



Welcome to Our Criminal Database

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Welcome Screen:

That opens when the code start running. It **displays our teams name** as you can see in the following screenshots.

```
void welcomeScreen() {
    cout << "\n\n\n\n\n\n\t\t\tThis Project is done by: " << endl;
    cout << "\t\t\tYoussef Mohamed Salah " << endl;
    cout << "\t\t\tSalma Mohamed" << endl;
    cout << "\t\t\tAlaa Yasser" << endl;
    cout << "\t\t\tRahaf Alhussein" << endl;
    cout << "\t\t\tHussein Serageldin" << endl;
    sleep_for(seconds(5));
```



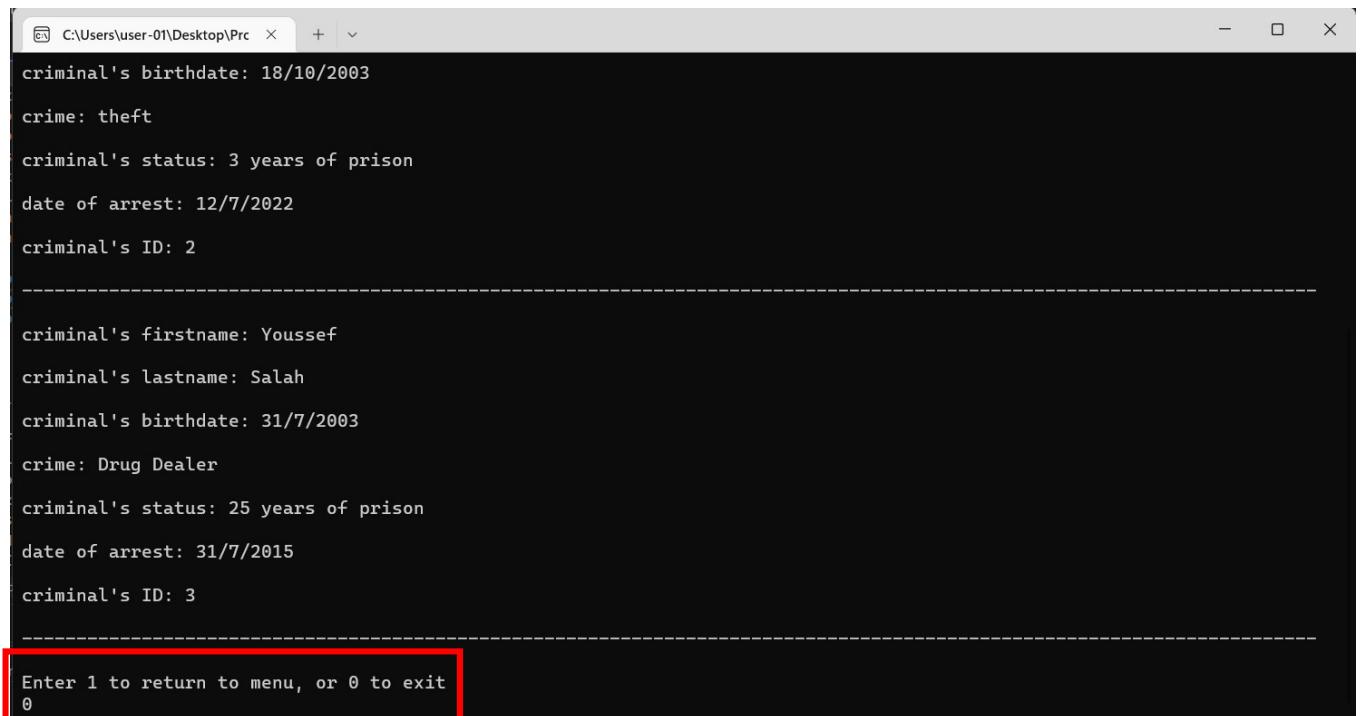
The screenshot shows a terminal window with a dark background and light-colored text. At the top, there are tabs labeled PROBLEMS, OUTPUT, DEBUG CONSOLE, and TERMINAL, with the TERMINAL tab underlined. Below the tabs, the terminal displays the following text:

```
This Project is done by:  
Youssef Mohamed Salah  
Salma Mohamed  
Alaa Yasser  
Rahaf Alhussein  
Hussein Serageldin
```

Call Exit Function:

When pressing “`0`” it gives you a screen that says, “**Press any key to exit**” and exits the program.

```
void CallExit() { //EXIT FUNCTION
    system("cls");
    cout << "\n\n\n\n\n\n\n\n\Press any key to exit the program\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n\n" << endl;
    exit(0);
}
```

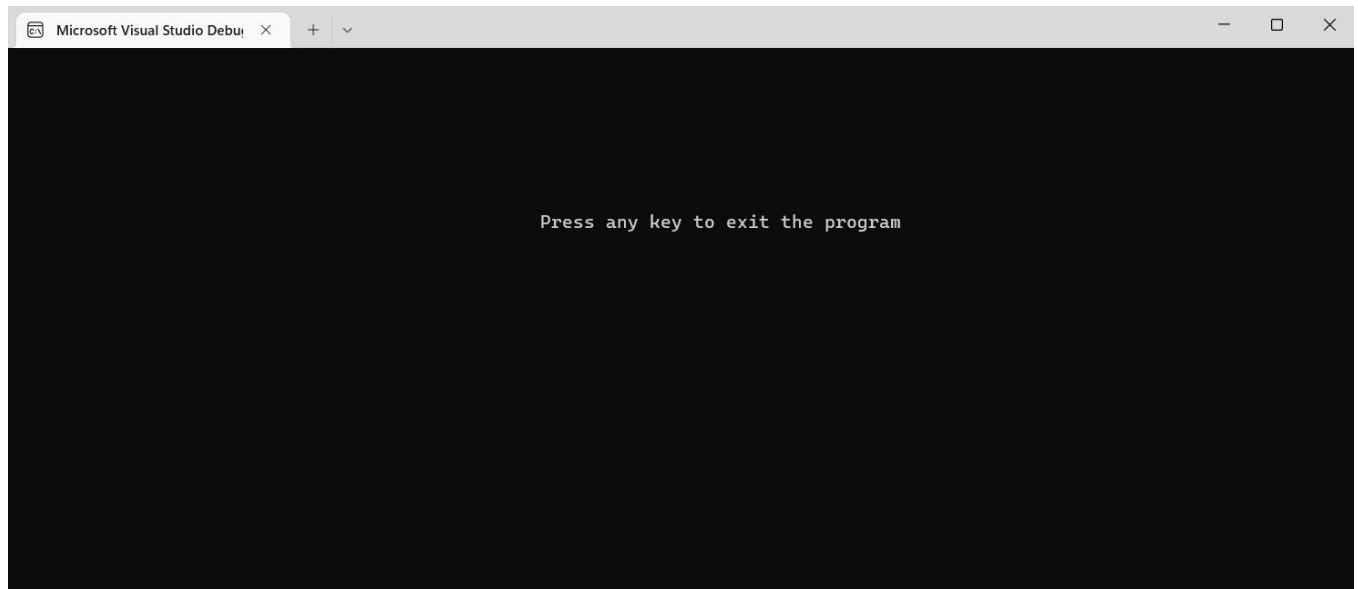


A screenshot of a terminal window titled "C:\Users\user-01\Desktop\Prc". The window displays two sets of criminal records separated by dashed horizontal lines. Each record includes birthdate, crime, status, and date of arrest. The last record ends with an "ID: 3". Below these records, the program prompts the user to "Enter 1 to return to menu, or 0 to exit". The "0" option is highlighted with a red rectangle.

```
criminal's birthdate: 18/10/2003
crime: theft
criminal's status: 3 years of prison
date of arrest: 12/7/2022
criminal's ID: 2

-----
criminal's firstname: Youssef
criminal's lastname: Salah
criminal's birthdate: 31/7/2003
crime: Drug Dealer
criminal's status: 25 years of prison
date of arrest: 31/7/2015
criminal's ID: 3

-----
Enter 1 to return to menu, or 0 to exit
0
```



Or when you enter a wrong data in the login page after you finish your trials.

C:\Users\user-01\Desktop\Prc

```
--Welcome to our criminal database--  
You have 1 trials left  
Please Enter your username :a  
Please Enter your password :a
```

Microsoft Visual Studio Debug

```
Press any key to exit the program
```

Login Function:

Functions That allows you to login. You have to enter your username and the function **checks if you are an admin or an officer** to assign you to the correct page.

```
int login(info1 information[], int array_size) //Login Menu
{
    system("cls");
    char* username;
    username = new char[20];
    char* password;
    password = new char[20];
    cout << "-----";
    cout << "-----Welcome to our criminal database-----";
    cout << "-----";

    cout << "\n \n \t \t Please Enter your username :";
    cin.getline(username, 20);
    cout << "\n \n \t \t Please Enter your password :";
    cin.getline(password, 20);
    if (strcmp(username, "admin") == 0 && strcmp(password, "pass") == 0)
    {
        return 1; // Access admin menu
    }
    if (strcmp(username, "ADMIN") == 0 && strcmp(password, "PASS") == 0)
    {
        return 1; // Access admin menu
    }
    if (strcmp(username, "officer") == 0 && strcmp(password, "pass") == 0)
    {
        return 0; //Access Officer Menu
    }
    if (strcmp(username, "OFFICER") == 0 && strcmp(password, "PASS") == 0)
    {
        return 0; //Access Officer Menu
    }
    else //wrong input
    {
        return 2;
    }
    delete[] username;
    delete[] password;
}
```

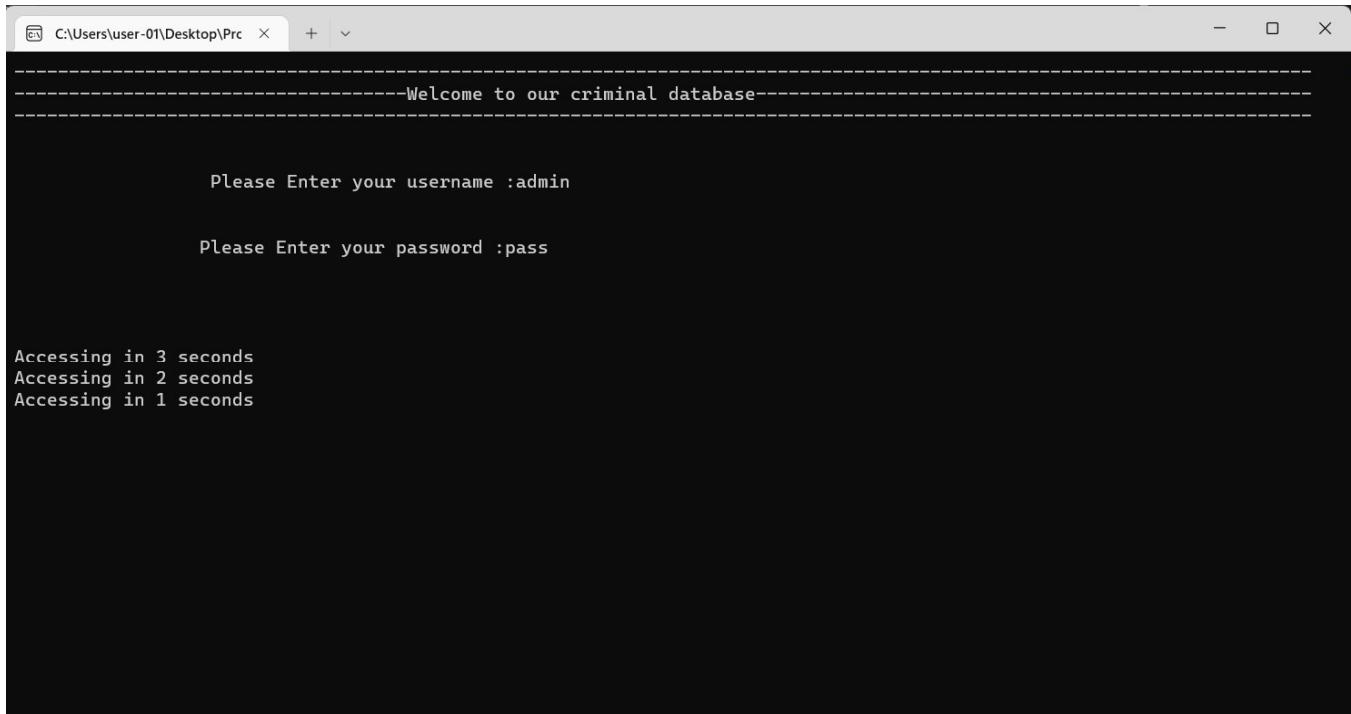
In Case you chose admin:

To login as an **ADMIN** and display the **ADMIN_MENU** enter the following:

Username: ADMIN / admin

Password: PASS / pass

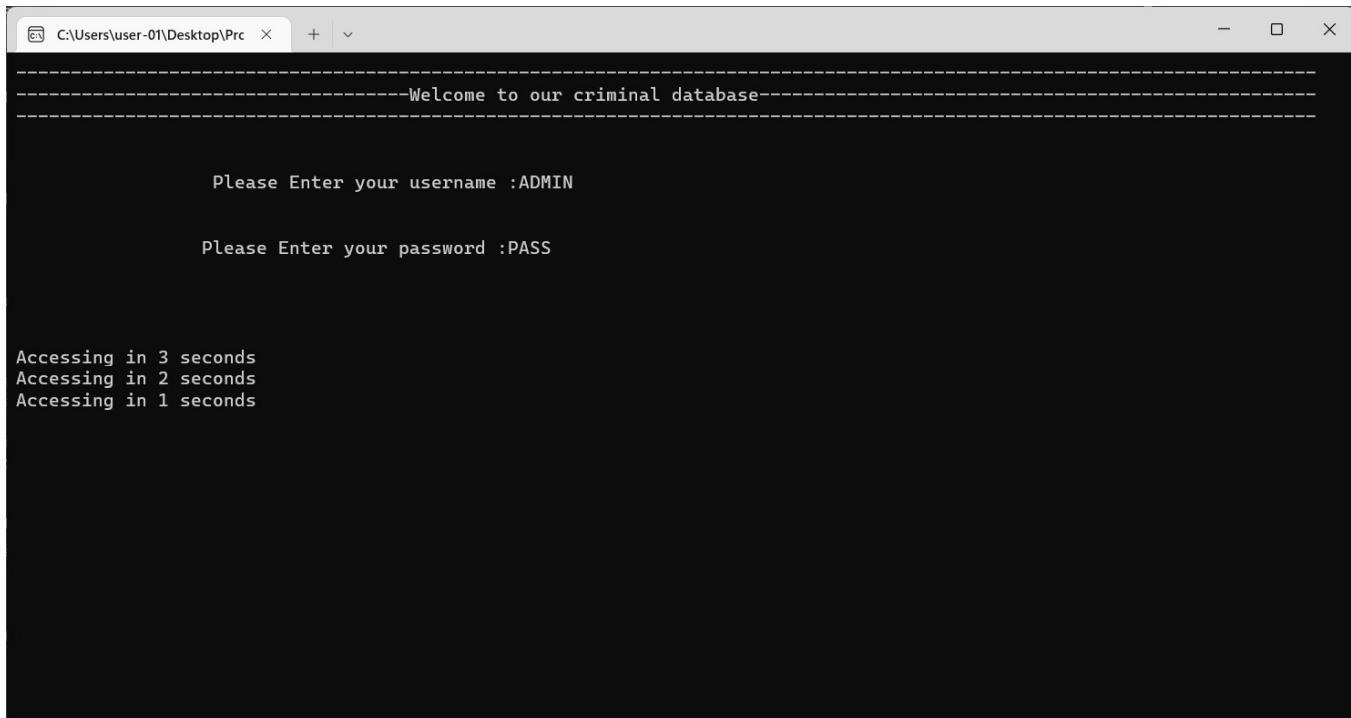
- With **CAPS** off:



The screenshot shows a terminal window titled 'C:\Users\user-01\Desktop\Prc'. The window contains the following text:

```
--Welcome to our criminal database--  
  
Please Enter your username :admin  
  
Please Enter your password :pass  
  
Accessing in 3 seconds  
Accessing in 2 seconds  
Accessing in 1 seconds
```

- With **CAPS** on:



The screenshot shows a terminal window titled 'C:\Users\user-01\Desktop\Prc'. The window contains the following text:

```
--Welcome to our criminal database--  
  
Please Enter your username :ADMIN  
  
Please Enter your password :PASS  
  
Accessing in 3 seconds  
Accessing in 2 seconds  
Accessing in 1 seconds
```

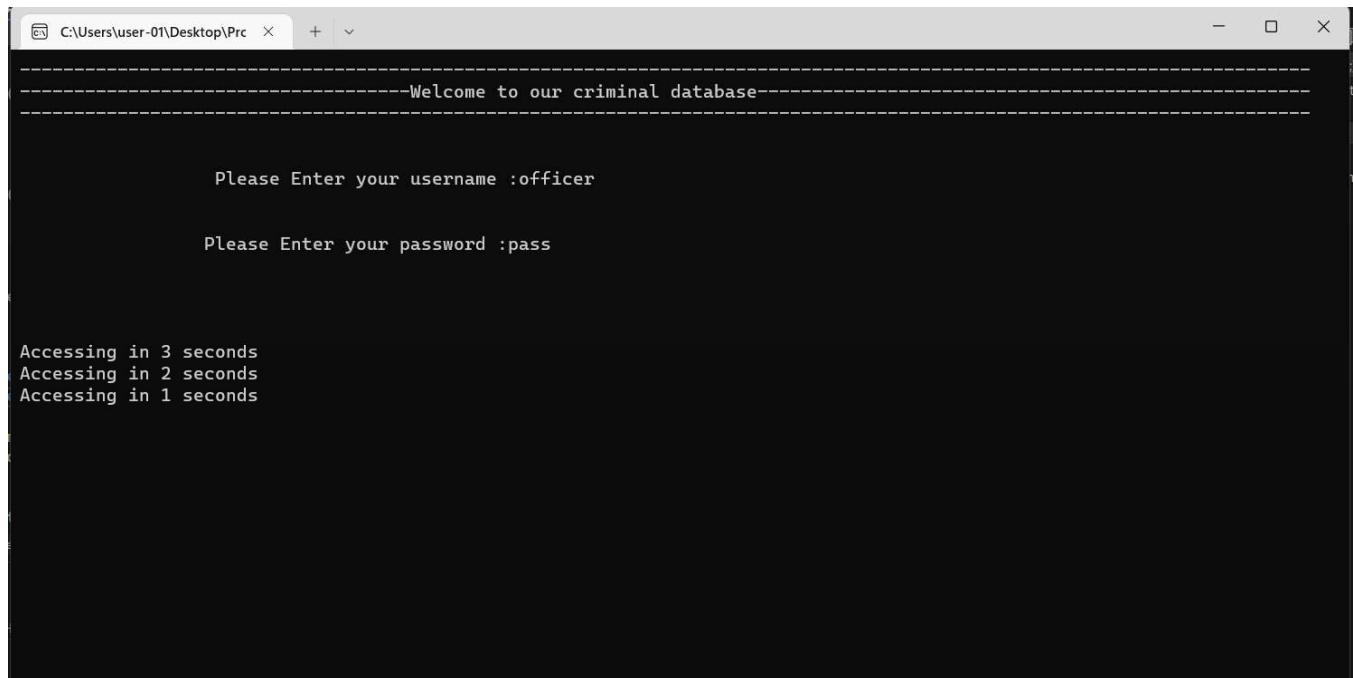
In Case you chose officer:

To login as an **OFFICER** and display the **Officer_Menu** enter the following:

Username: OFFICER / officer

Password: PASS / pass

- With **CAPS** off:



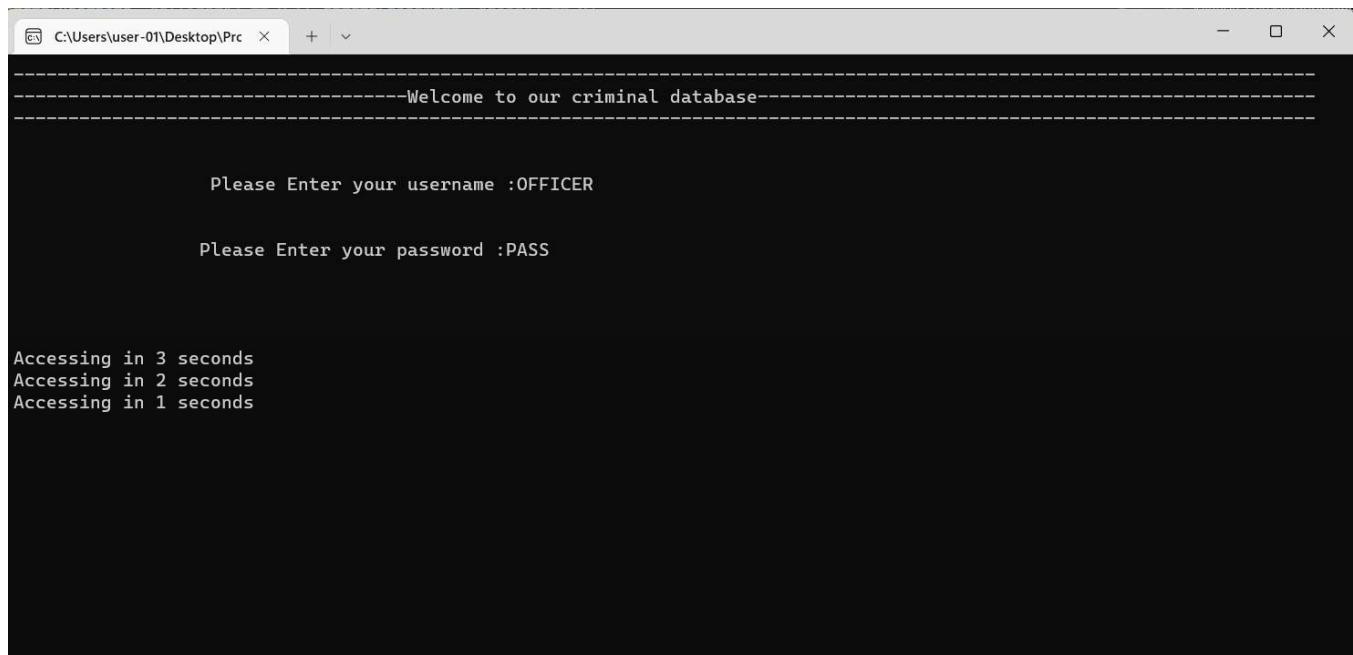
A screenshot of a Windows terminal window titled 'C:\Users\user-01\Desktop\Prc'. The window contains the following text:
-----Welcome to our criminal database-----

Please Enter your username :officer

Please Enter your password :pass

Accessing in 3 seconds
Accessing in 2 seconds
Accessing in 1 seconds

- With **CAPS** on:



A screenshot of a Windows terminal window titled 'C:\Users\user-01\Desktop\Prc'. The window contains the following text:
-----Welcome to our criminal database-----

Please Enter your username :OFFICER

Please Enter your password :PASS

Accessing in 3 seconds
Accessing in 2 seconds
Accessing in 1 seconds

Add Function:

Function to **add new criminals** to the database that **appears in the admin page** and make the admin choose whether to assign this criminal to the officer's page or not.

```
void add(infol information[], int array_size) //ADD CRIMINAL FUNCTION
{
    system("cls");
    char x = -1;
    for (int i = 0; i < array_size; i++)
    {
        if (information[i].ID == "") //CHECK IF INDEX IS EMPTY TO ADD
        {
            cin.ignore(1, '\n');
            cout << "Enter the criminal's firstname: ";
            getline(cin, information[i].first_name);
            while (information[i].first_name >= "0" && information[i].first_name <= "9") {
                cout << "Invalid Input , Please try again!" << endl;
                cout << "Enter criminal's firstname: ";
                getline(cin, information[i].first_name);
            }
            cout << endl;
            cout << "Enter criminal's lastname: ";
            getline(cin, information[i].last_name);
            while (information[i].last_name >= "0" && information[i].last_name <= "9") {
                cout << "Invalid Input , Please try again!" << endl;
                cout << "Enter criminal's lastname: ";
                getline(cin, information[i].last_name);
            }
            cout << endl;
            cout << "Enter criminal's birthdate: ";
            getline(cin, information[i].birthdate);
            cout << endl;
            cout << "Enter crime: ";
            getline(cin, information[i].crime);
            while (information[i].crime >= "0" && information[i].crime <= "9") {
                cout << "Invalid Input , Please try again!" << endl;
                cout << "Enter criminal's crime: ";
                getline(cin, information[i].crime);
            }
            cout << endl;
            cout << "Enter criminal's status: ";
            getline(cin, information[i].status);
            cout << endl;
            cout << "Enter date of arrest: ";
            getline(cin, information[i].date_of_arrest);
            cout << endl;
            cout << "Enter criminal's ID: ";
            getline(cin, information[i].ID);
            while (information[i].ID < "0" || information[i].ID > "9") {
                cout << "Invalid Input , Please try again!" << endl;
                cout << "Enter criminal's ID: ";
                getline(cin, information[i].ID);
            }
            cout << endl;
            cout << "Enter 1 if assigned to officer, or 0 if not assigned " << endl;
            getline(cin, information[i].assigned_cases);
            cout << endl;
            while (information[i].assigned_cases != "1" && information[i].assigned_cases != "0") {
                cout << "PLEASE CHOOSE 1 OR 0" << endl;
                getline(cin, information[i].assigned_cases);
                cout << endl;
            }
            break;
        }
        else {
            if (information[i + 1].ID == "") //IF PREVIOUS INDEX IS OCCUPIED, ADD ON THE NEXT INDEX
            {
                cin.ignore(1, '\n');
                cout << "Enter criminal's firstname: ";
            }
        }
    }
}
```

```

getline(cin, information[i + 1].first_name);
while (information[i + 1].first_name >= "0" && information[i + 1].first_name <= "9") {
    cout << "Invalid Input , Please try again!" << endl;
    cout << "Enter criminal's firstname: ";
    getline(cin, information[i + 1].first_name);
}
cout << endl;

cout << "Enter criminal's lastname: ";
getline(cin, information[i + 1].last_name);
while (information[i + 1].last_name >= "0" && information[i + 1].last_name <= "9") {
    cout << "Invalid Input , Please try again!" << endl;
    cout << "Enter criminal's lastname: ";
    getline(cin, information[i + 1].last_name);
}

cout << endl;
cout << "Enter criminal's birthdate: ";
getline(cin, information[i + 1].birthdate);
cout << endl;

cout << "Enter crime: ";
getline(cin, information[i + 1].crime);
while (information[i + 1].crime >= "0" && information[i + 1].crime <= "9")
{
    cout << "Invalid Input , Please try again!" << endl;
    cout << "Enter crime: ";
    getline(cin, information[i + 1].crime);

}

cout << endl;
cout << "Enter criminal's status: ";
getline(cin, information[i + 1].status);

cout << endl;
cout << "Enter date of arrest: ";
getline(cin, information[i + 1].date_of_arrest);
cout << endl;

cout << "Enter criminal's ID: ";
getline(cin, information[i + 1].ID);
while (information[i + 1].ID < "0" || information[i + 1].ID > "9") {
    cout << "Invalid Input , Please try again!" << endl;
    cout << "Enter criminal's ID: ";
    getline(cin, information[i + 1].ID);

}
cout << endl;
cout << "Enter 1 if assigned to officer, or 0 if not assigned " << endl;
getline(cin, information[i + 1].assigned_cases);
cout << endl;
while (information[i + 1].assigned_cases != "1" && information[i + 1].assigned_cases != "0") {
    cout << "PLEASE CHOOSE 1 OR 0" << endl;

    getline(cin, information[i + 1].assigned_cases);
    cout << endl;
}
break;
}

}

cout << "Enter 1 to return to menu, or 0 to exit" << endl; //Return to menu option
while (x >= -1) {
    cin >> x;
    switch (x)
    {
    case '0':
        CallExit();
        break;
    case '1':
        admin_menu(information, array_size);
        break;
    }

    if (x != '1' && x != '0') {
        cout << "PLEASE CHOOSE 1 OR 0" << endl;
    }
}
}

```

```
C:\Users\user-01\Desktop\Prc  +  -  X
-----
Please choose your preferred option

1. ADD CRIMINAL
2. DELETE CRIMINAL
3. SEARCH FOR A CRIMINAL
4. MODIFY CRIMINAL
5. DISPLAY ALL CRIMINALS
6. ACCESS OFFICER'S PAGE

1|
```

In Case Assigned to officer's page:

```
C:\Users\user-01\Desktop\Prc + v  
Enter criminal's firstname: ahmed  
Enter criminal's lastname: mohamed  
Enter criminal's birthdate: 15/8/2004  
Enter crime: murder  
Enter criminal's status: single  
Enter date of arrest: 21/7/2018  
Enter criminal's ID: 5  
Enter 1 if assigned to officer, or 0 if not assigned  
1  
Enter 1 to return to menu, or 0 to exit  
1
```

```
C:\Users\user-01\Desktop\Prc + v  
criminal's birthdate: 31/7/2003  
crime: Drug Dealer  
criminal's status: 25 years of prison  
date of arrest: 31/7/2015  
criminal's ID: 3  
  
criminal's firstname: ahmed  
criminal's lastname: mohamed  
criminal's birthdate: 15/8/2004  
crime: murder  
criminal's status: single  
date of arrest: 21/7/2018  
criminal's ID: 5  
  
Enter 0 to exit
```

In Case Not assigned to Officer's Page:

```
C:\Users\user-01\Desktop\Prc + ▾  
Enter criminal's firstname: ahmed  
Enter criminal's lastname: mohamed  
Enter criminal's birthdate: 15/8/2004  
Enter crime: murder  
Enter criminal's status: single  
Enter date of arrest: 21/7/2018  
Enter criminal's ID: 5  
Enter 1 if assigned to officer, or 0 if not assigned  
0  
Enter 1 to return to menu, or 0 to exit  
1
```

```
C:\Users\user-01\Desktop\Prc + ▾  
criminal's birthdate: 11/5/2002  
crime: murder  
criminal's status: 15 years of prison  
date of arrest: 21/8/2021  
criminal's ID: 1  
-----  
criminal's firstname: Youssef  
criminal's lastname: Salah  
criminal's birthdate: 31/7/2003  
crime: Drug Dealer  
criminal's status: 25 years of prison  
date of arrest: 31/7/2015  
criminal's ID: 3  
-----  
Enter 0 to exit
```

Display Function:

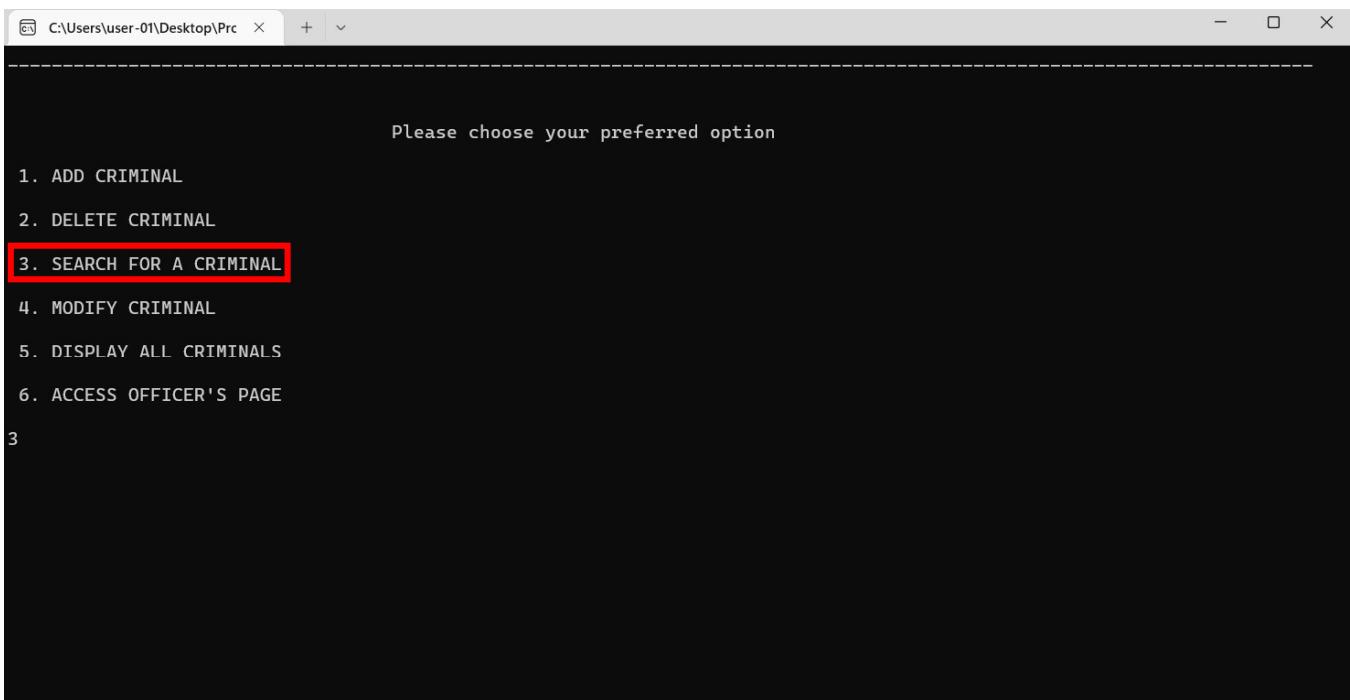
It's used to **search for a criminal**

The 3rd option in the *ADMIN_MENU*

```
void display(info1 information[], int array_size) //DISPLAY FUNCTION
{
    system("cls");
    string id;
    char x = 0;

    cout << "Enter the ID you wish to display" << endl;
    for (int i = 0; i < array_size; i++) {
        if (information[i].ID != "") {
            cout << information[i].ID << endl;
        }
    }
    cout << "-----" << endl;
    cin >> id;
    for (int i = 0; i < array_size; i++)
    {
        if (information[i].ID == id)
        {
            cout << "-----" << endl;
            cout << "criminal's firstname: ";
            cout << information[i].first_name << endl << endl;
            cout << "criminal's lastname: ";
            cout << information[i].last_name << endl << endl;
            cout << "criminal's birthdate: ";
            cout << information[i].birthdate << endl << endl;
            cout << "crime: ";
            cout << information[i].crime << endl << endl;
            cout << "criminal's status: ";
            cout << information[i].status << endl << endl;
            cout << "date of arrest: ";
            cout << information[i].date_of_arrest << endl << endl;
            cout << "criminal's ID: ";
            cout << information[i].ID << endl << endl;
        }
    }

    cout << "Enter 1 to return to menu, or Enter 2 to continue searching" << endl;
    while (x >= 0) {
        cin >> x;
        switch (x)
        {
        case '1':
            admin_menu(information, array_size);
            break;
        case '2':
            display(information, array_size);
            break;
        }
        if (x != '1' && x != '2') {
            cout << "PLEASE CHOOSE A 1 OR 2" << endl;
        }
    }
}
```



The screenshot shows a terminal window with the following content:

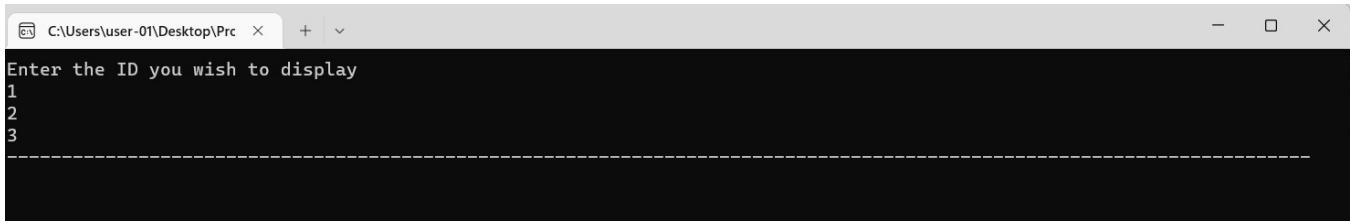
```
C:\Users\user-01\Desktop\Prc
```

Please choose your preferred option

1. ADD CRIMINAL
2. DELETE CRIMINAL
- 3. SEARCH FOR A CRIMINAL**
4. MODIFY CRIMINAL
5. DISPLAY ALL CRIMINALS
6. ACCESS OFFICER'S PAGE

3

The IDs shown are the IDs of the criminals present in the database.



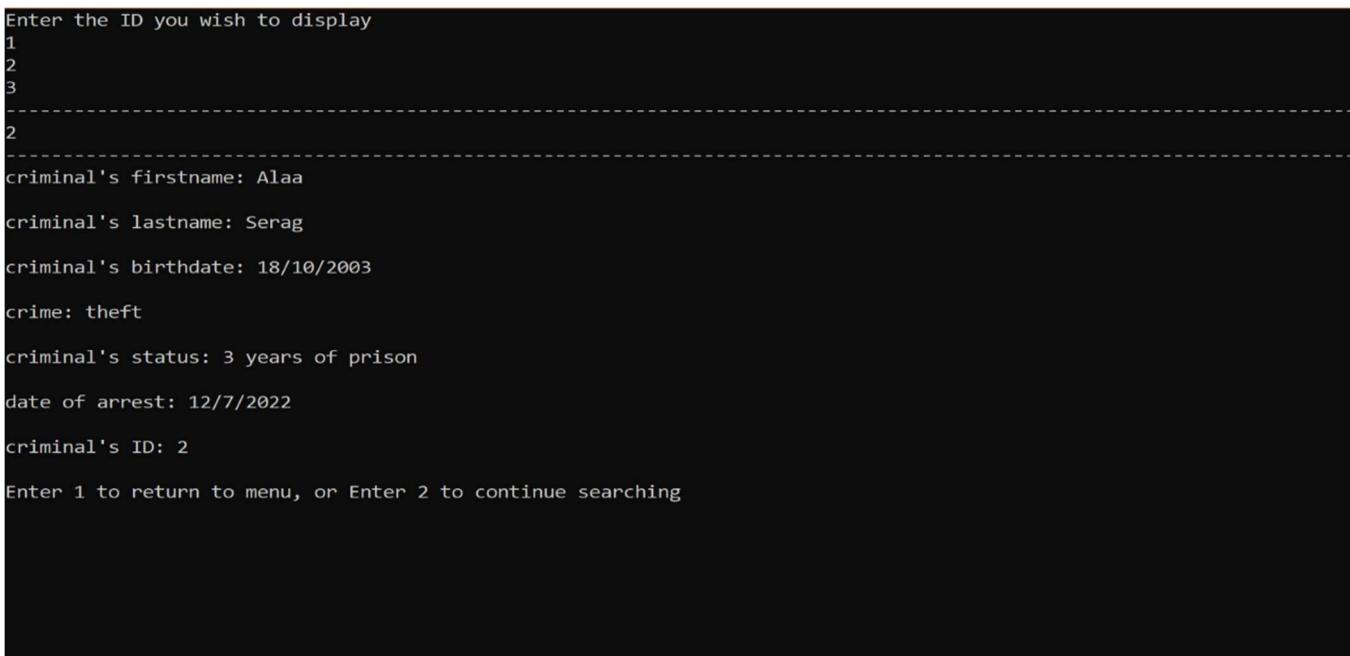
```
C:\Users\user-01\Desktop\Prc > Enter the ID you wish to display
1
2
3
```

Then you will be asked to enter the **ID you wish to display**

If you entered “1”, it displays the criminal of ID 1, and then you got to choose [whether to return to menu or to continue searching](#)

Example:

You can [enter “2”](#) and [display](#) the second ID “2”:



```
Enter the ID you wish to display
1
2
3
-----
2
-----
criminal's firstname: Alaa
criminal's lastname: Serag
criminal's birthdate: 18/10/2003
crime: theft
criminal's status: 3 years of prison
date of arrest: 12/7/2022
criminal's ID: 2
Enter 1 to return to menu, or Enter 2 to continue searching
```

Remove Function

Helps only the admin to **delete criminal records**.

Don't worry, if the entered ID is **incorrect** the program will tell you right away.

```
void remove(info1 information[], int array_size) //REMOVE CRIMINAL
{
    system("cls");
    int j = 1;
    string id;
    char x = -1;

    cout << "-----";
    cout << "Enter the ID you wish to delete" << endl;
    cin >> id;
    cout << "\n";
    for (int i = 0; i < array_size; i++)
    {
        if (information[i].ID == id && information[i].ID != "")
        {
            information[i].first_name = "";
            information[i].last_name = "";
            information[i].birthdate = "";
            information[i].crime = "";
            information[i].status = "";
            information[i].date_of_arrest = "";
            information[i].ID = "";
            information[i].assigned_cases = "";
            cout << "DELETED" << endl;
            j = 0;
            break;
        }
    }
    if (j == 1) {
        cout << "NO ID FOUND, PLEASE RETURN TO MENU AND TRY AGAIN" << endl;
        j = 0;
    }

    cout << "Enter 1 to return to menu, or 0 to exit" << endl;
    while (x >= -1) {
        cin >> x;
        switch (x)
        {
        case '0':
            CallExit();
            break;
        case '1':
            admin_menu(information, array_size);
            break;
        }
        if (x != '1' && x != '0') {
            cout << "PLEASE CHOOSE 1 OR 0" << endl;
        }
    }
}
```

1. choose the second option:



```
C:\Users\user-01\Desktop\Prc + ×  
-----  
Please choose your preferred option  
1. ADD CRIMINAL  
2. DELETE CRIMINAL  
3. SEARCH FOR A CRIMINAL  
4. MODIFY CRIMINAL  
5. DISPLAY ALL CRIMINALS  
6. ACCESS OFFICER'S PAGE  
3
```

2. Enter the ID:

```
Enter the ID you wish to delete  
1  
DELETED  
Enter 1 to return to menu, or 0 to exit  
|
```

3. Let's try if we entered again the ID “1”, that we have just deleted:

```
Enter the ID you wish to delete  
1  
NO ID FOUND, PLEASE RETURN TO MENU AND TRY AGAIN  
Enter 1 to return to menu, or 0 to exit  
|
```

Modify Function:

Function used to **modify data** in the criminal you entered.

```
void modify(info1 information[], int array_size) //to edit the data of a criminal you entered by mistake
{
    system("cls");
    char x = -1;
    int j = 1;
    string id;

    cout << "-----";
    cout << "Enter the ID you wish to modify" << endl;
    cin >> id;
    cout << "\n";

    for (int i = 0; i < array_size; i++) {
        if (id == information[i].ID) {
            modify_menu(information, array_size);
            j = 2;
        }
        if (j == 1) {
            cout << "NO ID FOUND, PLEASE RETURN TO MENU AND TRY AGAIN" << endl;
            j = 0;
        }
    }

    if (j == 2) {
        cout << "\n";
        cout << "MODIFIED" << endl << endl;
        cout << "Enter 1 to return to admin menu, or 2 to continue modifying" << endl << endl;
        while (x >= -1) {
            cin >> x;
            switch (x)
            {
                case '1':
                    admin_menu(information, array_size);
                    break;
                case '2':
                    modify_menu(information, array_size);
                    cout << "\n";
                    cout << "MODIFIED" << endl << endl;
                    cout << "Enter 1 to return to admin menu, or 2 to continue modifying" << endl;
                    break;
            }
            if (x != '1' && x != '2') {
                cout << "PLEASE CHOOSE 1 OR 2" << endl;
            }
        }
    }

    if (j == 0) {
        cout << "Enter 1 to return to admin menu" << endl;
        while (x >= -1) {
            cin >> x;
            switch (x)
            {
                case '1':
                    admin_menu(information, array_size);
                    break;
                if (x != '1') {
                    cout << "PLEASE CHOOSE 1" << endl;
                }
            }
        }
    }
}
```

Example:

While adding a criminal, you **forgot** to enter **the criminal's birthdate**, or typed a **wrong letter** while entering the criminal's **first name** as shown, you would use **modify**.

```
Enter criminal's firstname: rahnaf
Enter criminal's lastname: alhussien
Enter criminal's birthdate:
Enter crime: smuggling
Enter criminal's status: 18 years of prison
Enter date of arrest: 14/4/2022
Enter criminal's ID: 12
Enter 1 if assigned to officer, or 0 if not assigned
1
Enter 1 to return to menu, or 0 to exit
```

Choose Modify Criminal:

```
Please choose your preferred option
1. ADD CRIMINAL
2. DELETE CRIMINAL
3. SEARCH FOR A CRIMINAL
4. MODIFY CRIMINAL
5. DISPLAY ALL CRIMINALS
6. ACCESS OFFICER'S PAGE
4
```

```
Enter the ID you wish to modify
12
```

```
Please choose what you wish to modify
1. CRIMINAL'S FIRSTNAME
2. CRIMINAL'S LASTNAME
3. CRIMINAL'S BIRTHDATE
4. CRIME
5. CRIMINAL'S STATUS
6. DATE OF ARREST
```

```
Enter criminal's birthdate: 18/8/2003
```

```
MODIFIED
```

```
Enter 1 to return to admin menu, or 2 to continue modifying
```

```
Enter 1 to return to admin menu, or 2 to continue modifying
```

```
2
```

```
Please choose what you wish to modify
```

- 1. CRIMINAL'S FIRSTNAME
- 2. CRIMINAL'S LASTNAME
- 3. CRIMINAL'S BIRTHDATE
- 4. CRIME
- 5. CRIMINAL'S STATUS
- 6. DATE OF ARREST

```
1
```

```
Enter criminal's firstname: rahaf
```

```
MODIFIED
```

```
Enter 1 to return to admin menu, or 2 to continue modifying
```

Display all Function:

Displays the database that has **all the criminals**.

```
void display_all(infol information[], int array_size)
{
    system("cls");
    char x = -1;

    for (int i = 0; i < array_size; i++)
    {
        if (information[i].ID != "") {
            cout << "criminal's firstname: ";
            cout << information[i].first_name << endl << endl;
            cout << "criminal's lastname: ";
            cout << information[i].last_name << endl << endl;
            cout << "criminal's birthdate: ";
            cout << information[i].birthdate << endl << endl;
            cout << "crime: ";
            cout << information[i].crime << endl << endl;
            cout << "criminal's status: ";
            cout << information[i].status << endl << endl;
            cout << "date of arrest: ";
            cout << information[i].date_of_arrest << endl << endl;
            cout << "criminal's ID: ";
            cout << information[i].ID << endl << endl;
            cout << "-----";
        }
    }

    cout << "Enter 1 to return to menu, or 0 to exit" << endl;
    while (x >= -1) {
        cin >> x;
        switch (x)
        {
            case '0':
                CallExit();
                break;
            case '1':
                admin_menu(information, array_size);
                break;
        }
        if (x != '1' && x != '0') {
            cout << "PLEASE CHOOSE 1 OR 0" << endl;
        }
    }
}
```

Please choose your preferred option

1. ADD CRIMINAL
2. DELETE CRIMINAL
3. SEARCH FOR A CRIMINAL
4. MODIFY CRIMINAL
5. DISPLAY ALL CRIMINALS
6. ACCESS OFFICER'S PAGE

5

criminal's firstname: Salma

criminal's lastname: Youssef

criminal's birthdate: 11/5/2002

crime: murder

criminal's status: 15 years of prison

date of arrest: 21/8/2021

criminal's ID: 1

criminal's firstname: Alaa

criminal's lastname: Serag

criminal's birthdate: 18/10/2003

crime: theft

criminal's status: 3 years of prison

date of arrest: 12/7/2022

criminal's ID: 2

criminal's firstname: Youssef

criminal's lastname: Salah

criminal's birthdate: 31/7/2003

crime: Drug Dealer

criminal's status: 25 years of prison

date of arrest: 31/7/2015

criminal's ID: 3

Enter 1 to return to menu, or 0 to exit

Display Assigned Cases for Officers:

Login using username and password of **officers**, and then check the cases displayed

```
'void officer_menu(info1 information[], int array_size);
void display_all1(info1 information[], int array_size)
{
    system("cls");
    char x = -1;

    for (int i = 0; i < array_size; i++)
    {
        if (information[i].ID != "") {
            cout << "criminal's firstname: ";
            cout << information[i].first_name << endl << endl;
            cout << "criminal's lastname: ";
            cout << information[i].last_name << endl << endl;
            cout << "criminal's birthdate: ";
            cout << information[i].birthdate << endl << endl;
            cout << "crime: ";
            cout << information[i].crime << endl << endl;
            cout << "criminal's status: ";
            cout << information[i].status << endl << endl;
            cout << "date of arrest: ";
            cout << information[i].date_of_arrest << endl << endl;
            cout << "criminal's ID: ";
            cout << information[i].ID << endl << endl;
        }
    }
    cout << "Enter 1 to return to menu, or 0 to exit" << endl;
    while (x >= -1) {
        cin >> x;
        switch (x)
        {
        case '0':
            CallExit();
            break;
        case '1':
            officer_menu(information, array_size);
            break;
        }
        if (x != '1' && x != '0') {
            cout << "PLEASE CHOOSE 1 OR 0" << endl;
        }
    }
}
```

-----Welcome to our criminal database-----

criminal's firstname: Salma
criminal's lastname: Youssef
criminal's birthdate: 11/5/2002
crime: murder
criminal's status: 15 years of prison
date of arrest: 21/8/2021
criminal's ID: 1

criminal's firstname: Alaa
criminal's lastname: Serag
criminal's birthdate: 18/10/2003
crime: theft
criminal's status: 3 years of prison
date of arrest: 12/7/2022
criminal's ID: 2

criminal's firstname: Youssef
criminal's lastname: Salah
criminal's birthdate: 31/7/2003
crime: Drug Dealer

Assigned Cases:

Displays **assigned cases for the officer** that are assigned from the database (Salma & Youssef)

```
void assigned_casses(info1 information[], int array_size)//Displays assigned cases for the officer that are assigned from the database
{
    system("cls");
    char x = -1;
    string id;
    cout << "\n";
    for (int i = 0; i < array_size; i++)
    {
        if (information[i].assigned_cases == "1")
        {
            cout << "criminal's firstname: ";
            cout << information[i].first_name << endl << endl;
            cout << "criminal's lastname: ";
            cout << information[i].last_name << endl << endl;
            cout << "criminal's birthdate: ";
            cout << information[i].birthdate << endl << endl;
            cout << "crime: ";
            cout << information[i].crime << endl << endl;
            cout << "criminal's status: ";
            cout << information[i].status << endl << endl;
            cout << "date of arrest: ";
            cout << information[i].date_of_arrest << endl << endl;
            cout << "criminal's ID: ";
            cout << information[i].ID << endl << endl;
            cout << "-----\n";
        }
        cout << "Enter 0 to exit" << endl;
    while (x >= -1) {
        cin >> x;
        switch (x)
        {
        case '0':
            CallExit();
            break;

        }
        if (x != '0') {
            cout << "PLEASE CHOOSE 0" << endl;
        }
    }
}
}
```

```
C:\Users\user-01\Desktop\Prc > + v

criminal's firstname: Salma
criminal's lastname: Youssef
criminal's birthdate: 11/5/2002
crime: murder
criminal's status: 15 years of prison
date of arrest: 21/8/2021
criminal's ID: 1
-----
criminal's firstname: Youssef
criminal's lastname: Salah
criminal's birthdate: 31/7/2003
crime: Drug Dealer
criminal's status: 25 years of prison
date of arrest: 31/7/2015
criminal's ID: 3
```

Main Function:

```
int main()
{
    const int array_size = 50;
    infol* information = new infol[array_size];      //Array of structs that includes the database
    int res;
    information[0].first_name = "Salma";
    information[0].last_name = "Youssef";
    information[0].birthdate = "11/5/2002";
    information[0].crime = "murder";
    information[0].status = "15 years of prison";
    information[0].date_of_arrest = "21/8/2021";
    information[0].ID = "1";
    information[0].assigned_cases = "1";
    information[1].first_name = "Alaa";
    information[1].last_name = "Serag";
    information[1].birthdate = "18/10/2003";
    information[1].crime = "theft";
    information[1].status = "3 years of prison";
    information[1].date_of_arrest = "12/7/2022";
    information[1].ID = "2";
    information[1].assigned_cases = "0";
    information[2].first_name = "Youssef";
    information[2].last_name = "Salah";
    information[2].birthdate = "31/7/2003";
    information[2].crime = "Drug Dealer";
    information[2].status = "25 years of prison";
    information[2].date_of_arrest = "31/7/2015";
    information[2].ID = "3";
    information[2].assigned_cases = "2";

    welcomescreen();
    res = login(information, array_size);
    if (res == 1)
    {
        cout << "\n \n \n" << endl;

        for (int i = 3; i >= 0; i--) {

            sleep_for(seconds(1));
            cout << "Accessing in " << i << " seconds" << endl;
        }
        admin_menu(information, array_size);
    }
    else if (res == 0)
    {
        cout << "\n \n \n" << endl;

        for (int i = 3; i >= 0; i--) {

            sleep_for(seconds(1));
            cout << "Accessing in " << i << " seconds" << endl;
        }
        officer_menu(information, array_size);
    }
    else if (res == 2)
    {
        repeat(information, array_size);
    }
    delete[] information;
}
```

Admin Menu:

```
void admin_menu(infol information[], int array_size)//admin menu
{
    char choose;
    system("cls");
    cout << "-----";
    cout << setw(70) << " Please choose your preferred option" << endl << endl;
    cout << " 1. ADD CRIMINAL" << endl << endl;
    cout << " 2. DELETE CRIMINAL" << endl << endl;
    cout << " 3. SEARCH FOR A CRIMINAL" << endl << endl;
    cout << " 4. MODIFY CRIMINAL" << endl << endl;
    cout << " 5. DISPLAY ALL CRIMINALS" << endl << endl;
    cout << " 6. ACCESS OFFICER'S PAGE" << endl << endl;

    cin >> choose;
    switch (choose) {
        case '1':add(information, array_size);
                    break;

        case '2':remove(information, array_size);
                    break;

        case '3':display(information, array_size);
                    break;

        case '4':modify(information, array_size);
                    break;

        case '5':display_all(information, array_size);
                    break;

        case '6':officer_menu(information, array_size);
                    break;

        default:
            cout << "Please enter a number from 1-6!" << endl;
            sleep_for(seconds(2));
            admin_menu(information, array_size);
            break;
    }
}
```

```
C:\Users\user-01\Desktop\Prc - Welcome to our criminal database-  
Please Enter your username :admin  
Please Enter your password :pass  
  
Accessing in 3 seconds  
Accessing in 2 seconds  
Accessing in 1 seconds
```

```
C:\Users\user-01\Desktop\Prc - Please choose your preferred option  
1. ADD CRIMINAL  
2. DELETE CRIMINAL  
3. SEARCH FOR A CRIMINAL  
4. MODIFY CRIMINAL  
5. DISPLAY ALL CRIMINALS  
6. ACCESS OFFICER'S PAGE
```

Modify Menu Function:

```
void modify_menu(infol information[], int array_size)
{
    int choose;
    system("cls");
    cout << "-----" << endl << endl << endl;
    cout << " Please choose what you wish to modify" << endl << endl;
    cout << " 1. CRIMINAL'S FIRSTNAME" << endl << endl;
    cout << " 2. CRIMINAL'S LASTNAME" << endl << endl;
    cout << " 3. CRIMINAL'S BIRTHDATE" << endl << endl;
    cout << " 4. CRIME" << endl << endl;
    cout << " 5. CRIMINAL'S STATUS" << endl << endl;
    cout << " 6. DATE OF ARREST" << endl << endl;

    cin >> choose;
    system("cls");
    switch (choose) {
        case 1:
            for (int i = 0; i < array_size; i++)
            {
                cout << "Enter criminal's firstname: ";
                cin.ignore(1, '\n');
                getline(cin, information[i].first_name);
                break;
            }
            break;

        case 2:
            for (int i = 0; i < array_size; i++)
            {
                cout << "Enter criminal's lastname: ";
                cin.ignore(1, '\n');
                getline(cin, information[i + 1].last_name);
                break;
            }
            break;

        case 3:
            for (int i = 0; i < array_size; i++)
            {
                cout << "Enter criminal's birthdate: ";
                cin.ignore(1, '\n');
                getline(cin, information[i + 1].birthdate);
                break;
            }
            break;

        case 4:
            for (int i = 0; i < array_size; i++)
            {
                cout << "Enter crime: ";
                cin.ignore(1, '\n');
                getline(cin, information[i].crime);
                break;
            }
            break;

        case 5:
            for (int i = 0; i < array_size; i++)
            {
                cout << "Enter criminal's status: ";
                cin.ignore(1, '\n');
                getline(cin, information[i].status);
                break;
            }
            break;

        case 6:
            for (int i = 0; i < array_size; i++)
            {
                cout << "Enter date of arrest: ";
                cin.ignore(1, '\n');
                getline(cin, information[i].date_of_arrest);
                break;
            }
            break;

        default:
            cout << "Please enter a number from 1-6!" << endl;
            sleep_for(seconds(2));
            modify_menu(information, array_size);
            break;
    }
}
```

The Function is Number 4 in the admin's menu.

```
590 void admin_menu(infol information[], int array_size)
591 {
592     char choose;
593     system("cls");
594     cout << "-----";
595     cout << setw(70) << " Please choose your preferred option" << endl << endl;
596     cout << " 1. ADD CRIMINAL" << endl << endl;
597     cout << " 2. DELETE CRIMINAL" << endl << endl;
598     cout << " 3. SEARCH FOR A CRIMINAL" << endl << endl;
599     cout << " 4. MODIFY CRIMINAL" << endl << endl; // Option 4 highlighted with a red box
600     cout << " 5. DISPLAY ALL CRIMINALS" << endl << endl;
601     cout << " 6. ACCESS OFFICER'S PAGE" << endl << endl;
602
603     cin >> choose;
604     switch (choose) {
605         case '1':add(information, array_size);
606             break;
607
608         case '2':remove(information, array_size);
609             break;
610
611         case '3':display(information, array_size);
612             break;
613
614         case '4':modify(information, array_size); // Option 4 highlighted with a red box
615             break;
616     }
}
```

Officer Menu:

Officer Menu Function shows only the assigned cases that are assigned to an officer.

```
void officer_menu(infol information[], int array_size)//Officer menu
{
    char choose;
    system("cls");
    cout << "-----";
    cout << " WELCOME TO OFFICER'S PAGE" << endl << endl;
    cout << " ENTER 1 TO DISPLAY ASSIGNED CASES" << endl << endl;

    cin >> choose;
    switch (choose)
    {
        case '1':
            assigned_casses(information, array_size);
            break;

        default:
            cout << "Please enter 1" << endl;
            sleep_for(seconds(2));
            officer_menu(information, array_size);
            break;
    }
}
```

The screenshot shows a terminal window titled 'C:\Users\user-01\Desktop\Prc'. The window displays the following text:

```
Welcome to our criminal database

Please Enter your username :officer

Please Enter your password :pass

Accessing in 3 seconds
Accessing in 2 seconds
Accessing in 1 seconds
```

The screenshot shows a terminal window titled 'C:\Users\user-01\Desktop\Prc'. The window displays the following text:

```
WELCOME TO OFFICER'S PAGE

ENTER 1 TO DISPLAY ASSIGNED CASES
```

Repeat function:

Used when the entered input is **incorrect**. It gives you three trials, so try to enter the right inputs please.

```
void repeat(info1 information[], int array_size) //when the user fails to enter the correct
{
    char *username;
    username= new char[20];
    char *password;
    password= new char[20];
    int i = 3;
    cout << "You have " << i << " trials left" << endl;
    for (int i = 3; i > 0; i--) {
        system("cls");
        cout << "----- Welcome to our criminal database-----";
        cout << "-----";
        cout << "You have " << i << " trials left" << endl;
        cout << "\n \n \t \t Please Enter your username :";
        cin.getline(username, 10);
        cout << "\n \n \t \t Please Enter your password :";
        cin.getline(password, 10);
        if (strcmp(username, "admin") == 0 && strcmp(password, "pass") == 0) {
            admin_menu(information, array_size);
        }
        else if (strcmp(username, "ADMIN") == 0 && strcmp(password, "PASS") == 0) {
            admin_menu(information, array_size);
        }
        else if (strcmp(username, "officer") == 0 && strcmp(password, "pass") == 0) {
            officer_menu(information, array_size);
        }
        else if (strcmp(username, "OFFICER") == 0 && strcmp(password, "PASS") == 0) {
            officer_menu(information, array_size);
        }
        else {
            cout << "You have " << i - 1 << " trials left" << endl;
        }
        else if (strcmp(username, "OFFICER") == 0 && strcmp(password, "PASS") == 0) {
            officer_menu(information, array_size);
        }
        else {
            cout << "You have " << i - 1 << " trials left" << endl;
        }
        if (i == 1) {
            CallExit();
        }
    }
    delete[] username;
    delete[] password;
}
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Welcome to our criminal database

Please Enter your username :admin

Please Enter your password :ssssss

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Welcome to our criminal database

You have 3 trials left

Please Enter your username :officer

Please Enter your password :wwwwww

Welcome to our criminal database

You have 1 trials left

Please Enter your username :ghgggg

Please Enter your password :yyyyyy

Welcome to our criminal database

You have 2 trials left

Please Enter your username :dddd

Please Enter your password :pass