data, ask the user to logout.
22. Check if the user has been inactive for more than 10 minutes. If YES, automatically log them out and redirect the user to the homepage. If NO, ask the user to log out.
23. If entered username and password is wrong, redirect the user to the forgot password page. On the forgot password page, let the user enter registered number and send an OTP on it.
24. If received, verify the OTP, else resend it.
25. On successful OTP entering, send a reset password link to the user.
26. On password being updated, redirect the user back to the homepage for login.
27. Stop.

Flowchart:

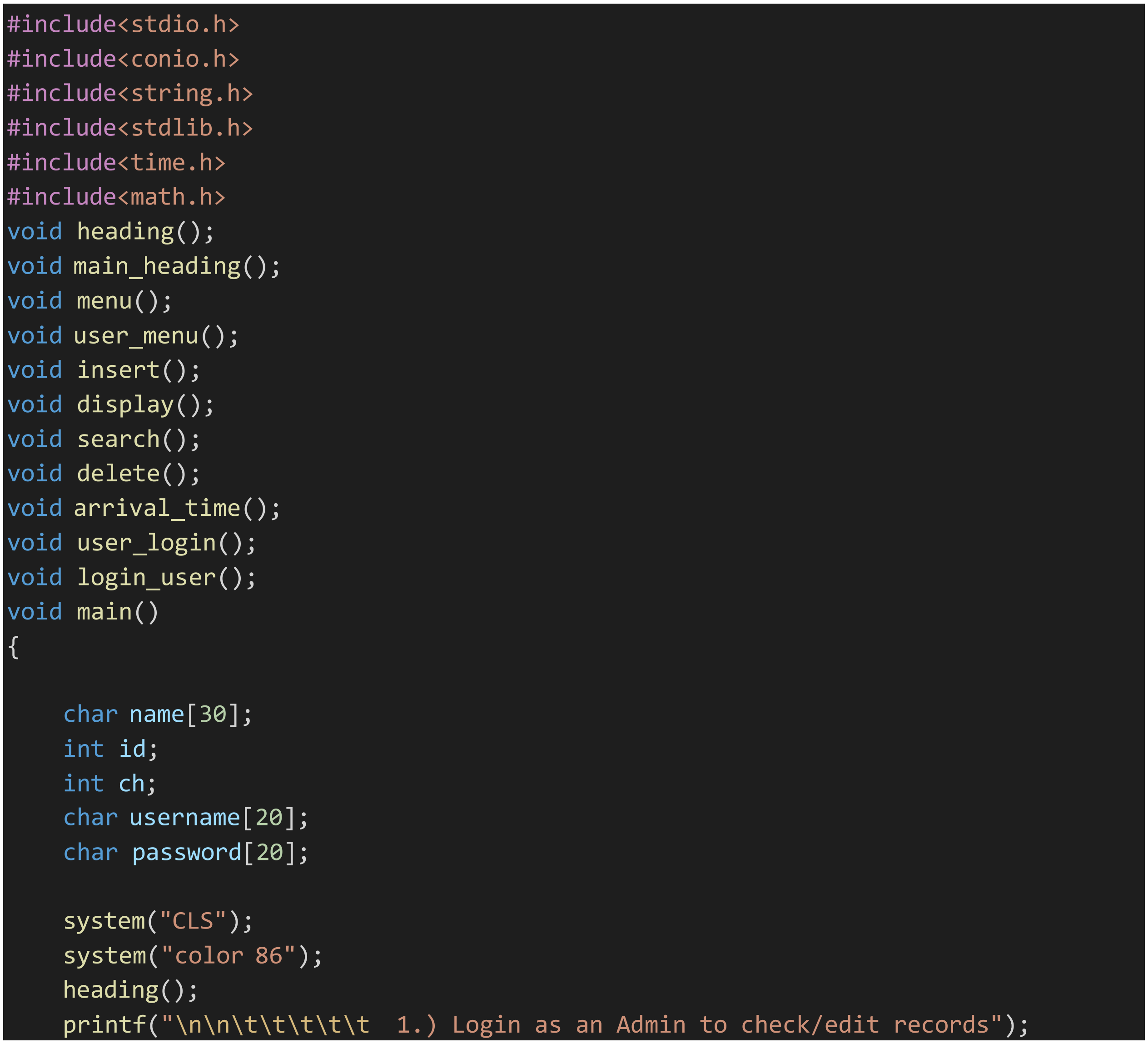

START
Initialize and assign data types for the variables used like Name, Username, Password, New_password Mobile Number, E-Mail, Location, Number_of_devices, Login_time, Logout_time, time, OTP, DOB, etc.
Take user to the homepage where they either login as a user or decide to check the login activity.
User decides to login with their ID and password
does user have an already created account?
YES
NO
Ask user to enter details for creating account
Enter Full Name, Mobile number, E-mail, Date of birth, Age, Password and confirm Password
is age greater than 18?
NO
Display "Sorry you should be atleast 18 years of age to login into the server."
YES
is mobile number valid?
NO
Display "Enter a valid phone number."
YES
is E-mail valid?
NO
Display "Enter a valid E-mail id."
YES
is password atleast 8 characters?
NO
Suggest a password to the user
YES
does user accept the password?
YES
NO
does password have alphabets, numbers and special characters?
NO
Display "The password must contain alphabets, numbers and special characters."
YES
Send OTP on mobile number
has OTP been received?
YES
Enter OTP
NO
Resend OTP
Display "Invalid OTP"
NO
is OTP correct?
YES
Display "OTP Verified! New User successfully created !"
Redirect back to homepage
Enter username and password
is username/ password correct?
YES
Successful login!
STOP
NO
Redirect to Forgot password
Enter account registered mobile number
Send OTP on mobile number
has OTP been received?
YES
Enter OTP
NO
Resend OTP
Resend OTP
is OTP correct?
NO
Display "Invalid OTP"
YES
User receives password link on mobile number
User decides to check their login activity status
Ask user to enter username and password
is username and password correct?
NO
Redirect to forgot password
Enter account registered mobile number
Send OTP on mobile number
has OTP been received?
NO
Resend OTP
YES
Enter OTP
is OTP correct?
NO
Display "Invalid OTP"
YES
User receives password link on mobile number
YES
Display various records stored in the database, such as username, Last login and logout time, session duration of login, number of devices logged in and login place.
Ask user to logout
did user logout?
NO
is inactive time greater than 10 mins?
NO
YES
YES
Redirect user back to homepage

(You can zoom into the image for more clarity)

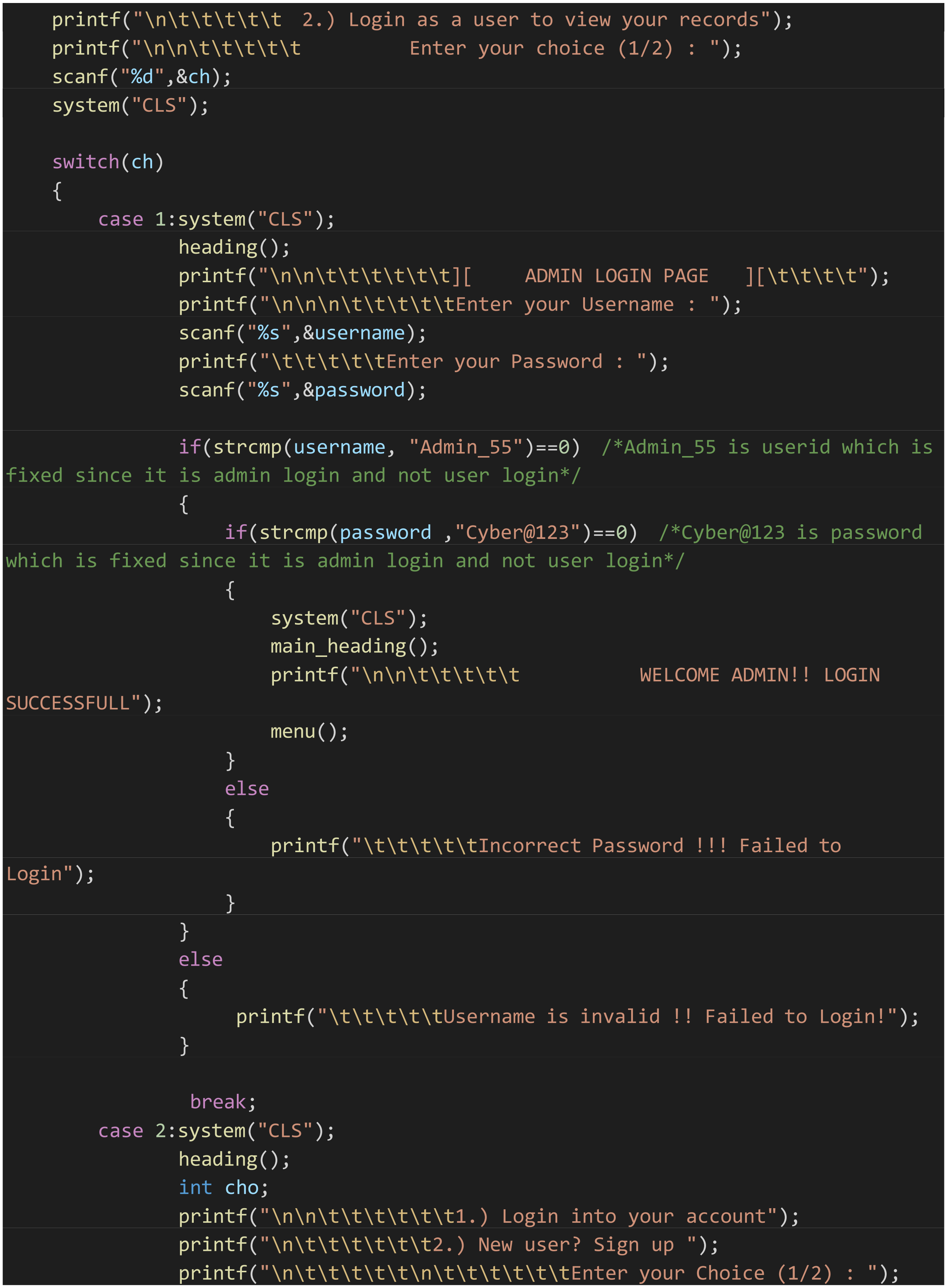
SOURCE CODE

I Have used Microsoft VS Code for this project and recommend to use the same compiler for optimal and accurate results. Also, while running the code, “cyber.txt” and “login.txt” files are also required to be simultaneously open, since some commands will not work without them. I will be sharing the output screens for the results too.

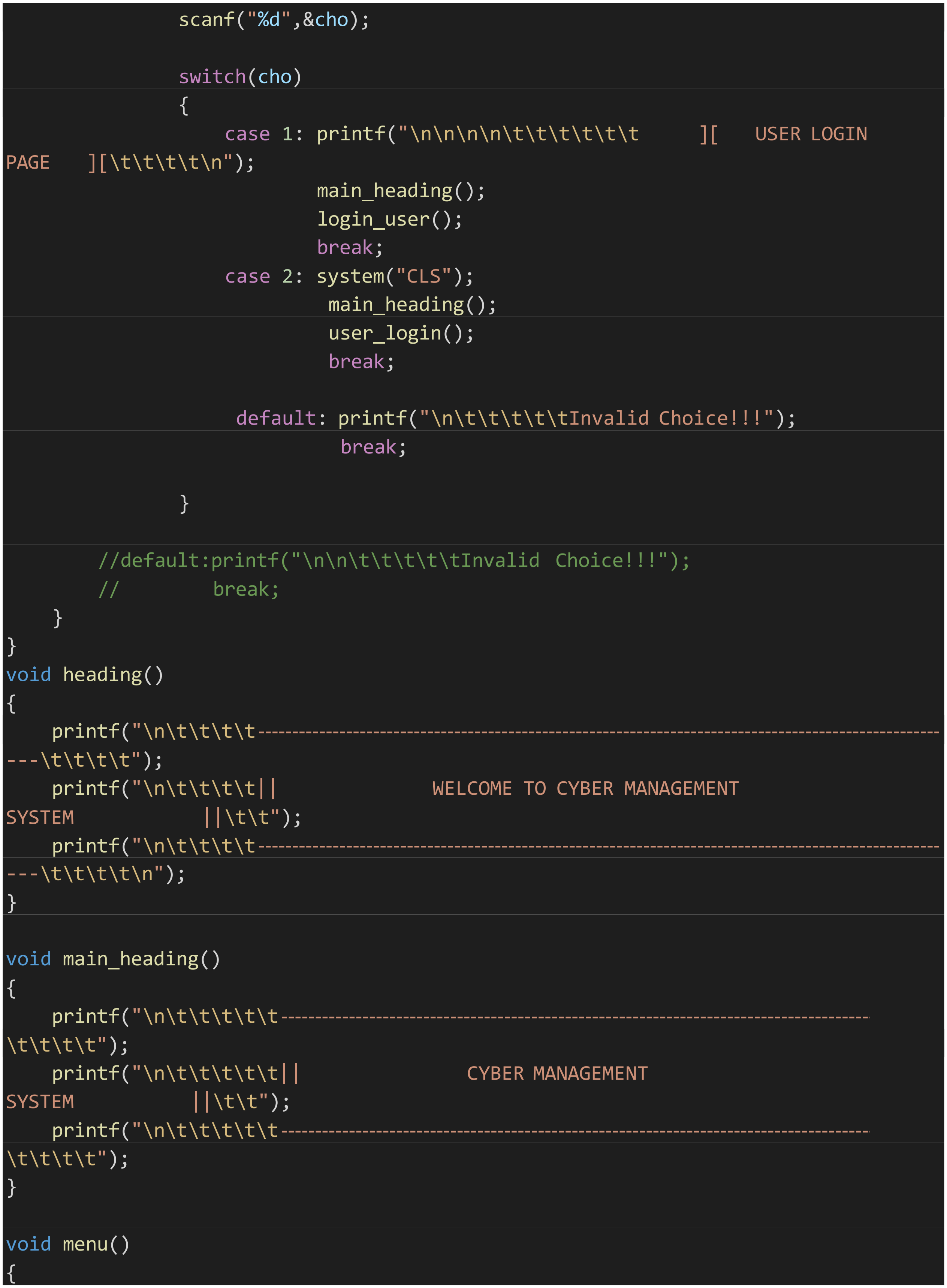
Given below is the source code:



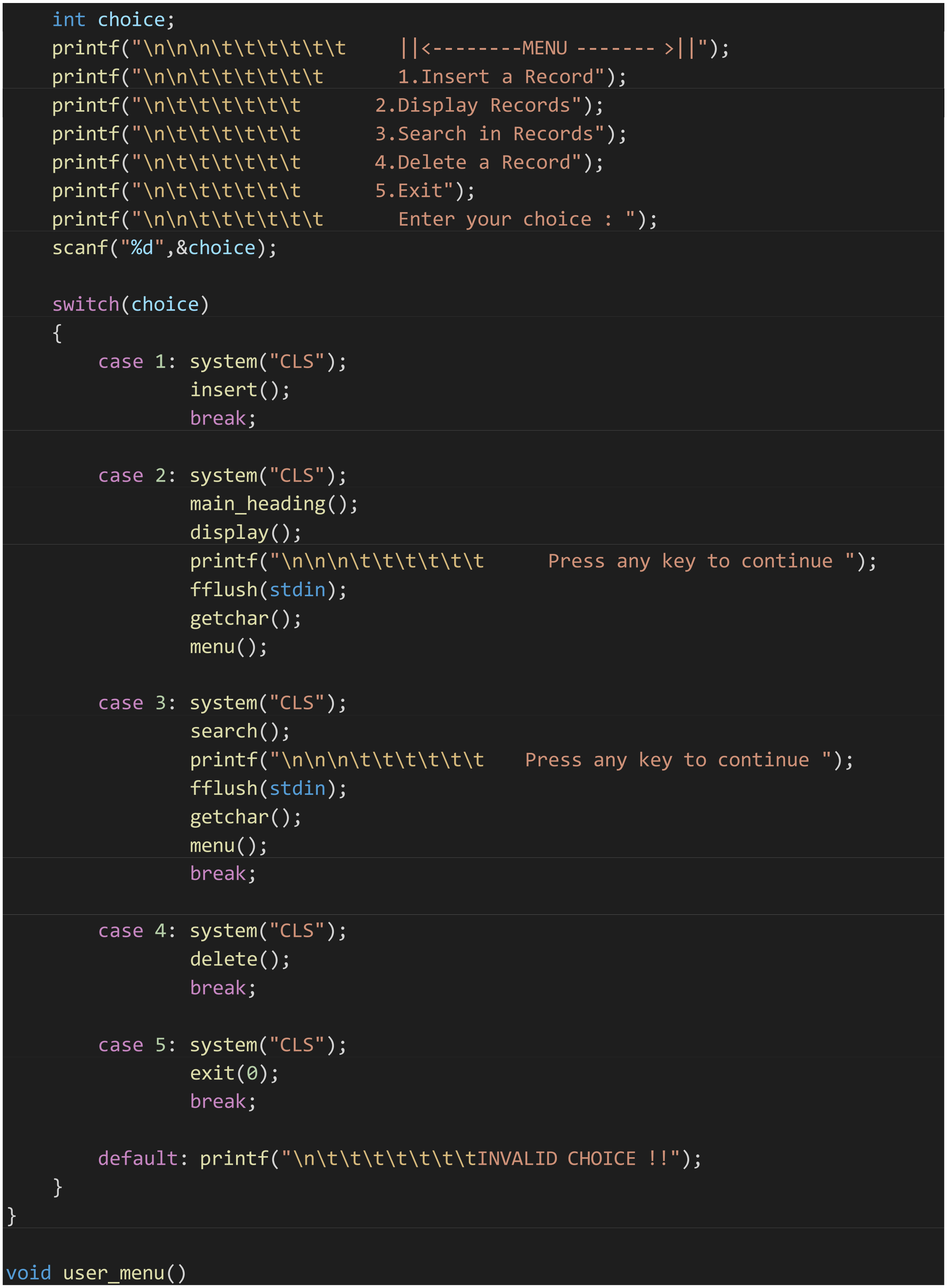
```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
#include<stdlib.h>
#include<time.h>
#include<math.h>
void heading();
void main_heading();
void menu();
void user_menu();
void insert();
void display();
void search();
void delete();
void arrival_time();
void user_login();
void login_user();
void main()
{

    char name[30];
    int id;
    int ch;
    char username[20];
    char password[20];

    system("CLS");
    system("color 86");
    heading();
    printf("\n\n\t\t\t\t\t  1.) Login as an Admin to check/edit records");
```



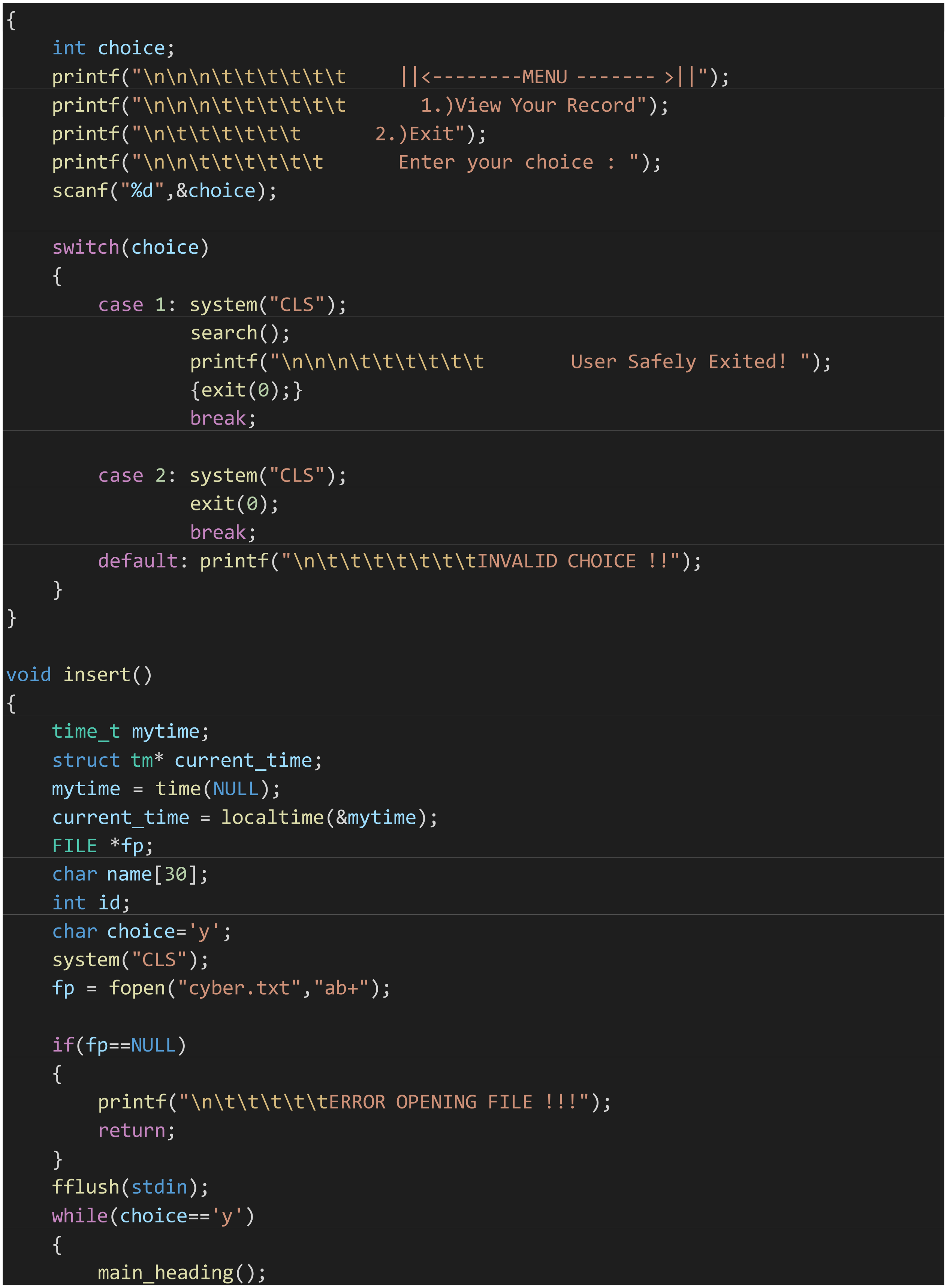
```
    printf("\n\t\t\t\t\t  2.) Login as a user to view your records");
    printf("\n\n\t\t\t\t\t         Enter your choice (1/2) : ");
    scanf("%d",&ch);
    system("CLS");

    switch(ch)
    {
        case 1:system("CLS");
               heading();
               printf("\n\n\t\t\t\t\t\t][     ADMIN LOGIN PAGE   ][\t\t\t\t");
               printf("\n\n\n\t\t\t\t\tEnter your Username : ");
               scanf("%s",&username);
               printf("\t\t\t\t\tEnter your Password : ");
               scanf("%s",&password);

               if(strcmp(username, "Admin_55")==0)  /*Admin_55 is userid which is 
fixed since it is admin login and not user login*/
               {
                   if(strcmp(password ,"Cyber@123")==0)  /*Cyber@123 is password 
which is fixed since it is admin login and not user login*/
                   {
                       system("CLS");
                       main_heading();
                       printf("\n\n\t\t\t\t\t          WELCOME ADMIN!! LOGIN 
SUCCESSFULL");
                       menu();
                   }
                   else
                   {
                       printf("\t\t\t\t\tIncorrect Password !!! Failed to 
Login");
                   }
               }
               else
               {
                    printf("\t\t\t\t\tUsername is invalid !! Failed to Login!");
               }

                break;
        case 2:system("CLS");
               heading();
               int cho;
               printf("\n\n\t\t\t\t\t\t1.) Login into your account");
               printf("\n\t\t\t\t\t\t2.) New user? Sign up ");
               printf("\n\t\t\t\t\t\n\t\t\t\t\t\tEnter your Choice (1/2) : ");
```



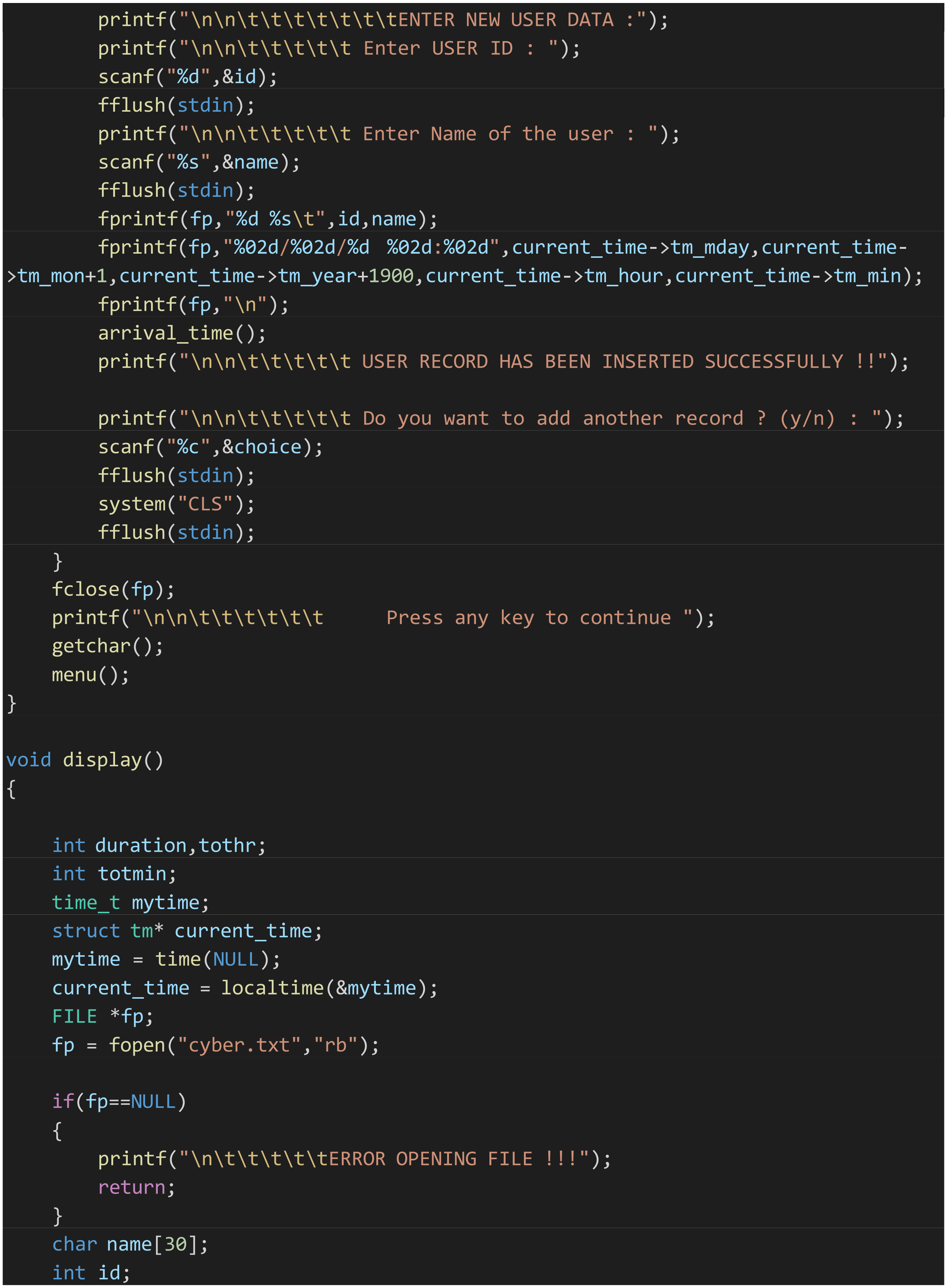
```
                scanf("%d",&cho);

                switch(cho)
                {
                    case 1: printf("\n\n\n\n\t\t\t\t\t\t     ][   USER LOGIN
PAGE   ][\t\t\t\t\n");
                            main_heading();
                            login_user();
                            break;
                    case 2: system("CLS");
                             main_heading();
                             user_login();
                             break;

                     default: printf("\n\t\t\t\t\tInvalid Choice!!!");
                              break;

                }

        //default:printf("\n\n\t\t\t\t\tInvalid  Choice!!!");
        //        break;
    }
}
void heading()
{
    printf("\n\t\t\t\t------------------------------------------------------------------------------------------------
---\t\t\t\t");
    printf("\n\t\t\t\t||              WELCOME TO CYBER MANAGEMENT
SYSTEM           ||\t\t");
    printf("\n\t\t\t\t------------------------------------------------------------------------------------------------
---\t\t\t\t\n");
}

void main_heading()
{
    printf("\n\t\t\t\t\t-----------------------------------------------------------------------------------
\t\t\t\t");
    printf("\n\t\t\t\t\t\t||              CYBER MANAGEMENT
SYSTEM          ||\t\t");
    printf("\n\t\t\t\t\t-----------------------------------------------------------------------------------
\t\t\t\t");
}

void menu()
{
```



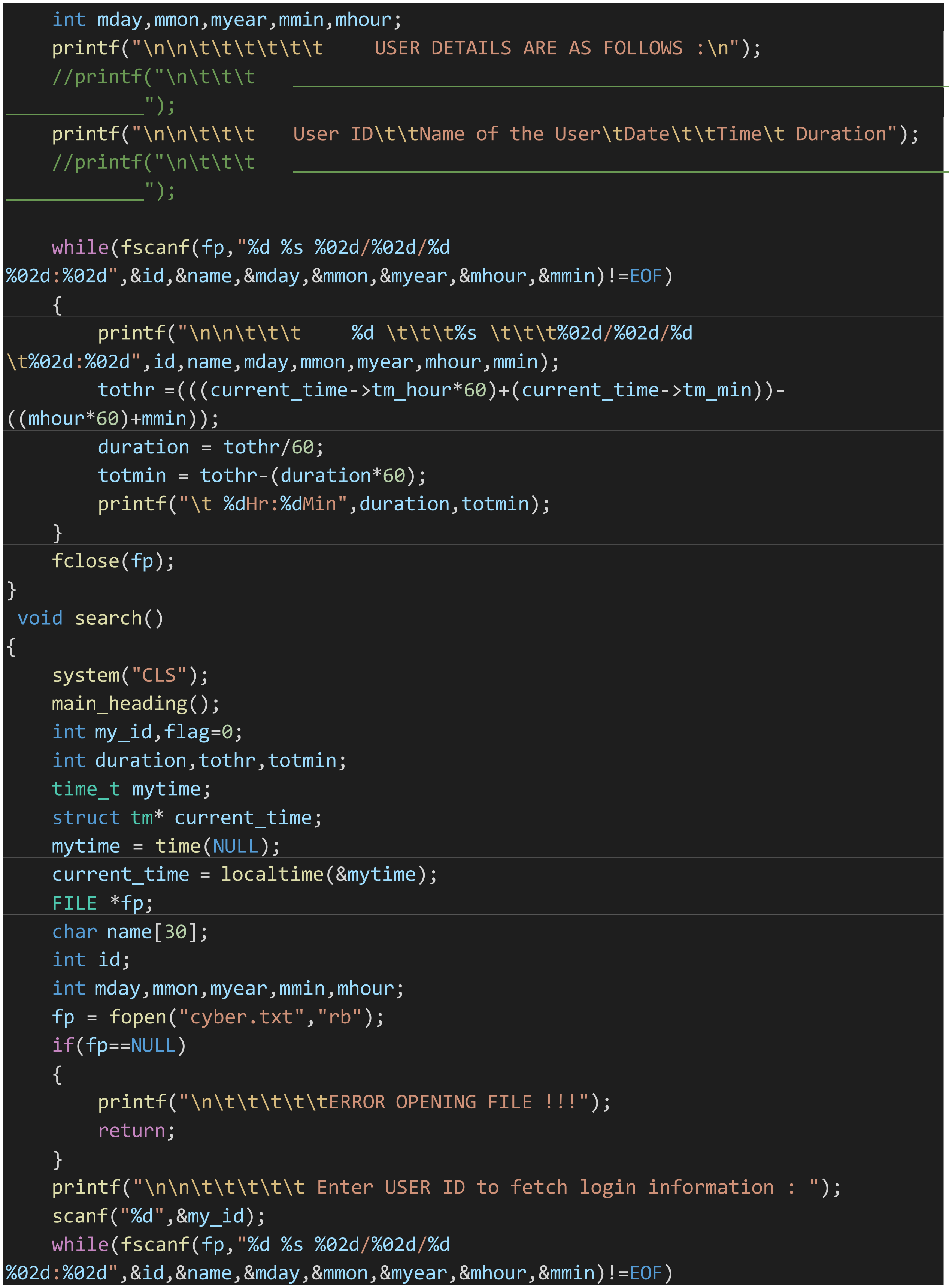
```c
    int choice;
    printf("\n\n\n\t\t\t\t\t\t    ||<--------MENU ------- >||");
    printf("\n\n\t\t\t\t\t\t      1.Insert a Record");
    printf("\n\t\t\t\t\t\t      2.Display Records");
    printf("\n\t\t\t\t\t\t      3.Search in Records");
    printf("\n\t\t\t\t\t\t      4.Delete a Record");
    printf("\n\t\t\t\t\t\t      5.Exit");
    printf("\n\n\t\t\t\t\t\t      Enter your choice : ");
    scanf("%d",&choice);

    switch(choice)
    {
        case 1: system("CLS");
                insert();
                break;

        case 2: system("CLS");
                main_heading();
                display();
                printf("\n\n\n\t\t\t\t\t\t     Press any key to continue ");
                fflush(stdin);
                getchar();
                menu();

        case 3: system("CLS");
                search();
                printf("\n\n\n\t\t\t\t\t\t   Press any key to continue ");
                fflush(stdin);
                getchar();
                menu();
                break;

        case 4: system("CLS");
                delete();
                break;

        case 5: system("CLS");
                exit(0);
                break;

        default: printf("\n\t\t\t\t\t\t\tINVALID CHOICE !!");
    }
}

void user_menu()
```



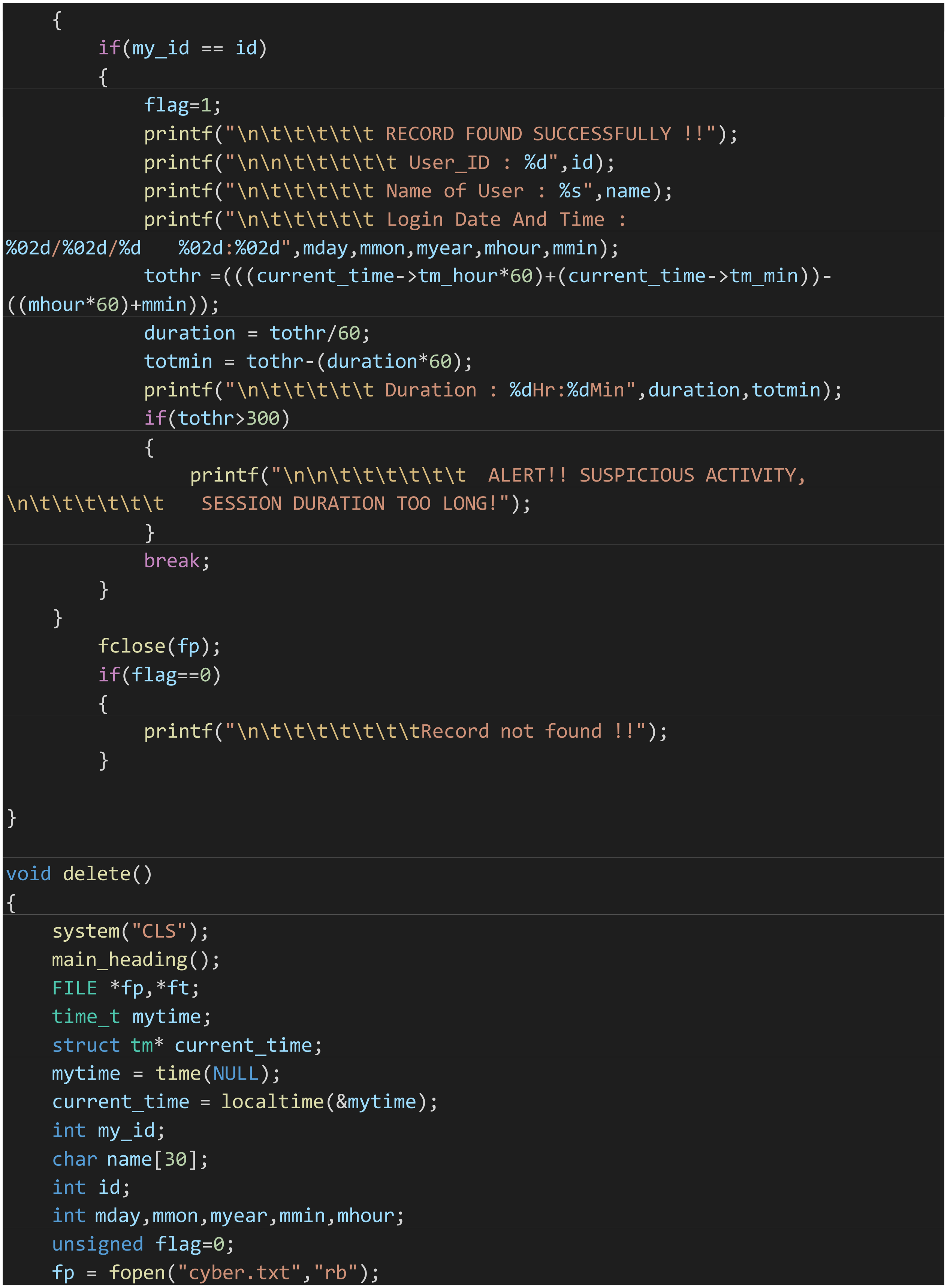
```
{
    int choice;
    printf("\n\n\n\n\t\t\t\t\t\t     ||<--------MENU ------- >||");
    printf("\n\n\n\n\t\t\t\t\t\t       1.)View Your Record");
    printf("\n\t\t\t\t\t\t       2.)Exit");
    printf("\n\n\t\t\t\t\t\t       Enter your choice : ");
    scanf("%d",&choice);

    switch(choice)
    {
        case 1: system("CLS");
                search();
                printf("\n\n\n\t\t\t\t\t\t        User Safely Exited! ");
                {exit(0);}
                break;

        case 2: system("CLS");
                exit(0);
                break;
        default: printf("\n\t\t\t\t\t\t\tINVALID CHOICE !!");
    }
}

void insert()
{
    time_t mytime;
    struct tm* current_time;
    mytime = time(NULL);
    current_time = localtime(&mytime);
    FILE *fp;
    char name[30];
    int id;
    char choice='y';
    system("CLS");
    fp = fopen("cyber.txt","ab+");

    if(fp==NULL)
    {
        printf("\n\t\t\t\t\tERROR OPENING FILE !!!");
        return;
    }
    fflush(stdin);
    while(choice=='y')
    {
        main_heading();
```



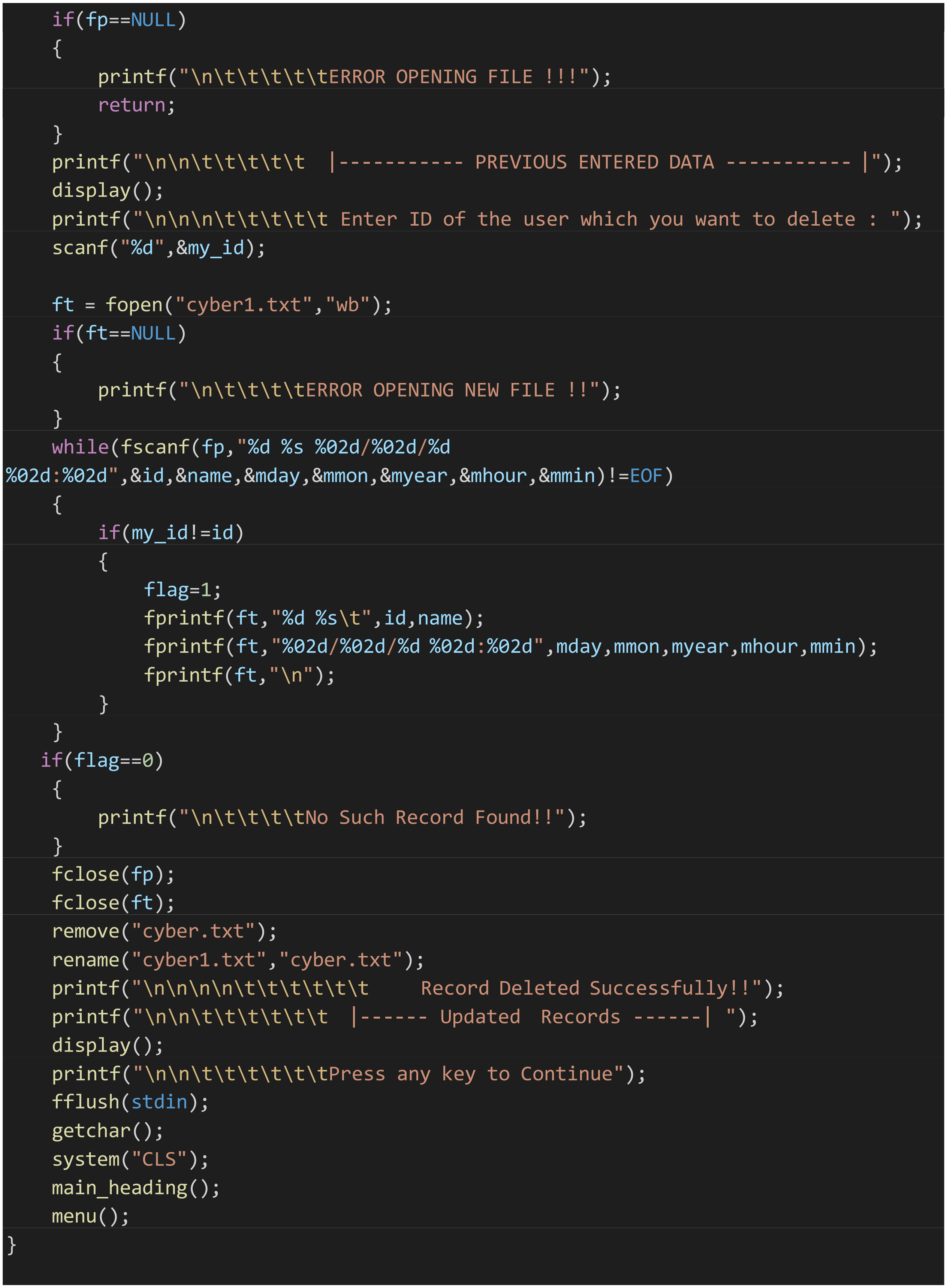
```
        printf("\n\n\t\t\t\t\t\t\tENTER NEW USER DATA :");
        printf("\n\n\t\t\t\t\t Enter USER ID : ");
        scanf("%d",&id);
        fflush(stdin);
        printf("\n\n\t\t\t\t\t Enter Name of the user : ");
        scanf("%s",&name);
        fflush(stdin);
        fprintf(fp,"%d %s\t",id,name);
        fprintf(fp,"%02d/%02d/%d  %02d:%02d",current_time->tm_mday,current_time-
>tm_mon+1,current_time->tm_year+1900,current_time->tm_hour,current_time->tm_min);
        fprintf(fp,"\n");
        arrival_time();
        printf("\n\n\t\t\t\t\t USER RECORD HAS BEEN INSERTED SUCCESSFULLY !!");

        printf("\n\n\t\t\t\t\t Do you want to add another record ? (y/n) : ");
        scanf("%c",&choice);
        fflush(stdin);
        system("CLS");
        fflush(stdin);
    }
    fclose(fp);
    printf("\n\n\t\t\t\t\t\t     Press any key to continue ");
    getchar();
    menu();
}

void display()
{

    int duration,tothr;
    int totmin;
    time_t mytime;
    struct tm* current_time;
    mytime = time(NULL);
    current_time = localtime(&mytime);
    FILE *fp;
    fp = fopen("cyber.txt","rb");

    if(fp==NULL)
    {
        printf("\n\t\t\t\t\tERROR OPENING FILE !!!");
        return;
    }
    char name[30];
    int id;
```



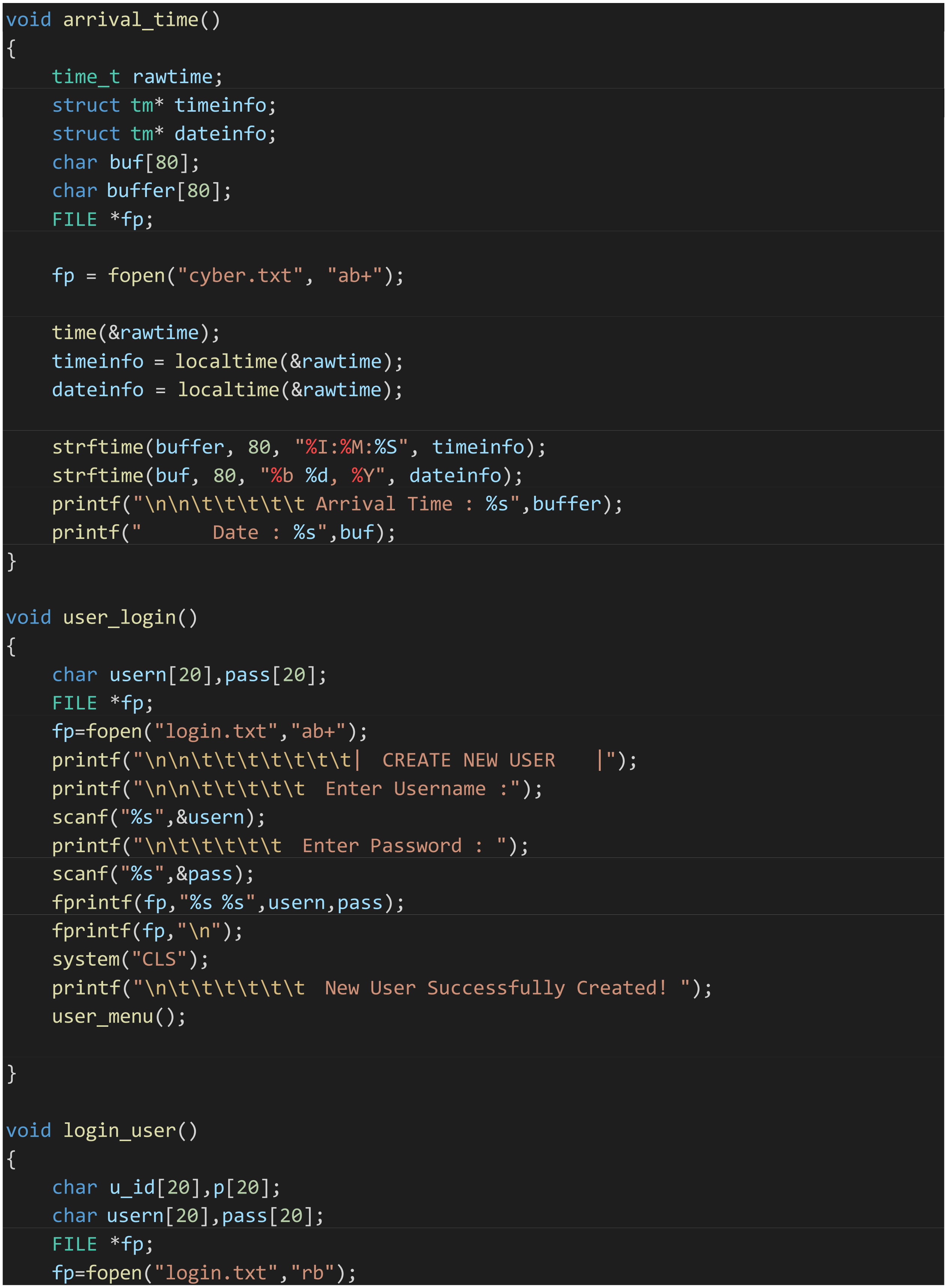
```
    int mday,mmon,myear,mmin,mhour;
    printf("\n\n\t\t\t\t\t\t     USER DETAILS ARE AS FOLLOWS :\n");
    //printf("\n\t\t\t    ____________________________________________________________
____________");
    printf("\n\n\t\t\t    User ID\t\tName of the User\tDate\t\tTime\t Duration");
    //printf("\n\t\t\t    ____________________________________________________________
____________");

    while(fscanf(fp,"%d %s %02d/%02d/%d
%02d:%02d",&id,&name,&mday,&mmon,&myear,&mhour,&mmin)!=EOF)
    {
        printf("\n\n\t\t\t     %d \t\t\t%s \t\t\t%02d/%02d/%d
\t%02d:%02d",id,name,mday,mmon,myear,mhour,mmin);
        tothr =(((current_time->tm_hour*60)+(current_time->tm_min))-
((mhour*60)+mmin));
        duration = tothr/60;
        totmin = tothr-(duration*60);
        printf("\t %dHr:%dMin",duration,totmin);
    }
    fclose(fp);
}
 void search()
{
    system("CLS");
    main_heading();
    int my_id,flag=0;
    int duration,tothr,totmin;
    time_t mytime;
    struct tm* current_time;
    mytime = time(NULL);
    current_time = localtime(&mytime);
    FILE *fp;
    char name[30];
    int id;
    int mday,mmon,myear,mmin,mhour;
    fp = fopen("cyber.txt","rb");
    if(fp==NULL)
    {
        printf("\n\t\t\t\t\tERROR OPENING FILE !!!");
        return;
    }
    printf("\n\n\t\t\t\t\t Enter USER ID to fetch login information : ");
    scanf("%d",&my_id);
    while(fscanf(fp,"%d %s %02d/%02d/%d
%02d:%02d",&id,&name,&mday,&mmon,&myear,&mhour,&mmin)!=EOF)
```



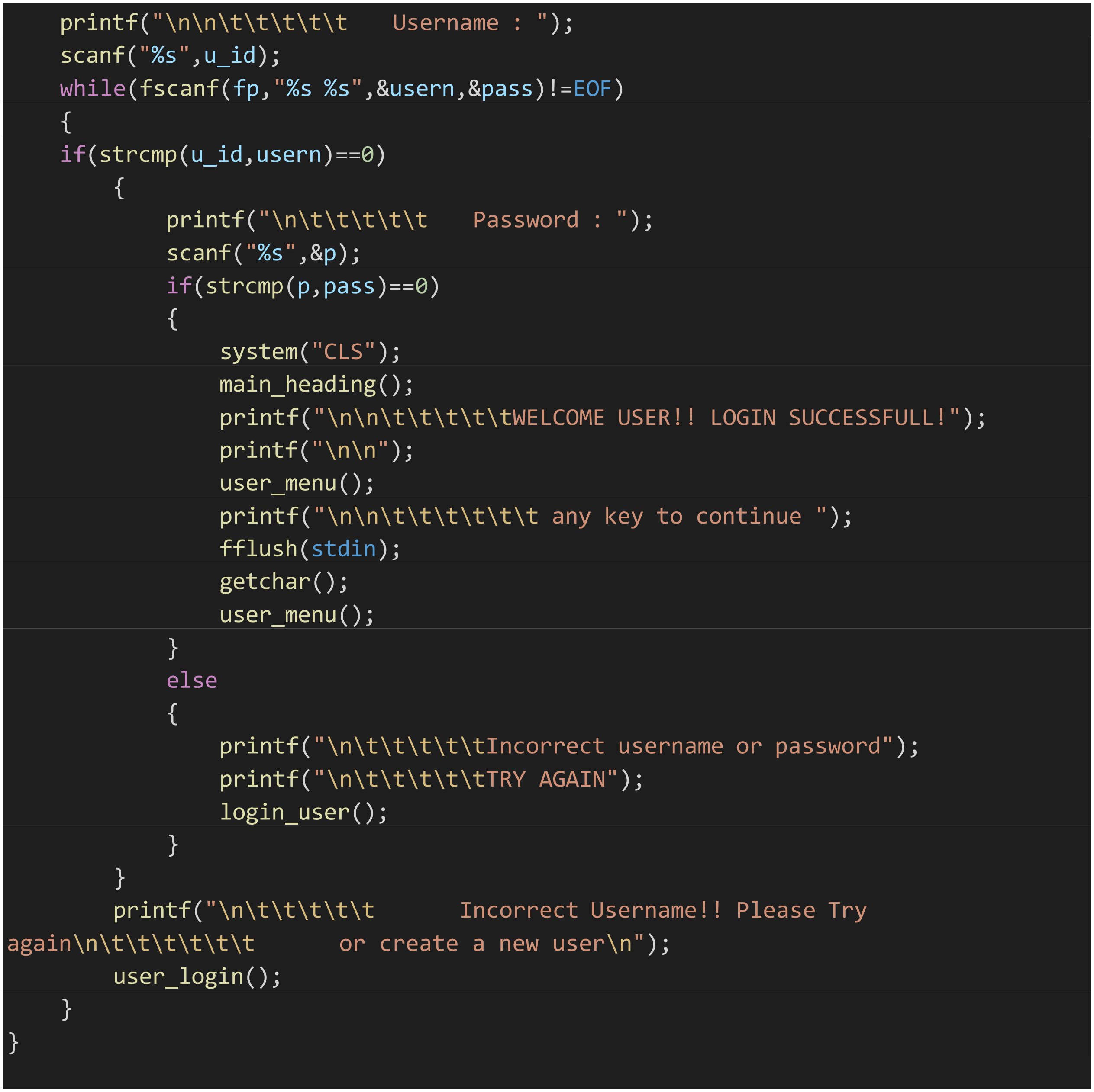
```
    {
        if(my_id == id)
        {
            flag=1;
            printf("\n\t\t\t\t\t\t RECORD FOUND SUCCESSFULLY !!");
            printf("\n\n\t\t\t\t\t\t User_ID : %d",id);
            printf("\n\t\t\t\t\t\t Name of User : %s",name);
            printf("\n\t\t\t\t\t\t Login Date And Time :
%02d/%02d/%d   %02d:%02d",mday,mmon,myear,mhour,mmin);
            tothr =(((current_time->tm_hour*60)+(current_time->tm_min))-
((mhour*60)+mmin));
            duration = tothr/60;
            totmin = tothr-(duration*60);
            printf("\n\t\t\t\t\t\t Duration : %dHr:%dMin",duration,totmin);
            if(tothr>300)
            {
                printf("\n\n\t\t\t\t\t\t\t  ALERT!! SUSPICIOUS ACTIVITY,
\n\t\t\t\t\t\t   SESSION DURATION TOO LONG!");
            }
            break;
        }
    }
        fclose(fp);
        if(flag==0)
        {
            printf("\n\t\t\t\t\t\t\t\tRecord not found !!");
        }

}

void delete()
{
    system("CLS");
    main_heading();
    FILE *fp,*ft;
    time_t mytime;
    struct tm* current_time;
    mytime = time(NULL);
    current_time = localtime(&mytime);
    int my_id;
    char name[30];
    int id;
    int mday,mmon,myear,mmin,mhour;
    unsigned flag=0;
    fp = fopen("cyber.txt","rb");
```



```
    if(fp==NULL)
    {
        printf("\n\t\t\t\t\tERROR OPENING FILE !!!");
        return;
    }
    printf("\n\n\t\t\t\t\t  |----------- PREVIOUS ENTERED DATA ----------- |");
    display();
    printf("\n\n\n\t\t\t\t\t Enter ID of the user which you want to delete : ");
    scanf("%d",&my_id);

    ft = fopen("cyber1.txt","wb");
    if(ft==NULL)
    {
        printf("\n\t\t\t\tERROR OPENING NEW FILE !!");
    }
    while(fscanf(fp,"%d %s %02d/%02d/%d
%02d:%02d",&id,&name,&mday,&mmon,&myear,&mhour,&mmin)!=EOF)
    {
        if(my_id!=id)
        {
            flag=1;
            fprintf(ft,"%d %s\t",id,name);
            fprintf(ft,"%02d/%02d/%d %02d:%02d",mday,mmon,myear,mhour,mmin);
            fprintf(ft,"\n");
        }
    }
   if(flag==0)
    {
        printf("\n\t\t\t\tNo Such Record Found!!");
    }
    fclose(fp);
    fclose(ft);
    remove("cyber.txt");
    rename("cyber1.txt","cyber.txt");
    printf("\n\n\n\n\t\t\t\t\t\t    Record Deleted Successfully!!");
    printf("\n\n\t\t\t\t\t\t  |------ Updated  Records ------| ");
    display();
    printf("\n\n\t\t\t\t\t\tPress any key to Continue");
    fflush(stdin);
    getchar();
    system("CLS");
    main_heading();
    menu();
}
```



```
void arrival_time()
{
    time_t rawtime;
    struct tm* timeinfo;
    struct tm* dateinfo;
    char buf[80];
    char buffer[80];
    FILE *fp;

    fp = fopen("cyber.txt", "ab+");

    time(&rawtime);
    timeinfo = localtime(&rawtime);
    dateinfo = localtime(&rawtime);

    strftime(buffer, 80, "%I:%M:%S", timeinfo);
    strftime(buf, 80, "%b %d, %Y", dateinfo);
    printf("\n\n\t\t\t\t\t Arrival Time : %s",buffer);
    printf("      Date : %s",buf);
}

void user_login()
{
    char usern[20],pass[20];
    FILE *fp;
    fp=fopen("login.txt","ab+");
    printf("\n\n\t\t\t\t\t\t\t|  CREATE NEW USER    |");
    printf("\n\n\t\t\t\t\t  Enter Username :");
    scanf("%s",&usern);
    printf("\n\t\t\t\t\t  Enter Password : ");
    scanf("%s",&pass);
    fprintf(fp,"%s %s",usern,pass);
    fprintf(fp,"\n");
    system("CLS");
    printf("\n\t\t\t\t\t\t  New User Successfully Created! ");
    user_menu();

}

void login_user()
{
    char u_id[20],p[20];
    char usern[20],pass[20];
    FILE *fp;
    fp=fopen("login.txt","rb");
```

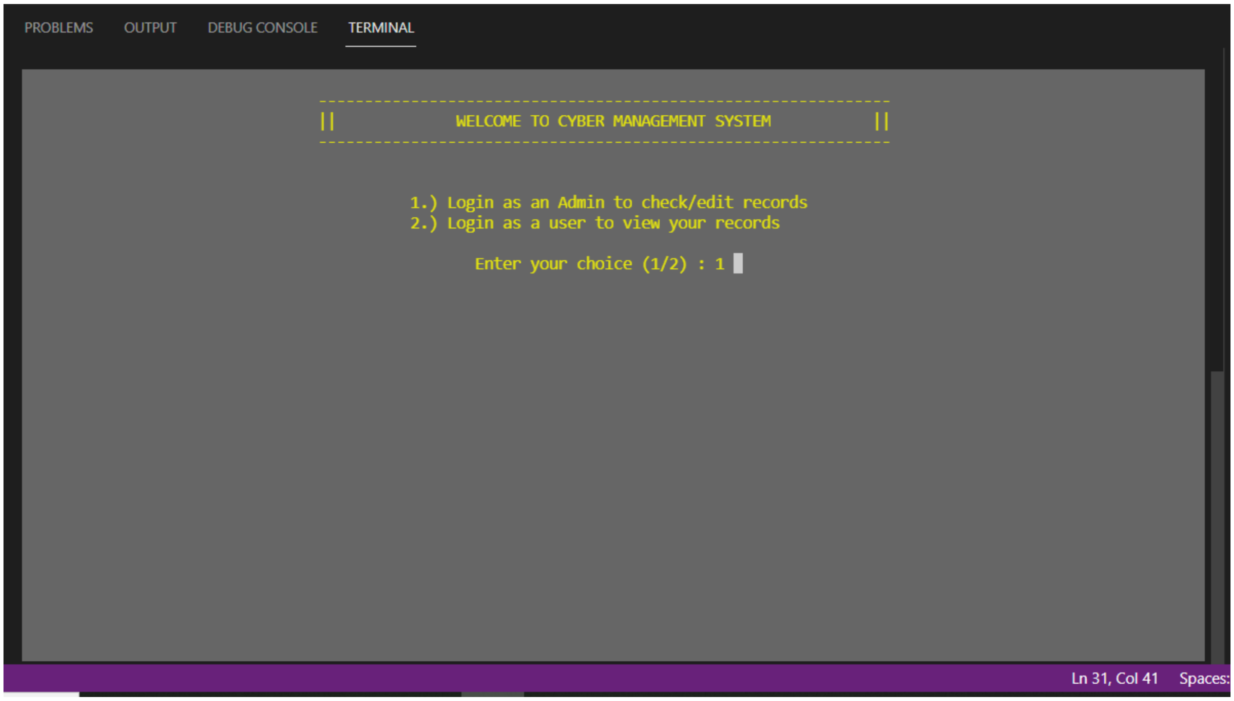


```
    printf("\n\n\t\t\t\t\t   Username : ");
    scanf("%s",u_id);
    while(fscanf(fp,"%s %s",&usern,&pass)!=EOF)
    {
    if(strcmp(u_id,usern)==0)
        {
            printf("\n\t\t\t\t\t   Password : ");
            scanf("%s",&p);
            if(strcmp(p,pass)==0)
            {
                system("CLS");
                main_heading();
                printf("\n\n\t\t\t\t\tWELCOME USER!! LOGIN SUCCESSFULL!");
                printf("\n\n");
                user_menu();
                printf("\n\n\t\t\t\t\t\t any key to continue ");
                fflush(stdin);
                getchar();
                user_menu();
            }
            else
            {
                printf("\n\t\t\t\t\tIncorrect username or password");
                printf("\n\t\t\t\t\tTRY AGAIN");
                login_user();
            }
        }
        printf("\n\t\t\t\t\t      Incorrect Username!! Please Try 
again\n\t\t\t\t\t\t      or create a new user\n");
        user_login();
    }
}
```

Screenshots:

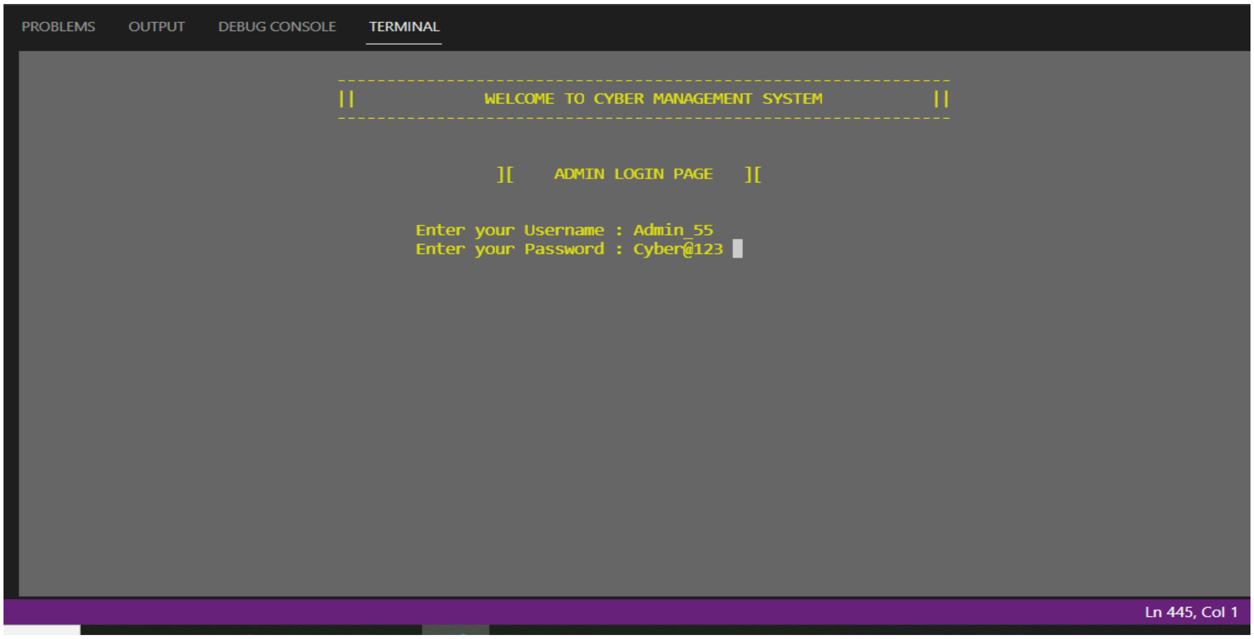
Here are attached several screenshots of the terminal window the user gets on executing the program. It includes all the various cases/choices that the user may opt for, and we have shown the final result/output displayed for each case.

This is the main homepage:



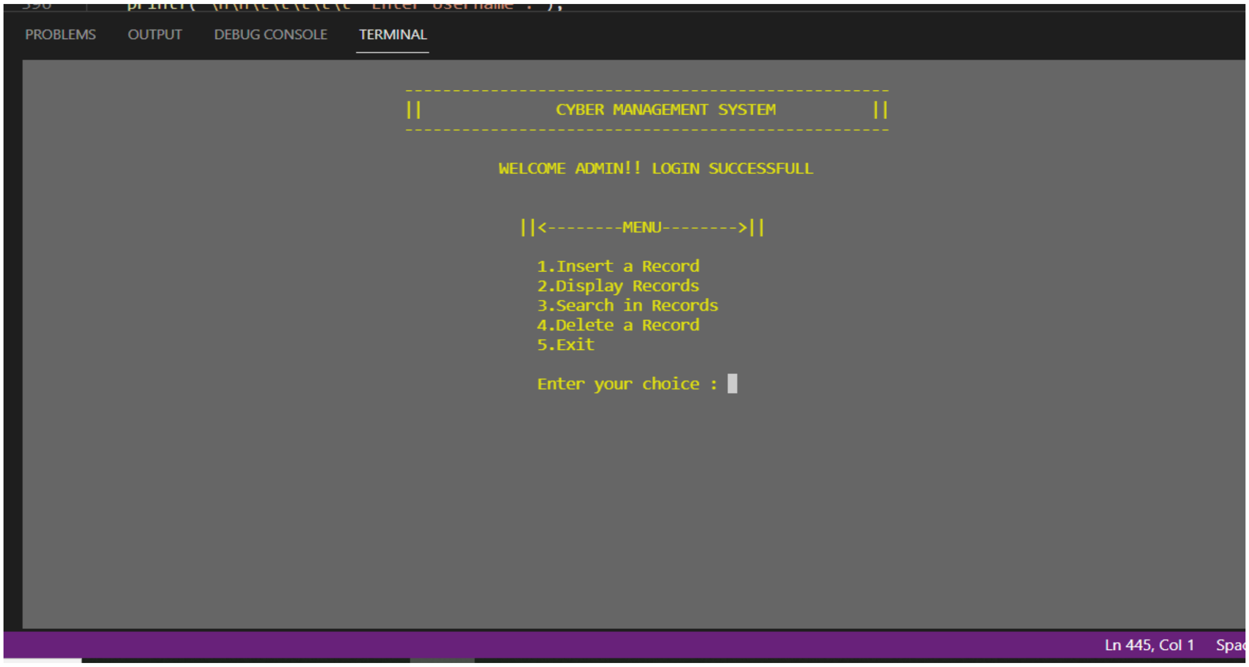
```
-------------------------------------------------------------
||              WELCOME TO CYBER MANAGEMENT SYSTEM          ||
-------------------------------------------------------------


          1.) Login as an Admin to check/edit records
          2.) Login as a user to view your records

                 Enter your choice (1/2) : 1
```

This is window displayed when user opts for admin login:



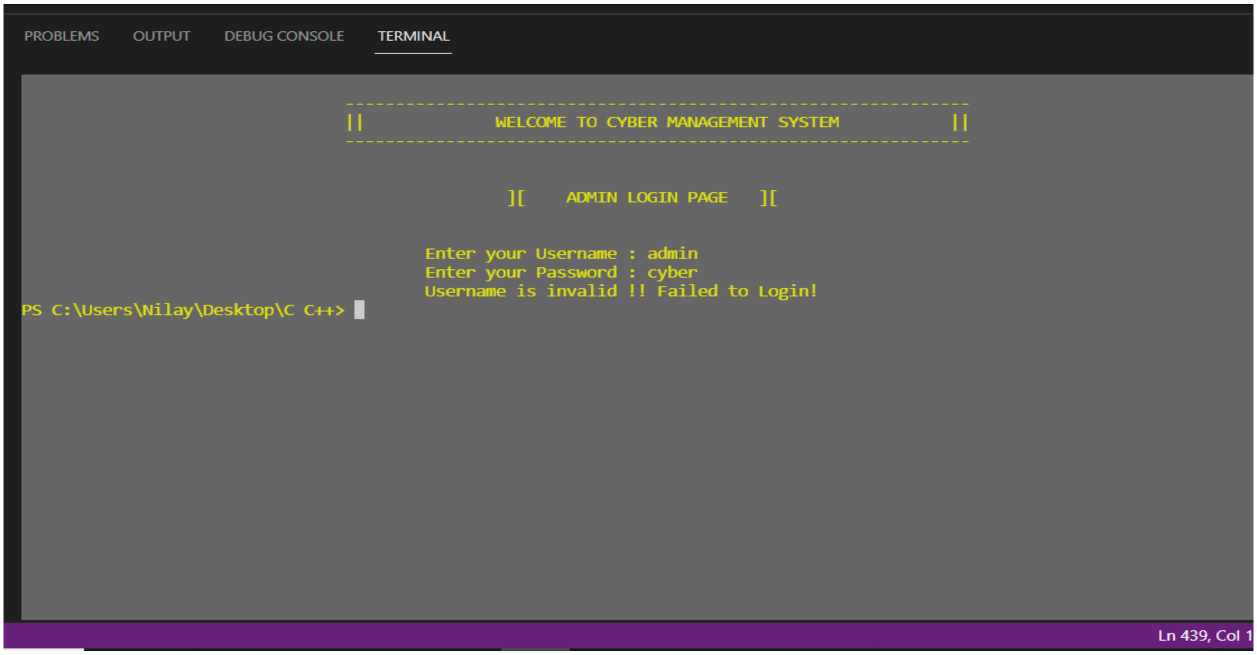
```
            ----------------------------------------------------------------
            ||               WELCOME  TO CYBER MANAGEMENT SYSTEM           ||
            ----------------------------------------------------------------


                            ][     ADMIN LOGIN PAGE    ][


                    Enter your Username : Admin_55
                    Enter your Password : Cyber@123
```

This is the page displayed on successful admin login:



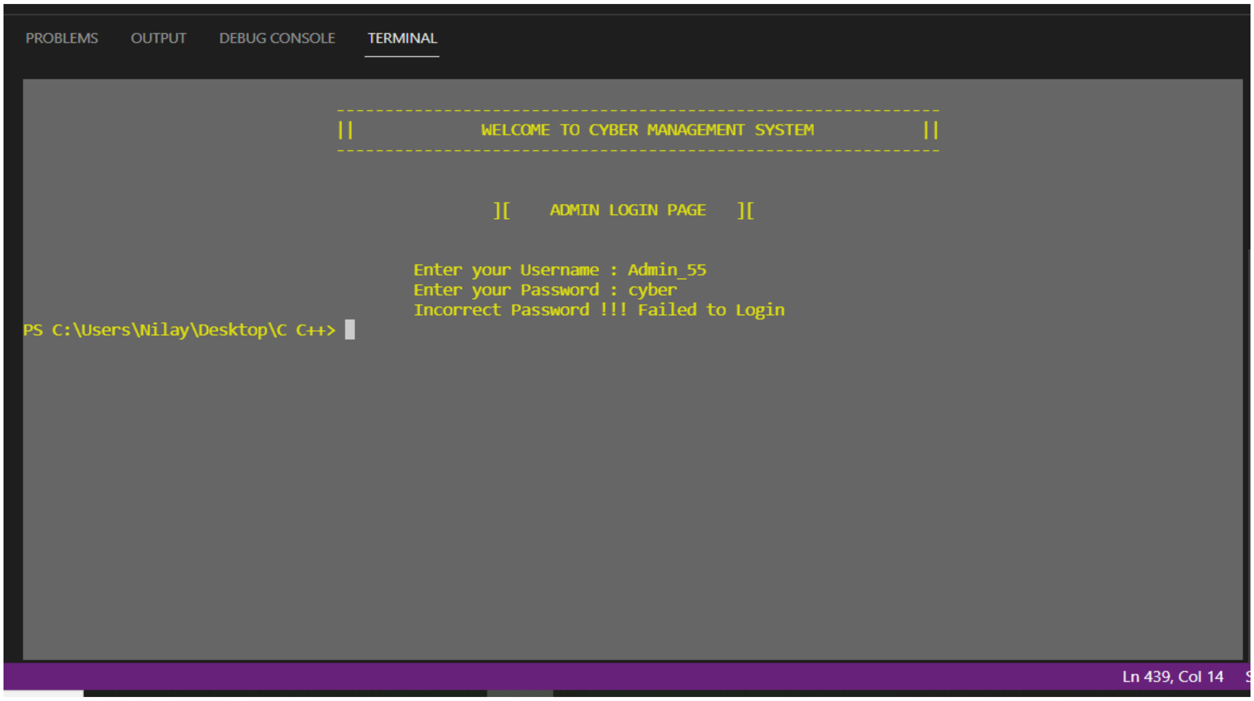
```
            --------------------------------------------------
            ||              CYBER MANAGEMENT SYSTEM          ||
            --------------------------------------------------

                      WELCOME ADMIN!! LOGIN SUCCESSFULL


                         ||<--------MENU-------->||

                           1.Insert a Record
                           2.Display Records
                           3.Search in Records
                           4.Delete a Record
                           5.Exit

                           Enter your choice :
```

This is the page displayed on entering incorrect username:



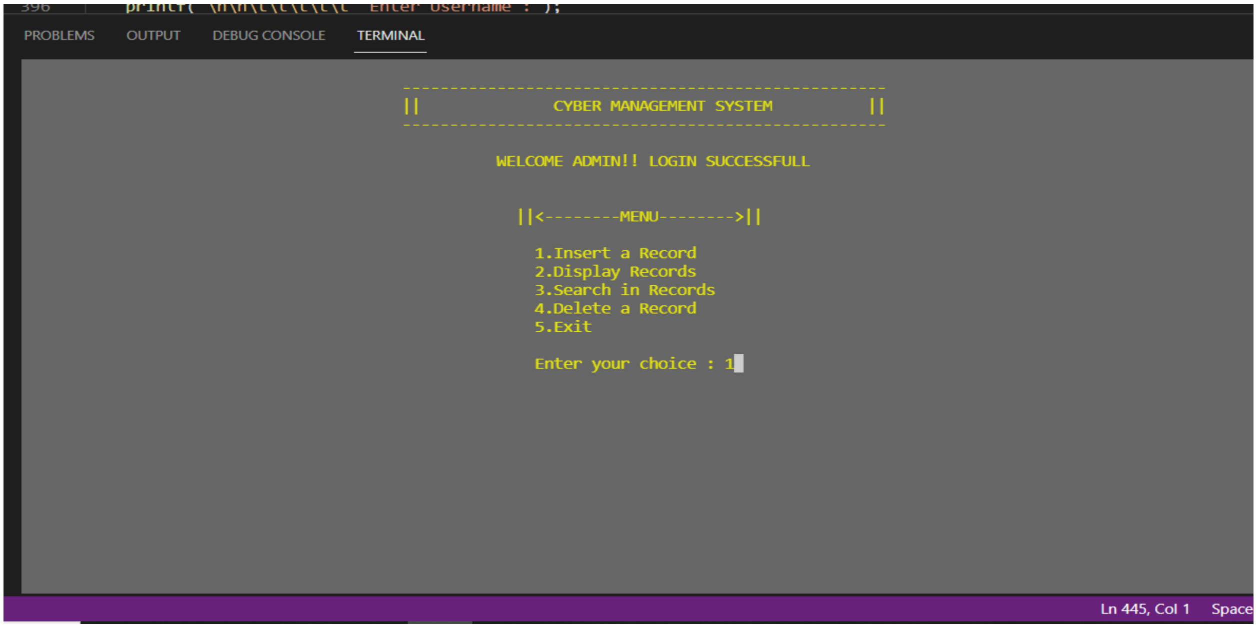
```
                                   ---------------------------------------------------------------
                                   ||             WELCOME TO CYBER MANAGEMENT SYSTEM            ||
                                   ---------------------------------------------------------------

                                                    ][    ADMIN LOGIN PAGE    ][

                                           Enter your Username : admin
                                           Enter your Password : cyber
                                           Username is invalid !! Failed to Login!
PS C:\Users\Nilay\Desktop\C C++>
```

This is page displayed on entering incorrect password:



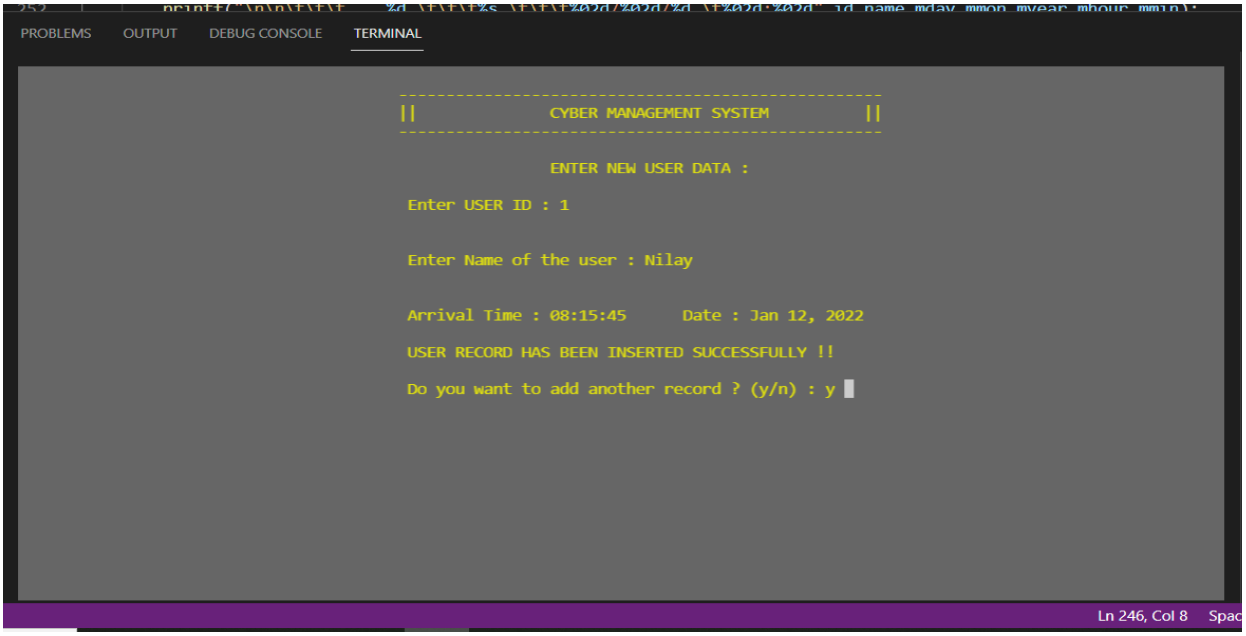
```
                                   ---------------------------------------------------------------
                                   ||             WELCOME TO CYBER MANAGEMENT SYSTEM            ||
                                   ---------------------------------------------------------------

                                                    ][    ADMIN LOGIN PAGE    ][

                                          Enter your Username : Admin_55
                                          Enter your Password : cyber
                                          Incorrect Password !!! Failed to Login
PS C:\Users\Nilay\Desktop\C C++>
```

On successful login, the user can choose an option from the given menu:



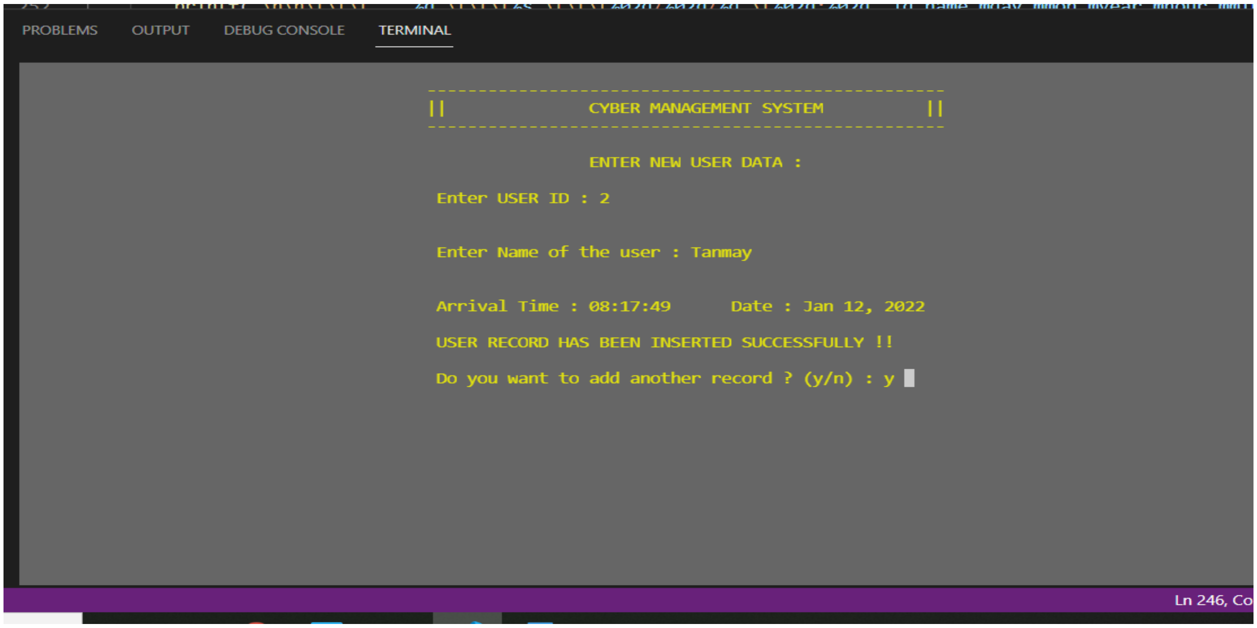
```
            ----------------------------------------------------
            ||               CYBER MANAGEMENT SYSTEM           ||
            ----------------------------------------------------

                      WELCOME ADMIN!! LOGIN SUCCESSFULL

                          ||<--------MENU-------->||

                            1.Insert a Record
                            2.Display Records
                            3.Search in Records
                            4.Delete a Record
                            5.Exit

                            Enter your choice : 1
```

On selecting Option 1, "Insert a new Record", the user can enter the data and the following details will be displayed:



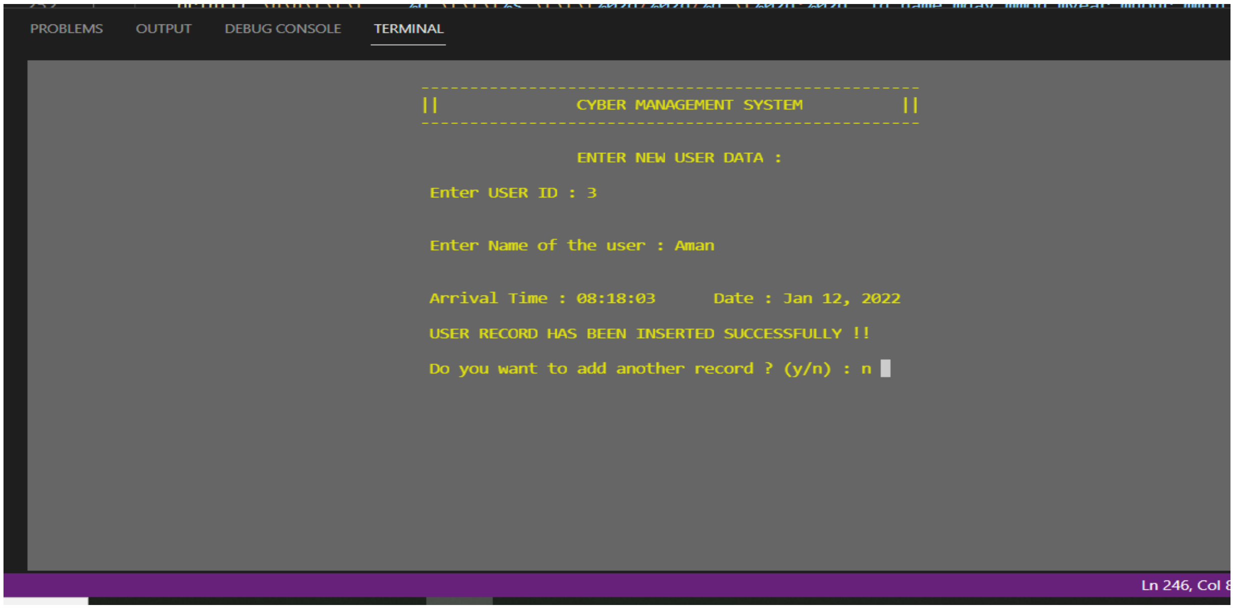
```
            ----------------------------------------------------
            ||               CYBER MANAGEMENT SYSTEM           ||
            ----------------------------------------------------

                           ENTER NEW USER DATA :
             Enter USER ID : 1


             Enter Name of the user : Nilay


             Arrival Time : 08:15:45      Date : Jan 12, 2022

             USER RECORD HAS BEEN INSERTED SUCCESSFULLY !!

             Do you want to add another record ? (y/n) : y
```

If the user wants to insert another record, they can do so by typing ‘y’ for yes:



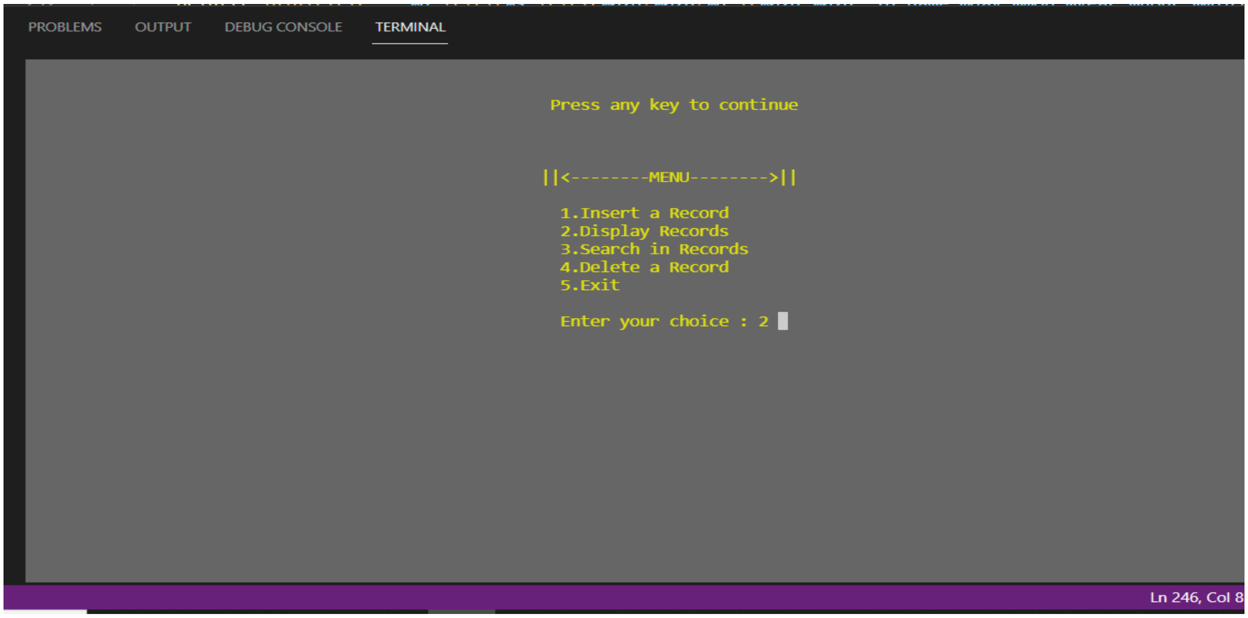
```
-----------------------------------------------------
||                CYBER MANAGEMENT SYSTEM          ||
-----------------------------------------------------

                ENTER NEW USER DATA :

 Enter USER ID : 2

 Enter Name of the user : Tanmay

 Arrival Time : 08:17:49      Date : Jan 12, 2022

 USER RECORD HAS BEEN INSERTED SUCCESSFULLY !!

 Do you want to add another record ? (y/n) : y
```

Similarly, the user can insert as many records as they want and can type “n” for no, once they are done inserting:



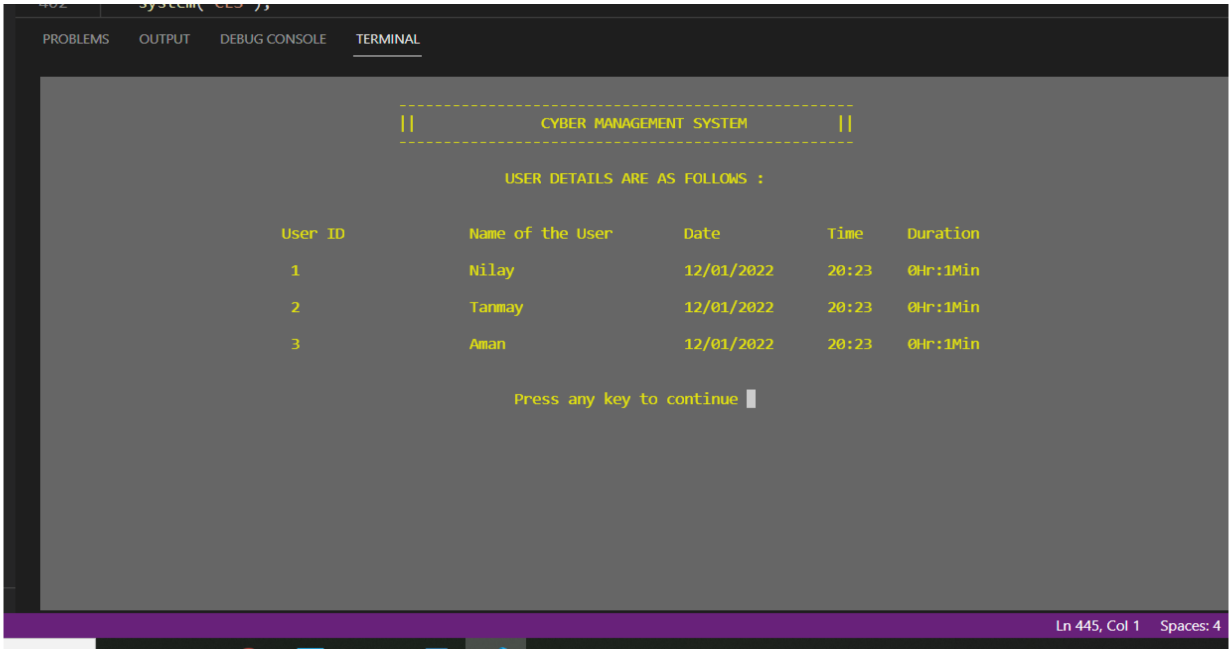
```
-----------------------------------------------------
||                CYBER MANAGEMENT SYSTEM          ||
-----------------------------------------------------

                ENTER NEW USER DATA :

 Enter USER ID : 3

 Enter Name of the user : Aman

 Arrival Time : 08:18:03      Date : Jan 12, 2022

 USER RECORD HAS BEEN INSERTED SUCCESSFULLY !!

 Do you want to add another record ? (y/n) : n
```

On clicking no, user can press any key to continue and they will be redirected back to the homepage, where they can now choose another option:



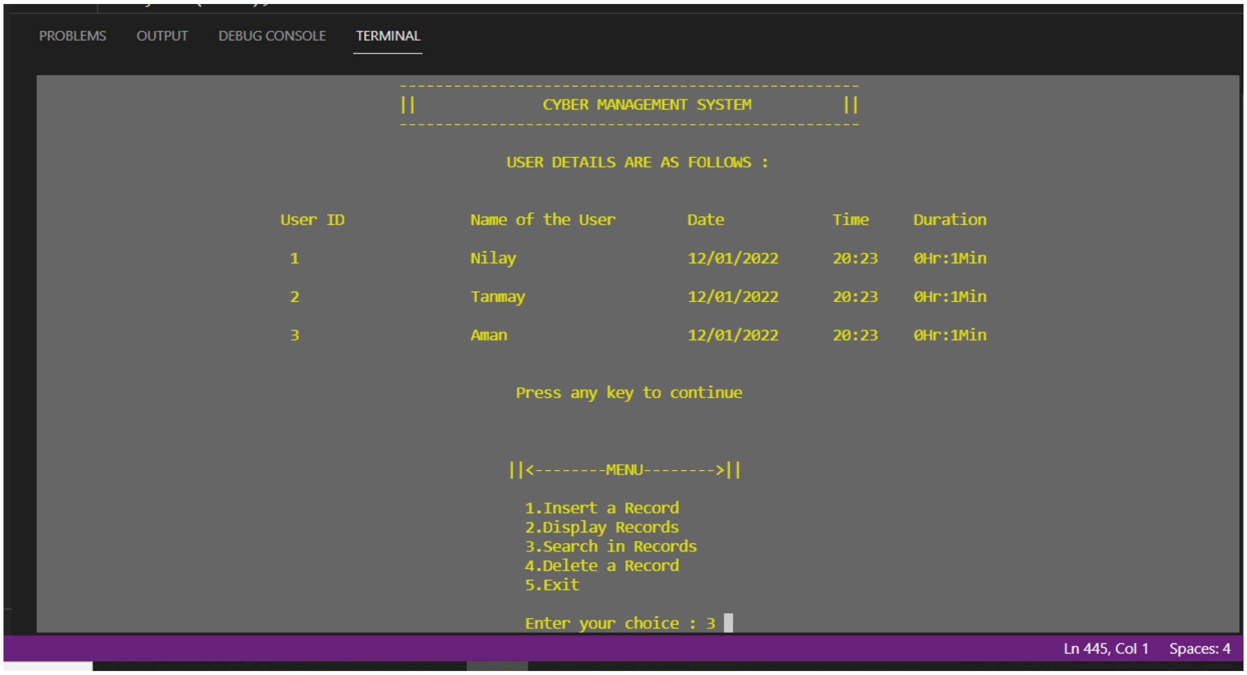
```
Press any key to continue


||<--------MENU-------->||

  1.Insert a Record
  2.Display Records
  3.Search in Records
  4.Delete a Record
  5.Exit

  Enter your choice : 2
```

On opting for option 2, user records will be displayed, as entered earlier, along with the date and time of login and also the time for which the session has been active:



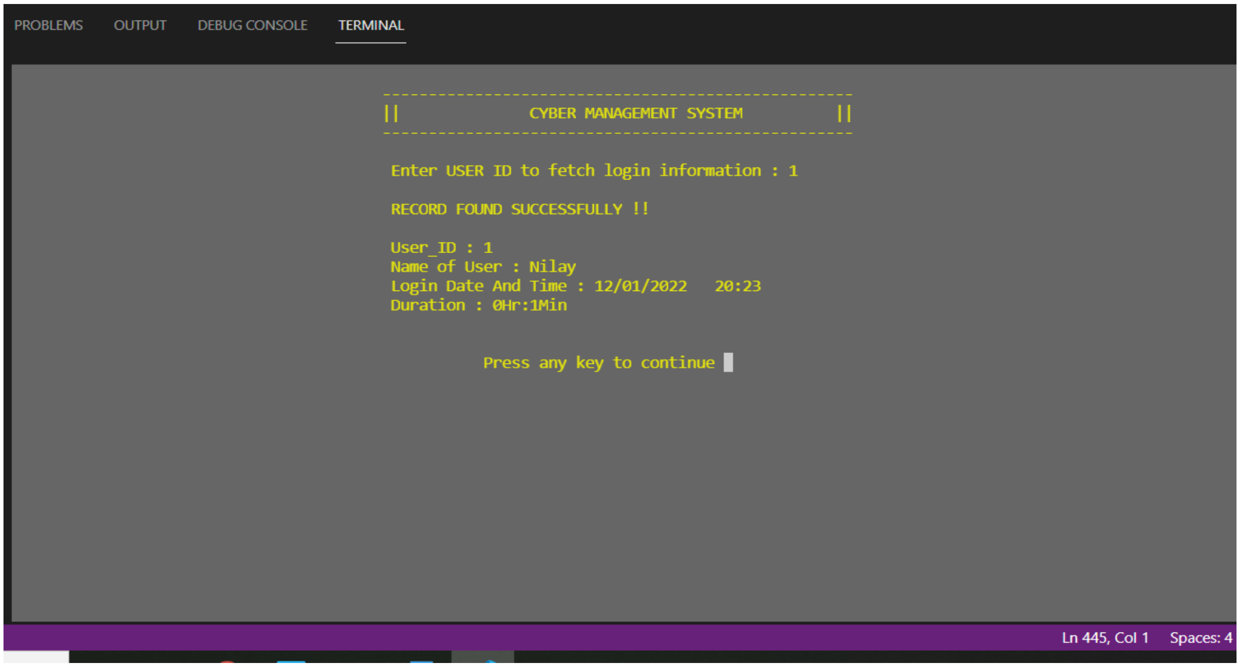
```
                ---------------------------------------------------
                ||              CYBER MANAGEMENT SYSTEM          ||
                ---------------------------------------------------

                           USER DETAILS ARE AS FOLLOWS :


User ID              Name of the User        Date          Time     Duration

 1                   Nilay                   12/01/2022    20:23    0Hr:1Min

 2                   Tanmay                  12/01/2022    20:23    0Hr:1Min

 3                   Aman                    12/01/2022    20:23    0Hr:1Min

                           Press any key to continue
```

On pressing any key, the user will be redirected to the menu page:

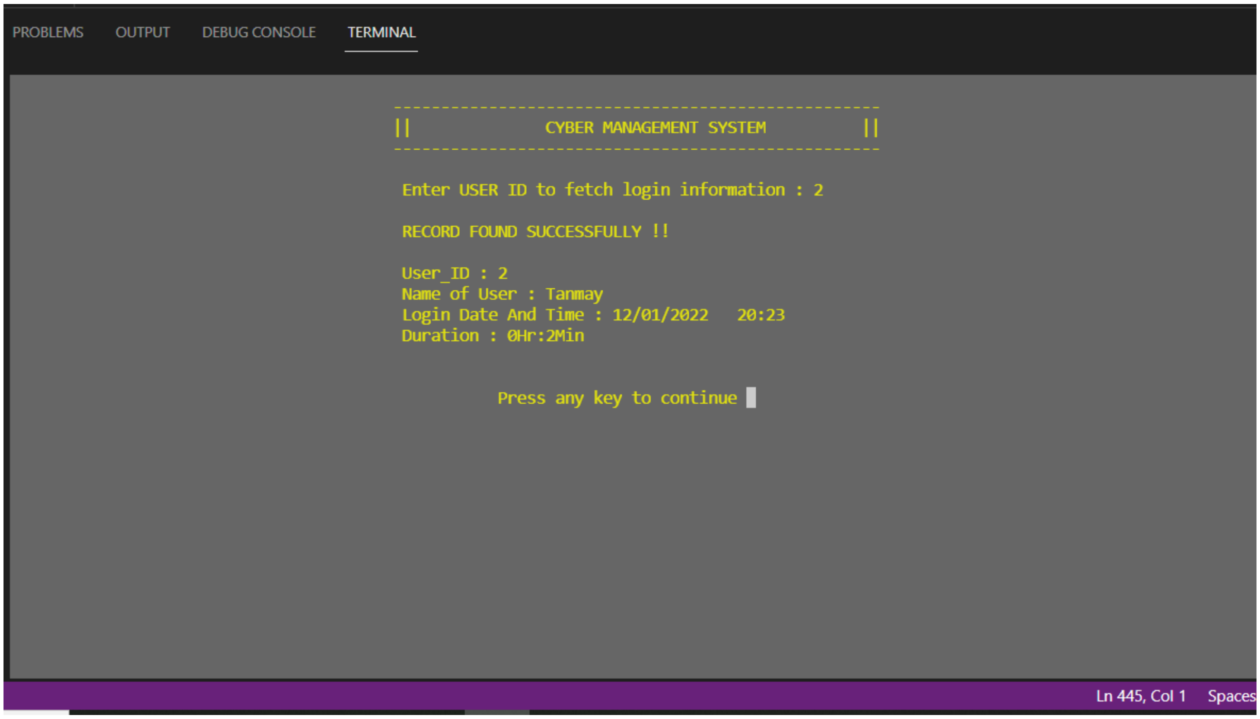


```
                    ---------------------------------------------------
                    ||              CYBER MANAGEMENT SYSTEM          ||
                    ---------------------------------------------------

                              USER DETAILS ARE AS FOLLOWS :


     User ID              Name of the User        Date          Time      Duration

      1                   Nilay                   12/01/2022    20:23     0Hr:1Min

      2                   Tanmay                  12/01/2022    20:23     0Hr:1Min

      3                   Aman                    12/01/2022    20:23     0Hr:1Min

                               Press any key to continue


                            ||<--------MENU-------->||

                              1.Insert a Record
                              2.Display Records
                              3.Search in Records
                              4.Delete a Record
                              5.Exit

                              Enter your choice : 3
```

On opting for option 3, user can search for a particular entry in the records, by entering the user ID:

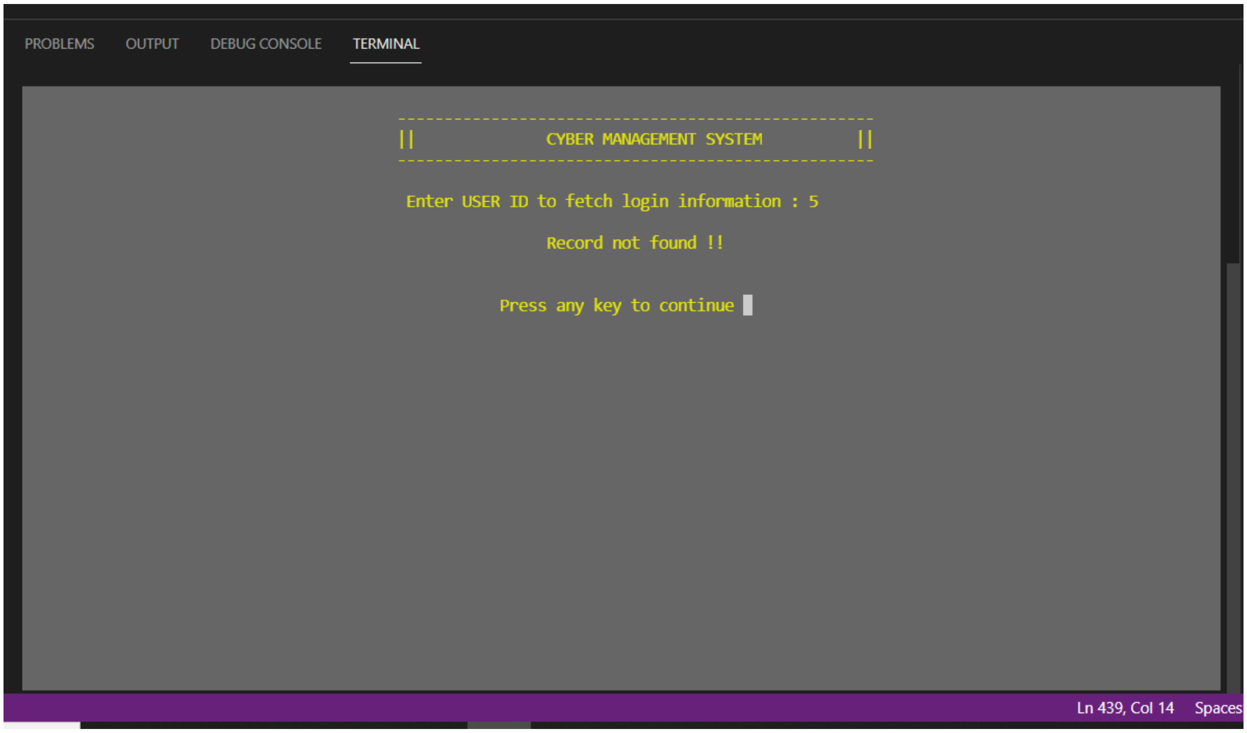


```
---------------------------------------------------
||              CYBER MANAGEMENT SYSTEM          ||
---------------------------------------------------

 Enter USER ID to fetch login information : 1

 RECORD FOUND SUCCESSFULLY !!

 User_ID : 1
 Name of User : Nilay
 Login Date And Time : 12/01/2022   20:23
 Duration : 0Hr:1Min

           Press any key to continue
```



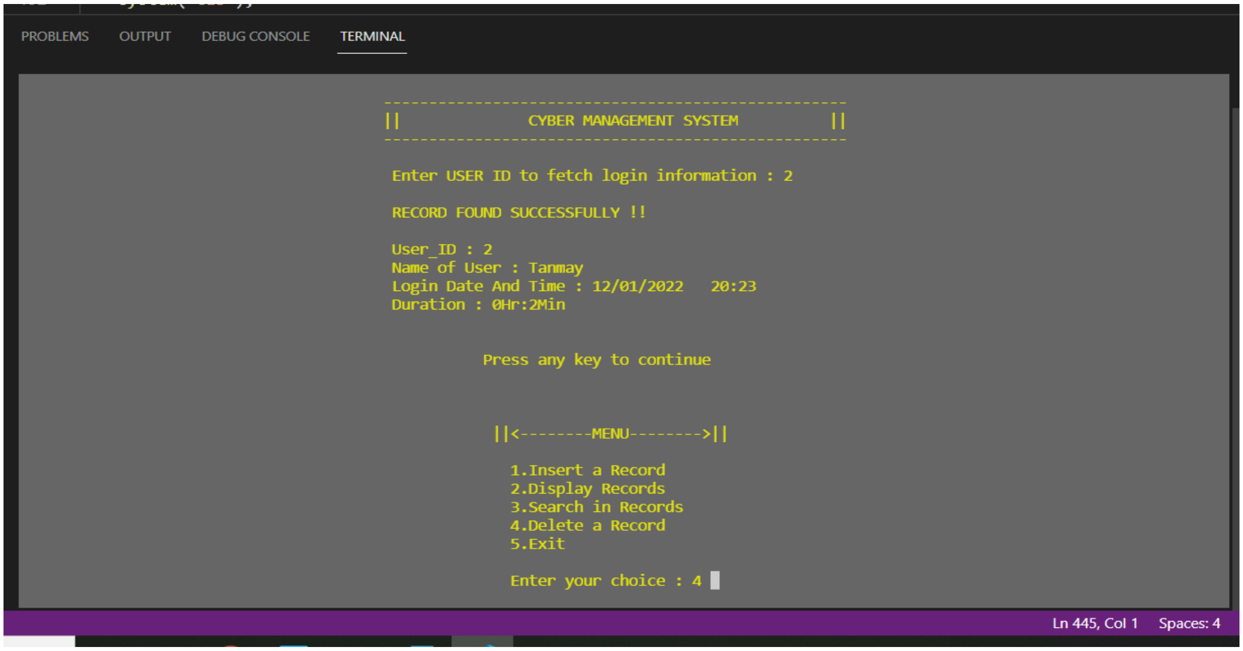
```
---------------------------------------------------
||              CYBER MANAGEMENT SYSTEM          ||
---------------------------------------------------

 Enter USER ID to fetch login information : 2

 RECORD FOUND SUCCESSFULLY !!

 User_ID : 2
 Name of User : Tanmay
 Login Date And Time : 12/01/2022   20:23
 Duration : 0Hr:2Min


           Press any key to continue
```

On entering an invalid user ID, the following error message will be displayed:



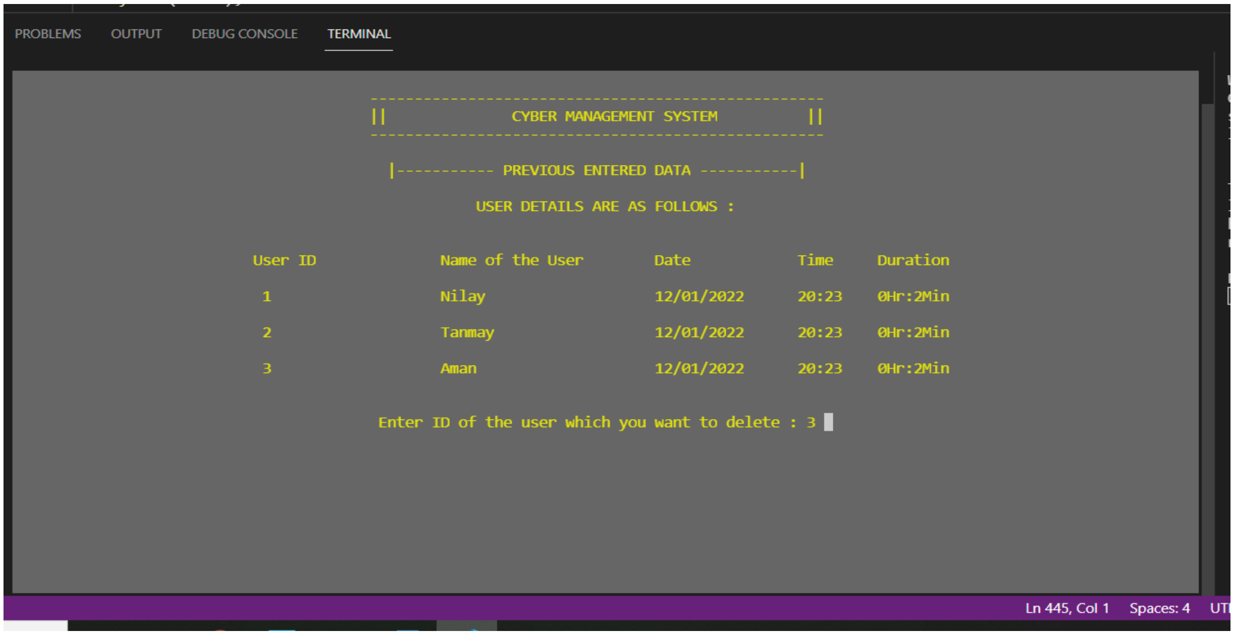
```
---------------------------------------------------
||              CYBER MANAGEMENT SYSTEM          ||
---------------------------------------------------

 Enter USER ID to fetch login information : 5

                Record not found !!


           Press any key to continue
```

By pressing any key, the user will be redirected to the menu page to chose a different option:



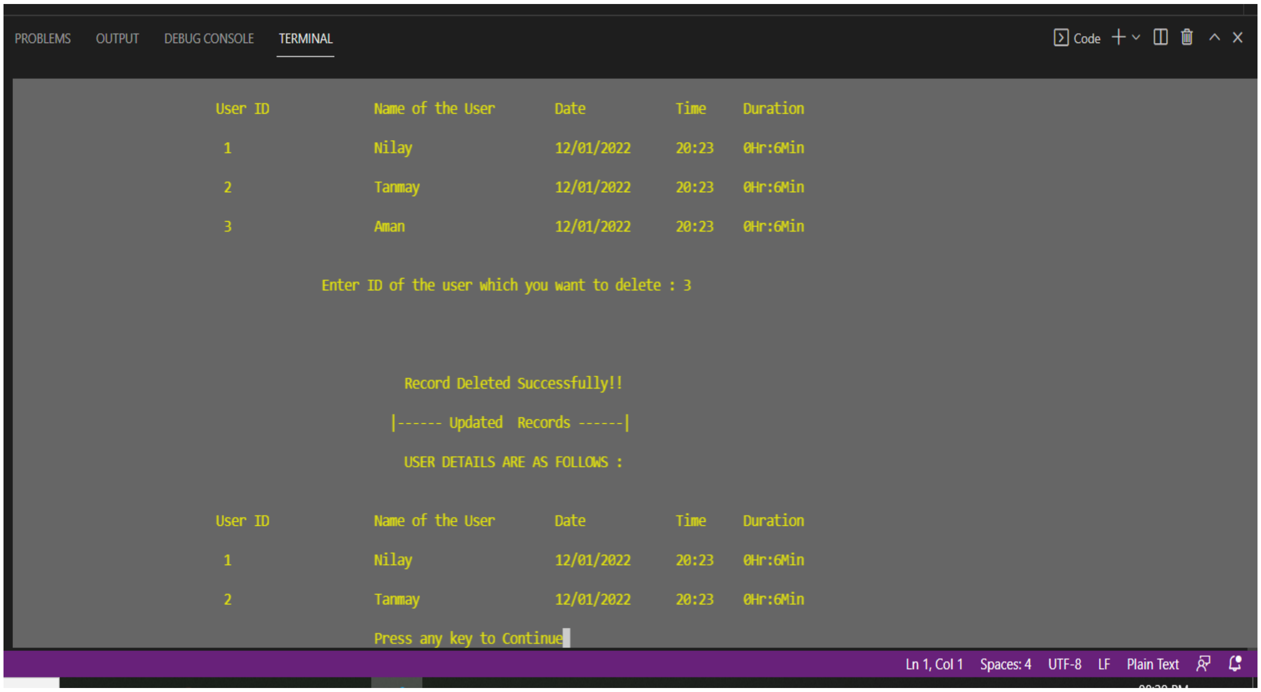
```
--------------------------------------------------
||              CYBER MANAGEMENT SYSTEM         ||
--------------------------------------------------

 Enter USER ID to fetch login information : 2

 RECORD FOUND SUCCESSFULLY !!

 User_ID : 2
 Name of User : Tanmay
 Login Date And Time : 12/01/2022   20:23
 Duration : 0Hr:2Min


           Press any key to continue


            ||<--------MENU-------->||

              1.Insert a Record
              2.Display Records
              3.Search in Records
              4.Delete a Record
              5.Exit

              Enter your choice : 4
```

If the user chooses option 4 to delete an existing record, the previously entered data will be displayed and the record can be deleted by entering the user ID:



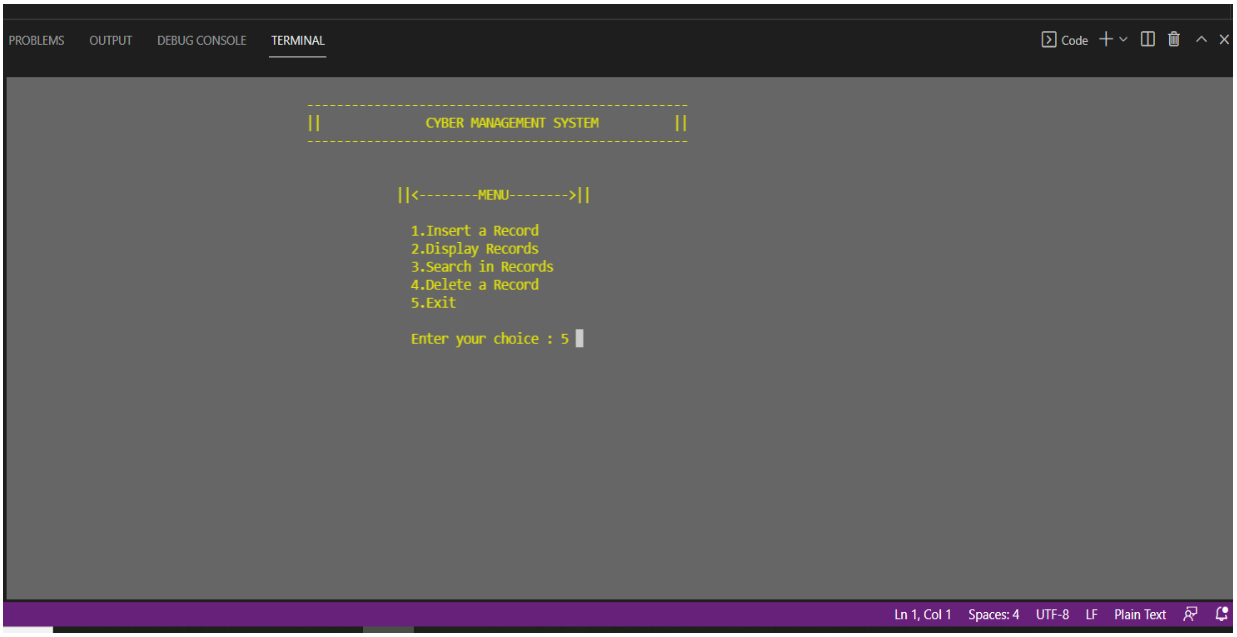
```
                 --------------------------------------------------
                 ||              CYBER MANAGEMENT SYSTEM         ||
                 --------------------------------------------------

                   |---------- PREVIOUS ENTERED DATA ----------|

                          USER DETAILS ARE AS FOLLOWS :

User ID             Name of the User        Date          Time      Duration

 1                  Nilay                   12/01/2022    20:23     0Hr:2Min

 2                  Tanmay                  12/01/2022    20:23     0Hr:2Min

 3                  Aman                    12/01/2022    20:23     0Hr:2Min

                  Enter ID of the user which you want to delete : 3
```

On deletion, a success message and the new updated records will be displayed:



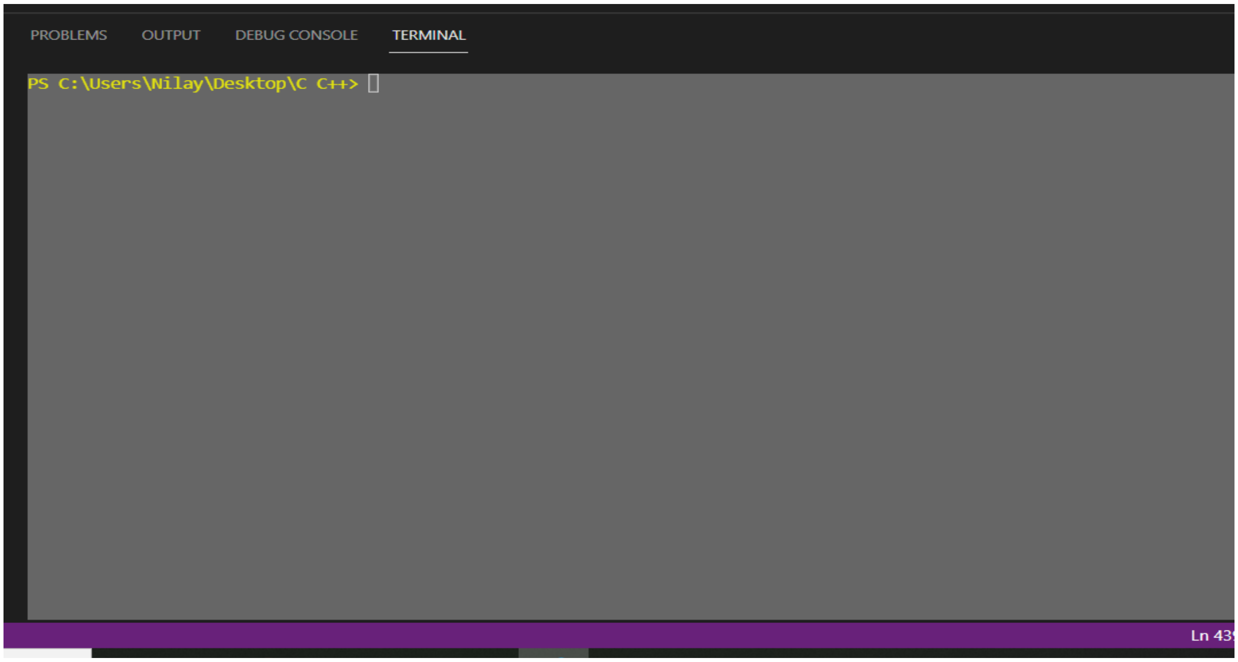
```
        User ID            Name of the User       Date           Time     Duration

         1                 Nilay                  12/01/2022     20:23    0Hr:6Min

         2                 Tanmay                 12/01/2022     20:23    0Hr:6Min

         3                 Aman                   12/01/2022     20:23    0Hr:6Min

                     Enter ID of the user which you want to delete : 3



                                Record Deleted Successfully!!

                              |------ Updated  Records ------|

                                USER DETAILS ARE AS FOLLOWS :

        User ID            Name of the User       Date           Time     Duration

         1                 Nilay                  12/01/2022     20:23    0Hr:6Min

         2                 Tanmay                 12/01/2022     20:23    0Hr:6Min

                           Press any key to Continue
```

Back on the menu page, if the user doesn’t want to edit/view/insert any data, they can go for option 5, to exit:



```
---------------------------------------------------
||               CYBER MANAGEMENT SYSTEM         ||
---------------------------------------------------


            ||<--------MENU-------->||

              1.Insert a Record
              2.Display Records
              3.Search in Records
              4.Delete a Record
              5.Exit

              Enter your choice : 5
```

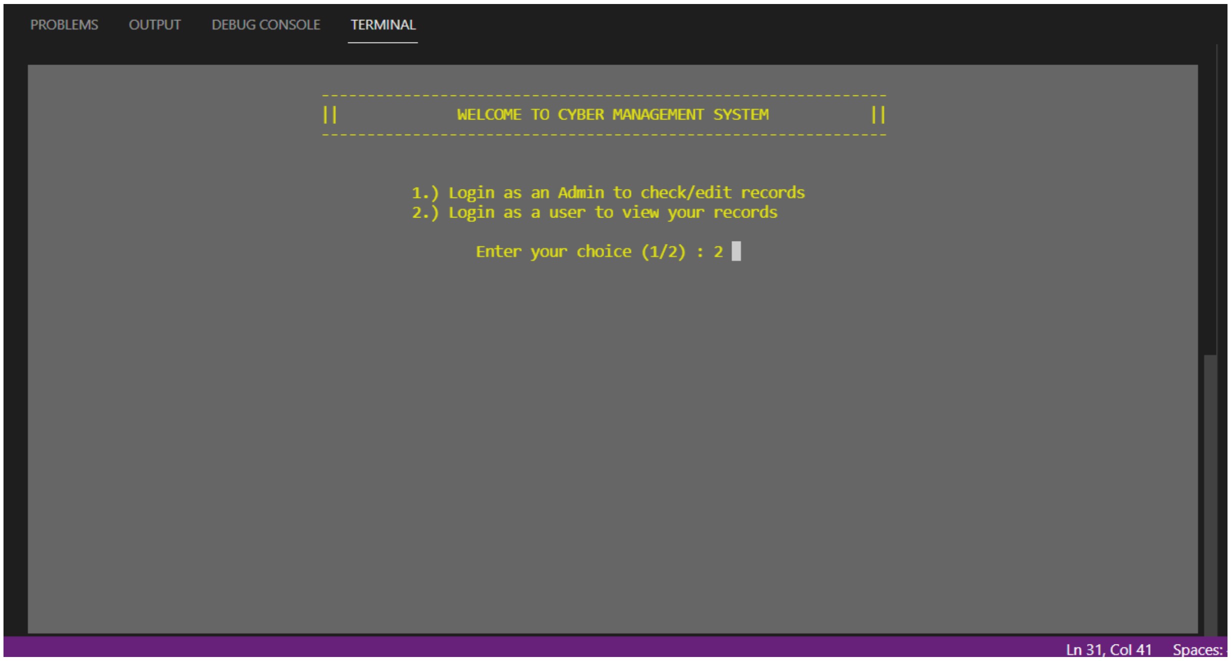
On exiting the program, the user will be directed to the empty terminal window:



```
PS C:\Users\Nilay\Desktop\C C++> 
```

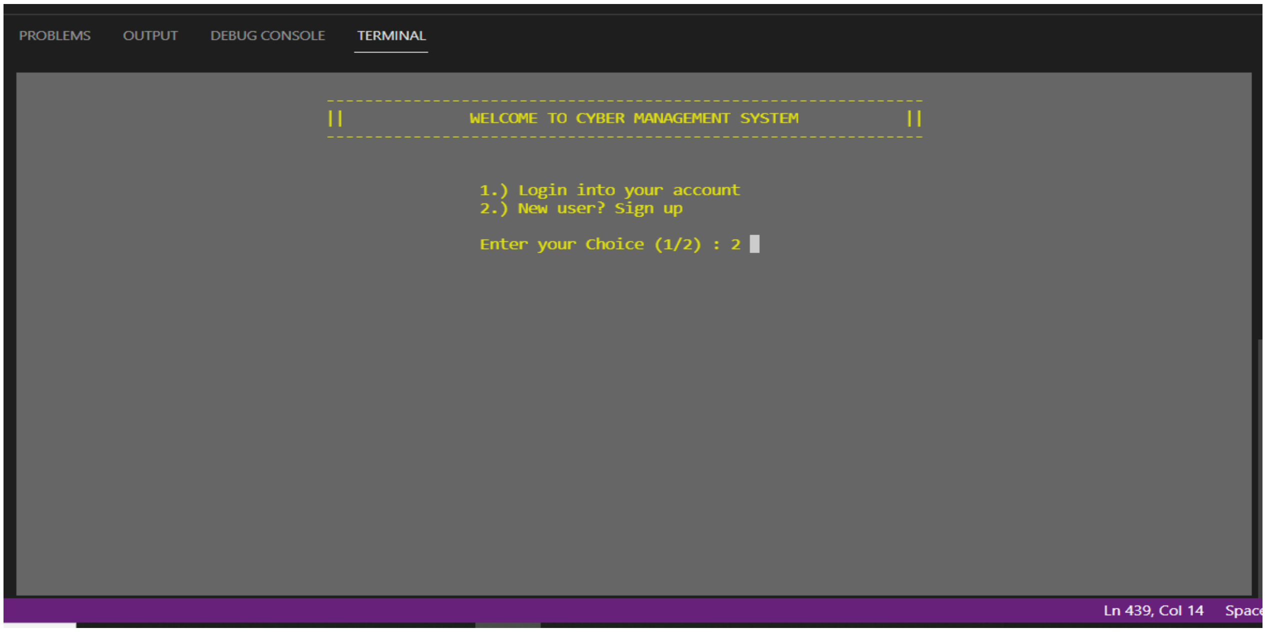
Below are the images for when the user opts to continue by creating a new login ID:

The user on the homepage decides to opt for option 2 to login by creating a new user ID:



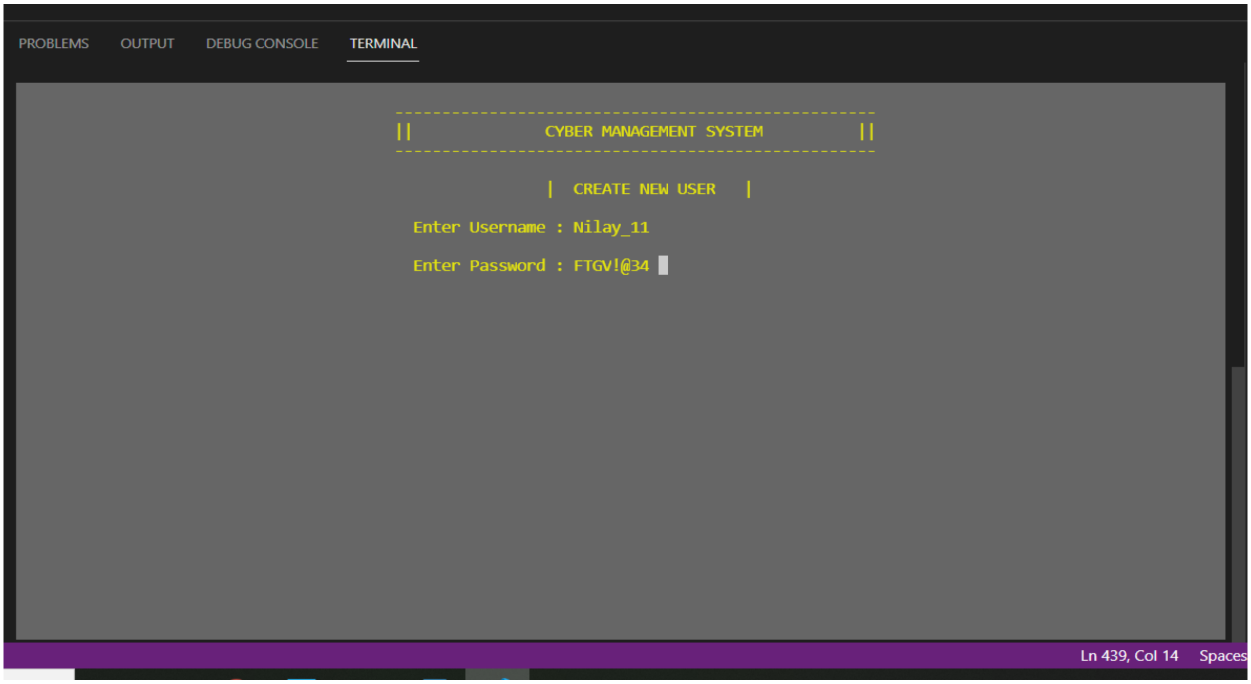
```
------------------------------------------------------------------
||              WELCOME TO CYBER MANAGEMENT SYSTEM              ||
------------------------------------------------------------------


           1.) Login as an Admin to check/edit records
           2.) Login as a user to view your records

                  Enter your choice (1/2) : 2
```

User decides to sign up by creating a new account:



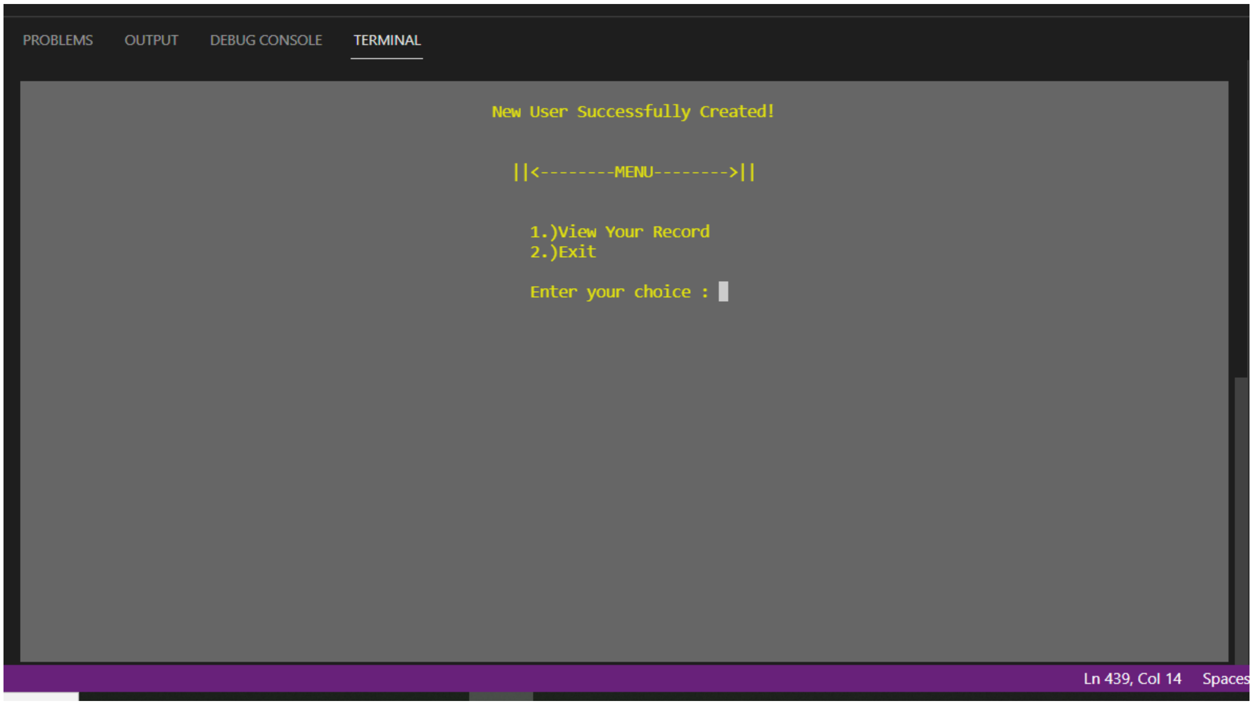
```
            ---------------------------------------------------------------
            ||              WELCOME TO CYBER MANAGEMENT SYSTEM            ||
            ---------------------------------------------------------------

                            1.) Login into your account
                            2.) New user? Sign up

                            Enter your Choice (1/2) : 2
```

User is directed to the “Create New User” Page, where they can create an account by entering a new ID and creating their password:



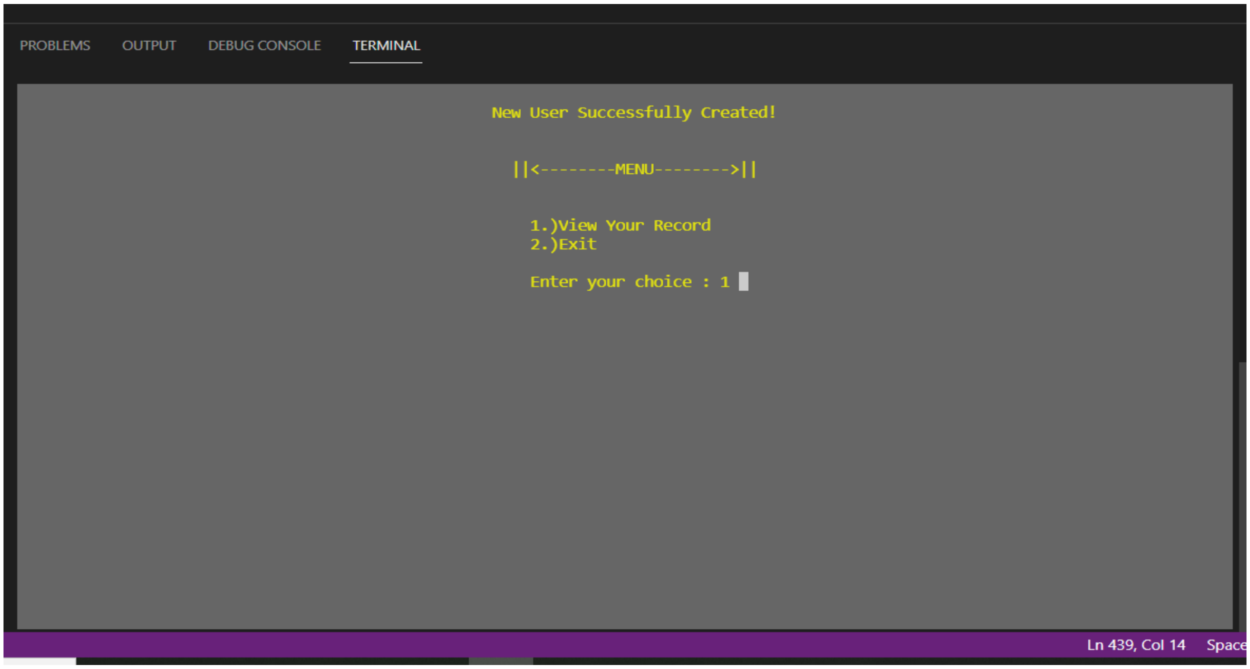
```
            --------------------------------------------------
            ||              CYBER MANAGEMENT SYSTEM         ||
            --------------------------------------------------

                            |  CREATE NEW USER   |

              Enter Username : Nilay_11

              Enter Password : FTGV!@34
```

On creating a new user, a success message is displayed and the user is directed to the menu page:



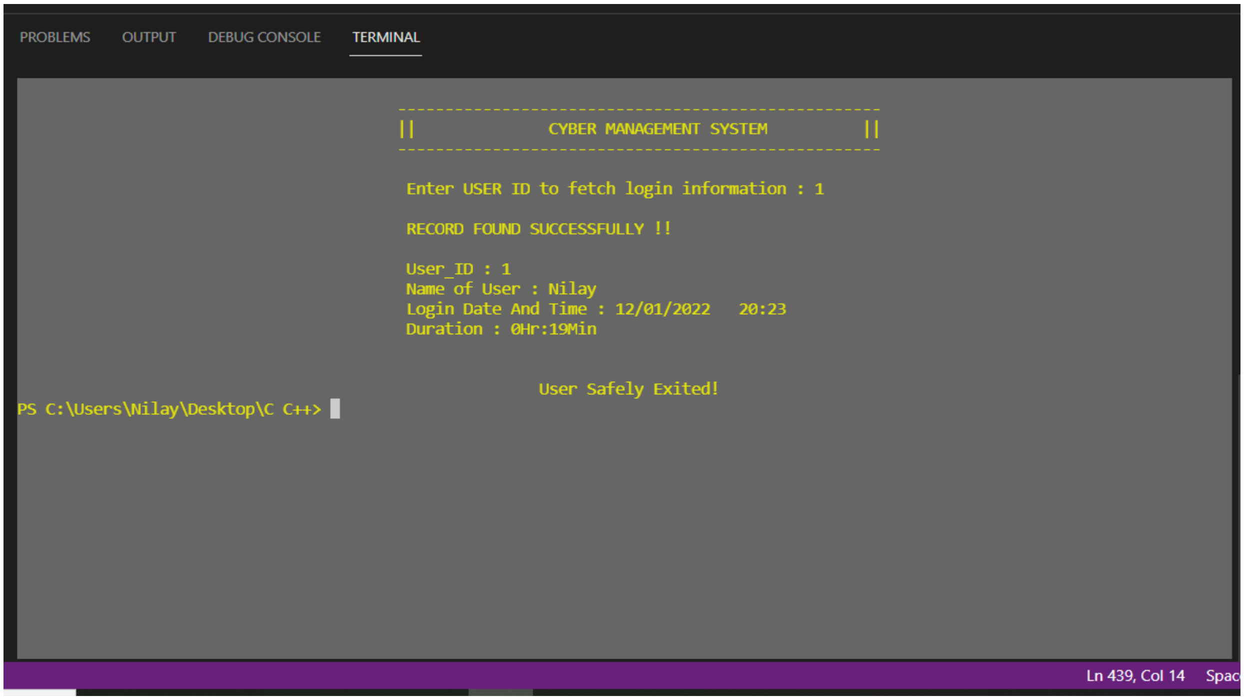
```
New User Successfully Created!

 ||<--------MENU-------->||

   1.)View Your Record
   2.)Exit

   Enter your choice :
```

On the menu page if the user opts for option 1, they will be redirected to the view records page:



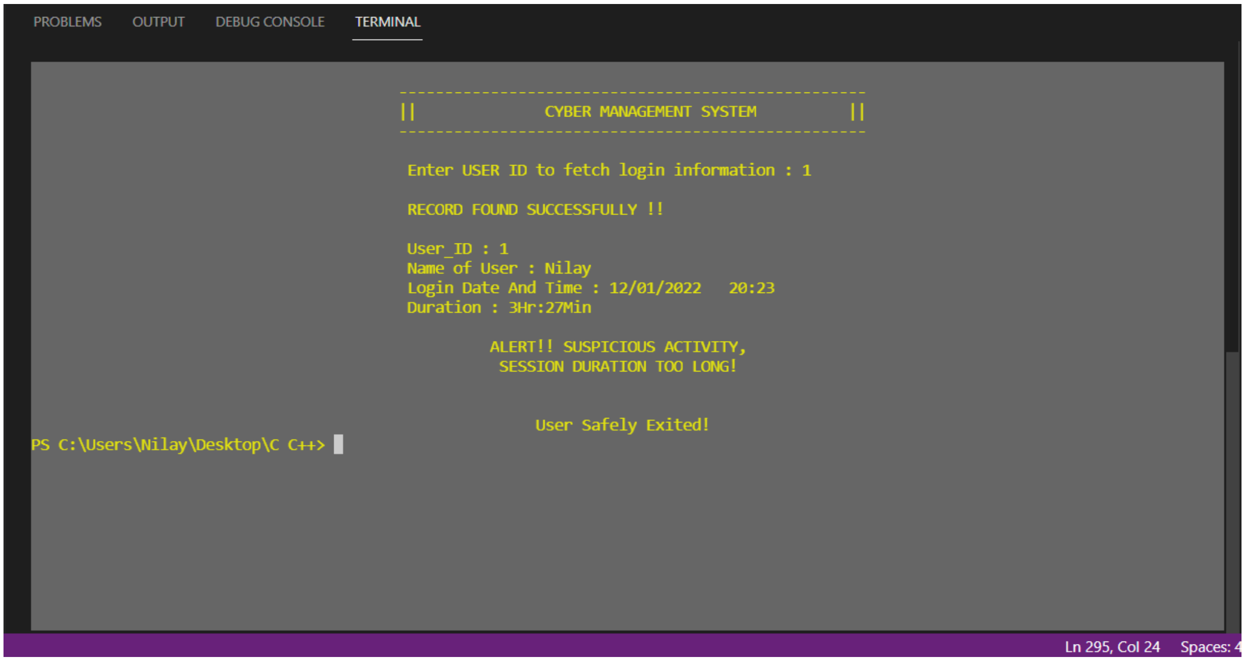
```
New User Successfully Created!

 ||<--------MENU-------->||

   1.)View Your Record
   2.)Exit

   Enter your choice : 1
```

Here user can enter login details and fetch information regarding a particular ID, and on being done, the user is exited:



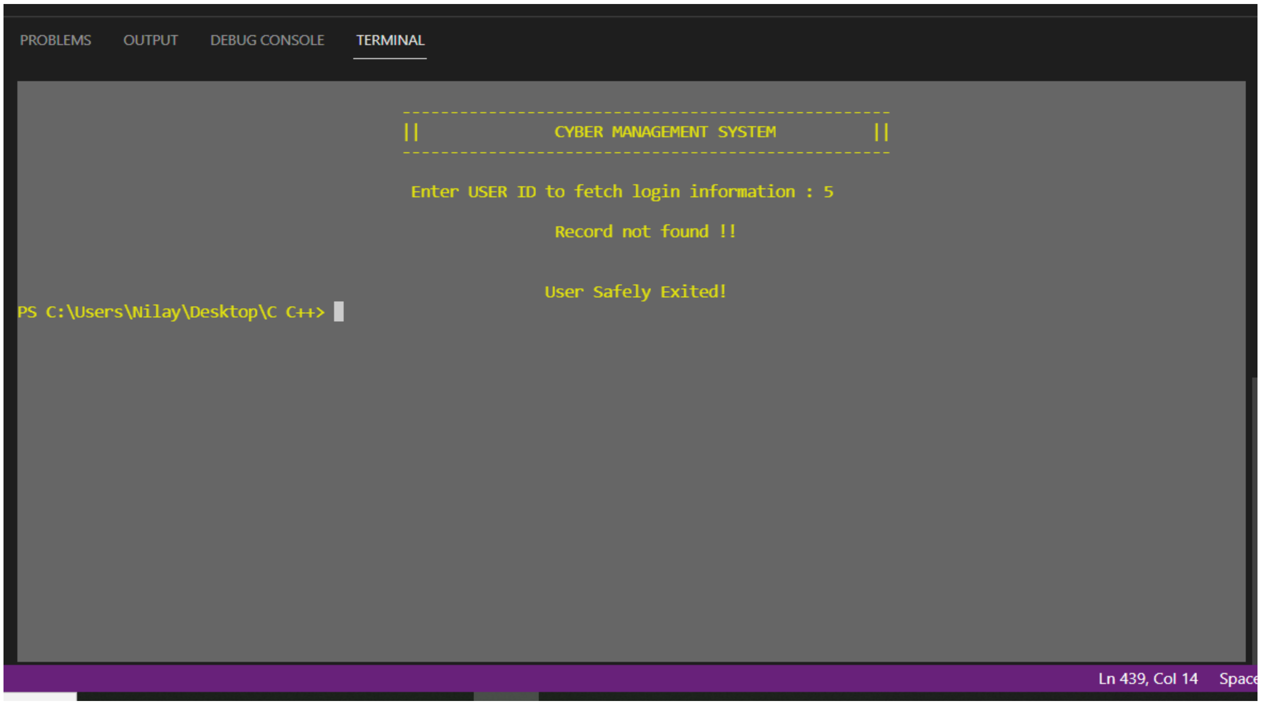
```
                    ---------------------------------------------------
                    ||              CYBER MANAGEMENT SYSTEM           ||
                    ---------------------------------------------------

                     Enter USER ID to fetch login information : 1

                     RECORD FOUND SUCCESSFULLY !!

                     User_ID : 1
                     Name of User : Nilay
                     Login Date And Time : 12/01/2022   20:23
                     Duration : 0Hr:19Min


                                    User Safely Exited!
PS C:\Users\Nilay\Desktop\C C++>
```

If the user session period is too long, a warming message stating suspicious activity, is displayed:



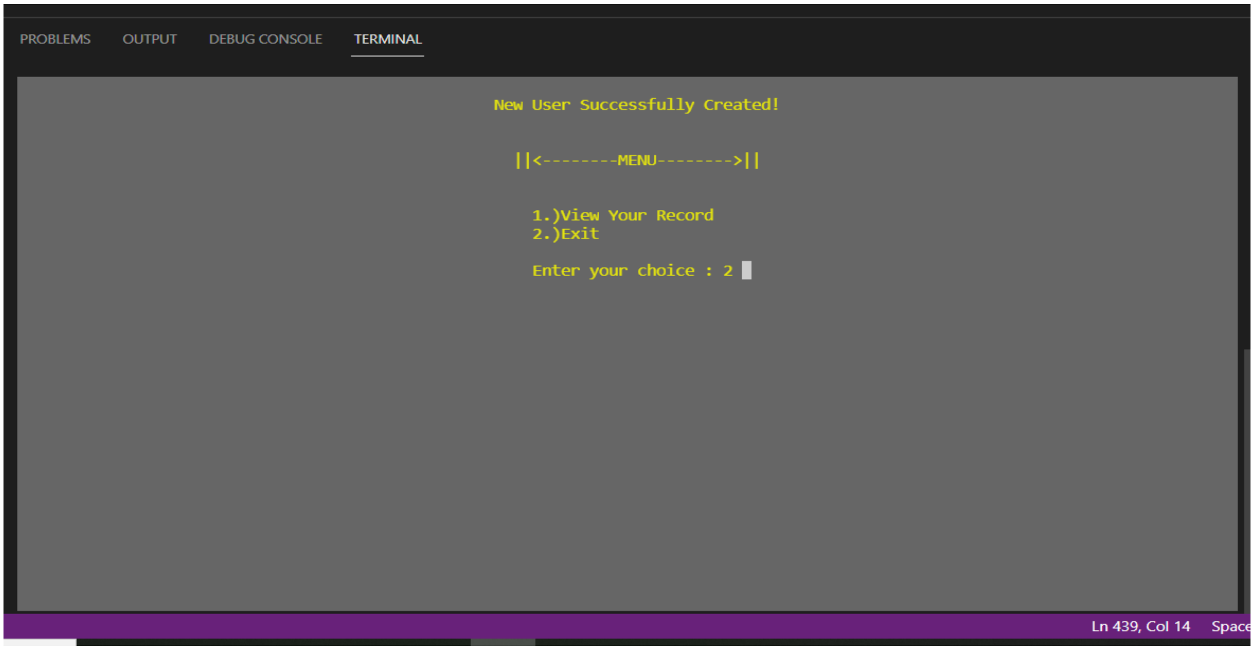
```
                    ---------------------------------------------------
                    ||              CYBER MANAGEMENT SYSTEM           ||
                    ---------------------------------------------------

                     Enter USER ID to fetch login information : 1

                     RECORD FOUND SUCCESSFULLY !!

                     User_ID : 1
                     Name of User : Nilay
                     Login Date And Time : 12/01/2022   20:23
                     Duration : 3Hr:27Min

                              ALERT!! SUSPICIOUS ACTIVITY,
                               SESSION DURATION TOO LONG!


                                    User Safely Exited!
PS C:\Users\Nilay\Desktop\C C++>
```

On entering an invalid ID to be searched, an error message is displayed, and the user is safely exited:



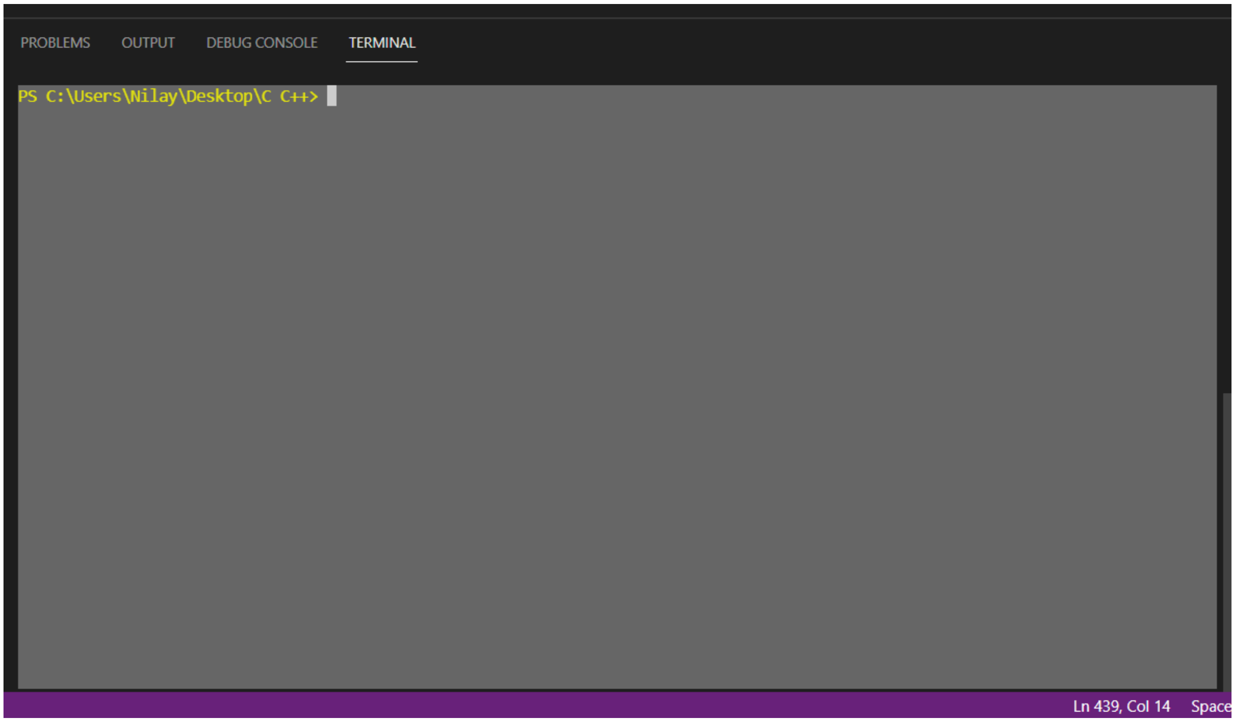
```
                   ---------------------------------------------------
                   ||               CYBER MANAGEMENT SYSTEM          ||
                   ---------------------------------------------------

                    Enter USER ID to fetch login information : 5

                                   Record not found !!


                                  User Safely Exited!
PS C:\Users\Nilay\Desktop\C C++>
```

On the menu page, if the user decides to opt for option 2, they can safely exit the page:



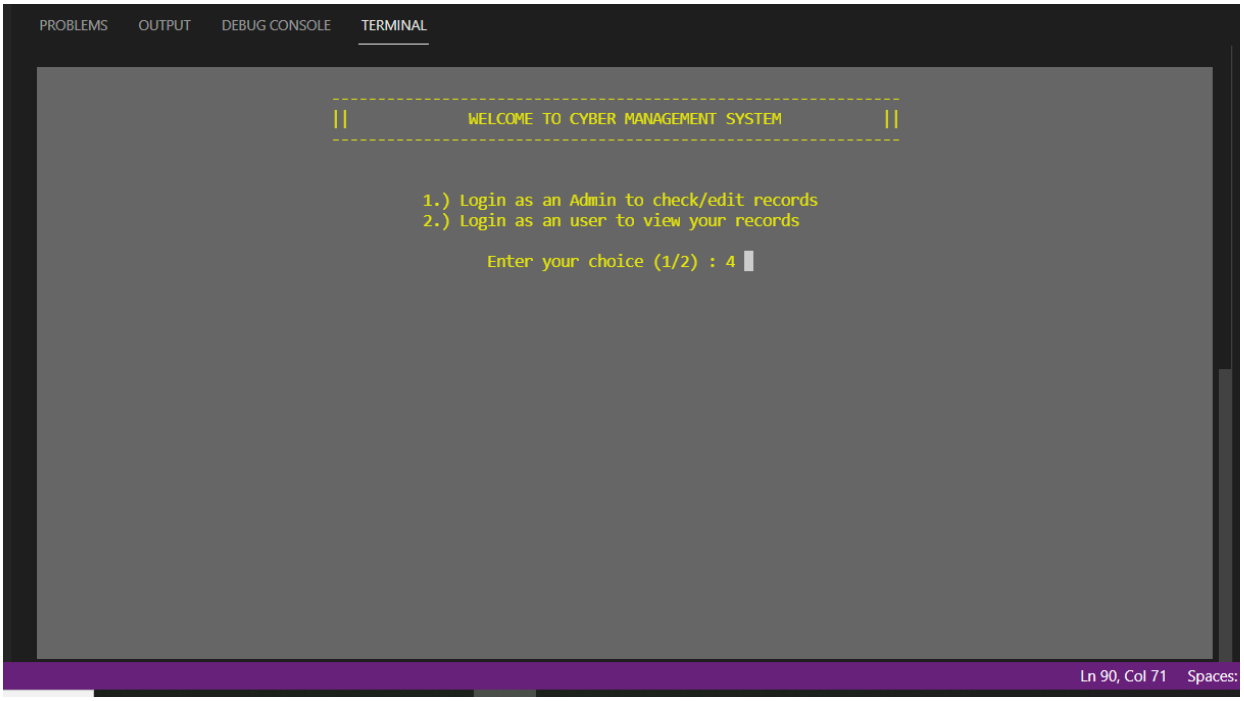
```
                        New User Successfully Created!

                          ||<--------MENU-------->||


                            1.)View Your Record
                            2.)Exit

                            Enter your choice : 2
```

On exiting, the user is directed to the blank terminal window:

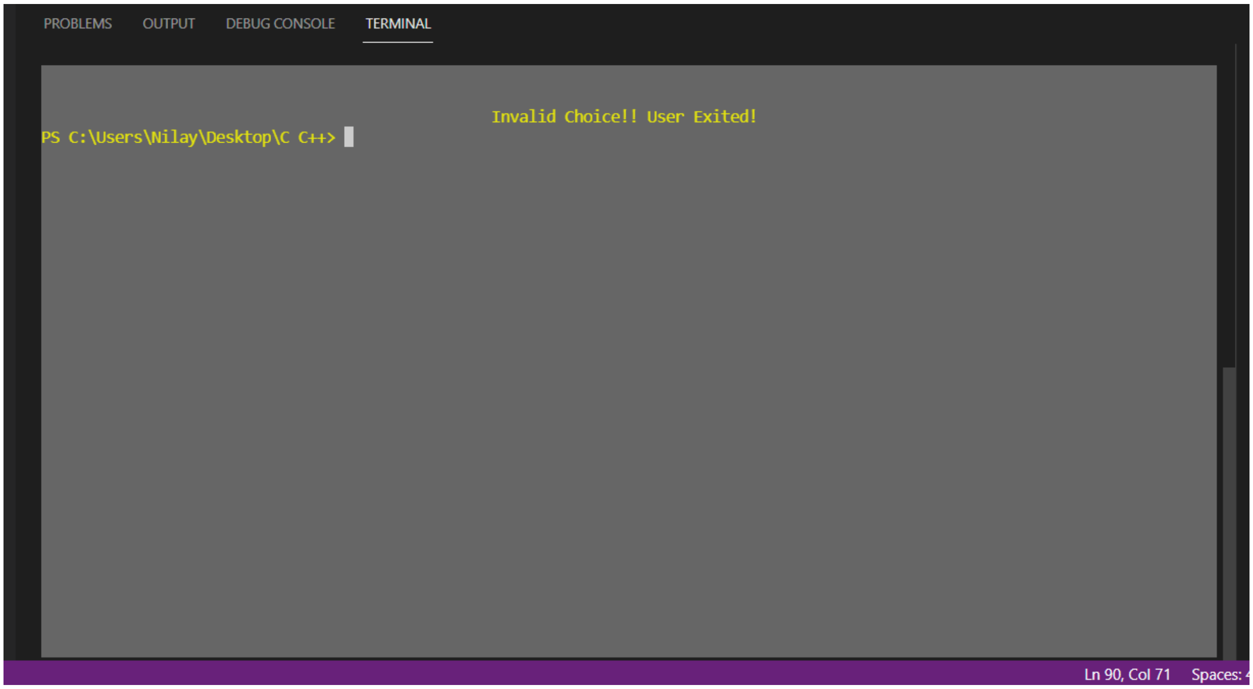


```
PS C:\Users\Nilay\Desktop\C C++>
```

If on the main homepage, the user enters a wrong choice, an error message is displayed, and the user is exited:



```
---------------------------------------------------------------
||              WELCOME TO CYBER MANAGEMENT SYSTEM           ||
---------------------------------------------------------------


          1.) Login as an Admin to check/edit records
          2.) Login as an user to view your records

                 Enter your choice (1/2) : 4
```



```
                                                   Invalid Choice!! User Exited!
PS C:\Users\Nilay\Desktop\C C++>
```

Result:

The resultant source code and output screens yields the result as expected during runtime and compilation of the program, from both ends, developers' and user's end. Hence, the program has been compiled and executed successfully.

Conclusion:

By Utilizing all the major concepts of C Programming Language, like flow control and operators, arrays and loops, strings, functions, structures and pointers, I have tried my best to create a Cyber Management System which can effectively sort all the records as entered by the user and display or delete them whenever required. I have optimized the program to our best to create a user-friendly easy to operate experience for the user. The user can effectively login as an admin to view the log records with the time and date details or register with a new ID to view the records. This project has also helped me to learn various new concepts and their functions, during the making. It has helped me to develop an amazing experience while working 3rd Generation High Level Language, C and explore all the various different technical aspects related to it. Also, since C language lays the foundation for the latest generation language, it'll help me to work easily and smoothly while dealing with new and modern languages like Python, Java, etc. Overall, it was a fun and informative experience for me, the developer and also would be for the user!

Thank you