SRM UNIVERSITY AP
Andhra Pradesh

CSE 202

CRIME CONTROL

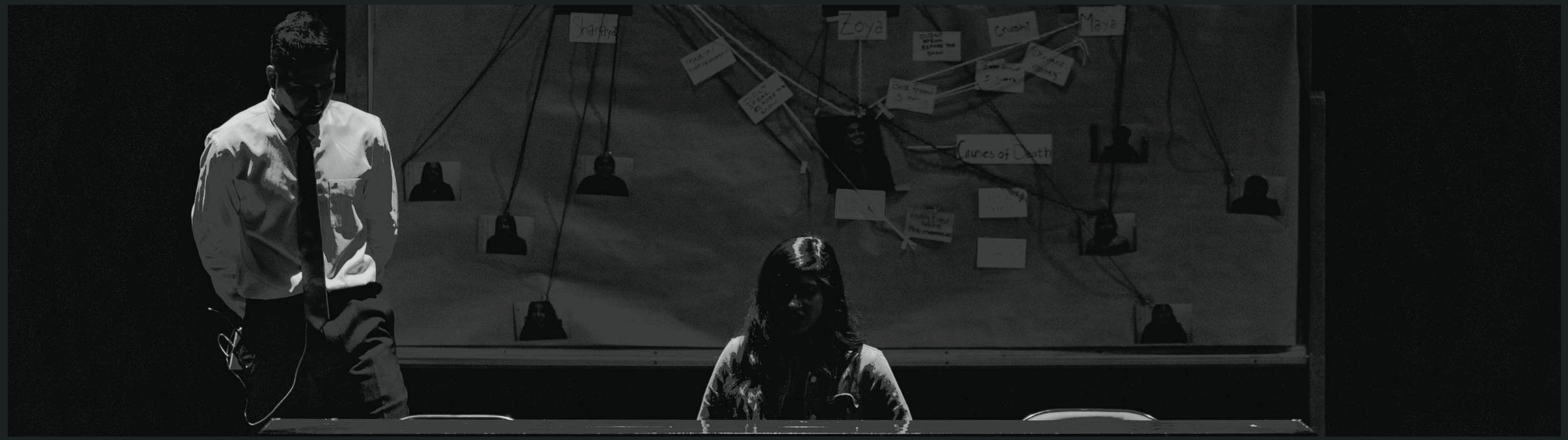
ON A MISSION TO CONTROL CRIME

BY
TEAM 7

キショア

CRIME CONTROL

ABOUT OUR PROJECT



SECURED REPORTS

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CRIME CONTROL

DATA FLOW

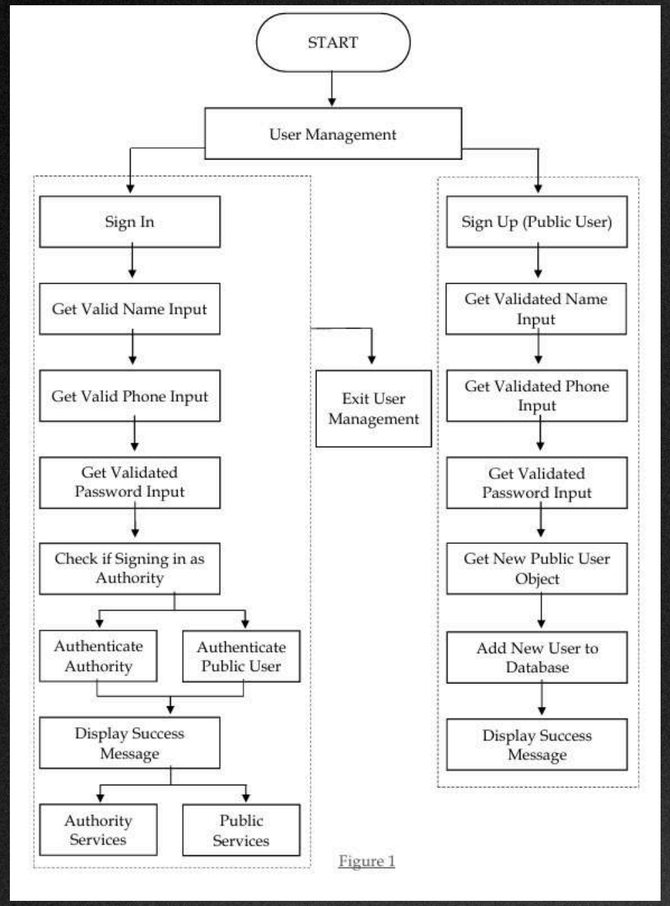
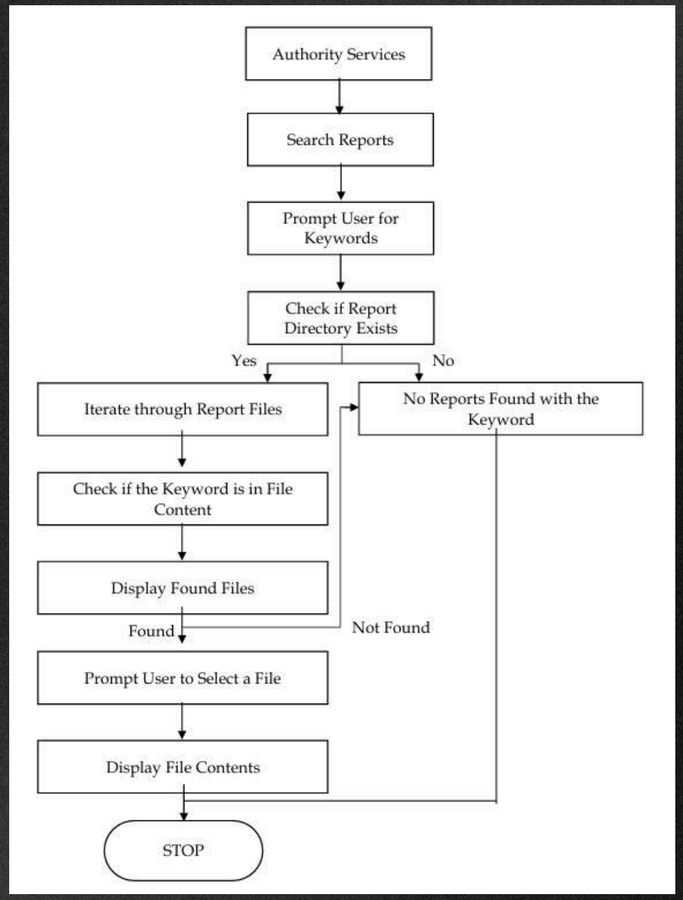
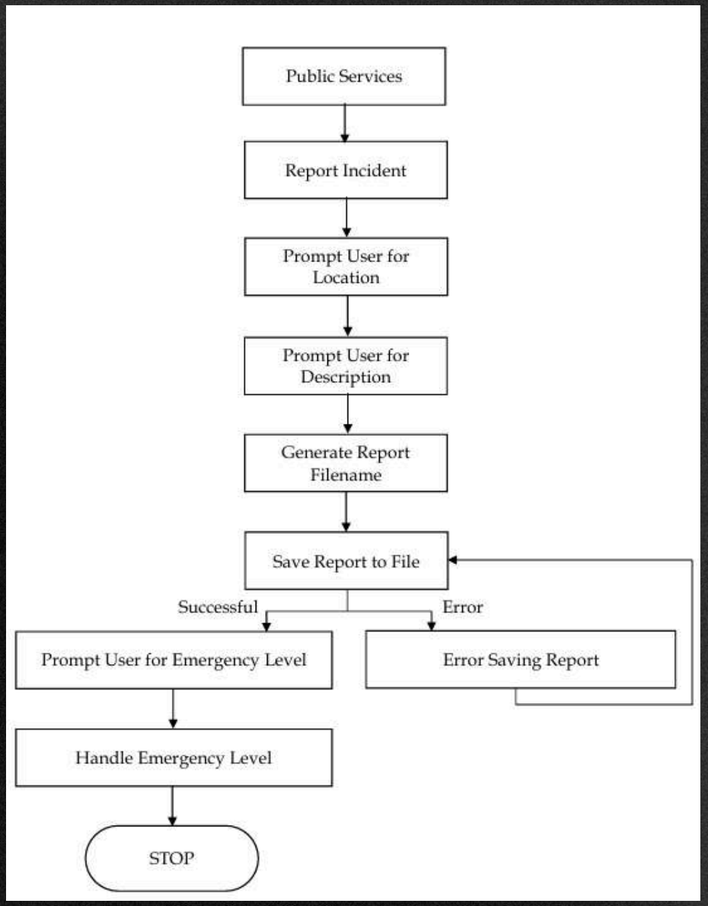


Figure 1





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CRIME CONTROL

ALGORITHM

Step 1: Start

Step 2: Initialize system variables and classes

Step 3: Display the main menu with options

Step 4: Read the user's choice

Step 5: Sign-Up Process (Public)

Step 6: Sign-In Process

Step 7: Handle incorrect inputs or invalid choices in both Sign-Up and Sign-In processes

Step 8: If the user chooses to exit

Step 9: Stop

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CRIME CONTROL

PROJECT CODE

```cpp
#include <iostream>
#include <fstream>
#include <string>
#include <cctype>
#include <algorithm>
#include <filesystem>
#include <vector>

using namespace std;
namespace fs = std::filesystem;

// Base User Class
class User {
protected:
    string name;
    string phone;
    string password;

public:
    User(string n, string p, string pass) : name(move(n)), phone(move(p)), password(move(pass)) {}

    string getName() const { return name; }
    string getPhone() const { return phone; }
    string getPassword() const { return password; }

    // Validation functions
    static bool isValidName(const string& name) {
        return all_of(name.begin(), name.end(), ::isalpha);
    }

    static bool isValidPhone(const string& phone) {
        return phone.length() == 10 && all_of(phone.begin(), phone.end(), ::isdigit);
    }

    static bool isValidPassword(const string& password) {
        return password.length() >= 8;
    }
};
```

```cpp
// Authority Class (inherits from User)
class Authority : public User {
public:
    Authority(string n, string p, string pass) : User(move(n), move(p), move(pass)) {}

    // Search reports
    void searchReports(const string& initialKeyword) const {
        string currentKeyword = initialKeyword; // Start with the initial keyword

        while (true) {
            cout << "Searching reports for keyword: " << currentKeyword << "\n";

            string reportDir = "C++ Project"; // Directory to search

            if (!fs::exists(reportDir)) {
                cout << "Directory " << reportDir << " does not exist.\n";
                return;
            }

            vector<fs::path> foundFiles;

            // Search reports in the directory
            for (const auto& file : fs::directory_iterator(reportDir)) {
                if (file.path().filename().string().find(currentKeyword) != string::npos) {
                    foundFiles.push_back(file.path());
                    cout << "Found in filename: " << file.path().filename() << "\n";
                }

                ifstream infile(file.path());
                if (infile) {
                    string line;
                    while (getline(infile, line)) {
                        if (line.find(currentKeyword) != string::npos) {
                            foundFiles.push_back(file.path());
                            cout << "Found in content of: " << file.path().filename() << "\n";
                            break;
                        }
```

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PROJECT CODE

```
        }
    }
}

// Handle cases when no reports are found
if (foundFiles.empty()) {
    cout << "No reports found with the keyword \"" << currentKeyword << "\".\n";
    cout << "Do you want to search for another keyword? (y/n): ";
    char retry;
    cin >> retry;
    cin.ignore(); // Clear input buffer
    if (tolower(retry) == 'y') {
        cout << "Enter a new keyword to search: ";
        getline(cin, currentKeyword); // Update the current keyword
        continue; // Restart the search
    }
    else {
        cout << "Exiting the search.\n";
        return;
    }
}

// Handle cases when reports are found
int choice;
while (true) {
    cout << "\nFiles found:\n";
    for (size_t i = 0; i < foundFiles.size(); ++i) {
        cout << i + 1 << ". " << foundFiles[i].filename() << "\n";
    }
    cout << "Enter the number of the file you want to read (or 0 to search for another keyword, -1 to exit): ";
    cin >> choice;

    if (choice == -1) {
        cout << "Exiting the search.\n";
        return;
    }
```

```
                if (choice == 0) {
                    cout << "Enter a new keyword to search: ";
                    cin.ignore(); // Clear input buffer
                    getline(cin, currentKeyword); // Update the current keyword
                    break; // Restart the search loop
                }

                if (choice > 0 && choice <= static_cast<int>(foundFiles.size())) {
                    ifstream infile(foundFiles[choice - 1]);
                    if (infile) {
                        cout << "\n--- Contents of " << foundFiles[choice - 1].filename() << " ---\n";
                        string line;
                        while (getline(infile, line)) {
                            cout << line << "\n";
                        }
                        cout << "----------------------------------------\n";
                    }
                    else {
                        cout << "Error opening file.\n";
                    }
                }
                else {
                    cout << "Invalid choice. Try again.\n";
                }
            }
        }
    }
};

// Public Class (inherits from User)
class Public : public User {
public:
    Public(string n, string p, string pass) : User(move(n), move(p), move(pass)) {}

    void reportIncident() const {
```

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PROJECT CODE

```
string caseType, location, description;
cout << "Enter the type of case you are reporting (please enter space 1st e.g., Theft, Murder): ";
cin.ignore(); // Clear the input buffer
getline(cin, caseType);

cout << "Enter the location of the incident: ";
getline(cin, location);

cout << "Enter a detailed description of the case:\n";
getline(cin, description);

// Sanitize input for filename by replacing invalid characters with underscores
auto sanitize = [](string& str) {
    for (char& c : str) {
        if (!isalnum(c) && c != '_' && c != '-') {
            c = '_'; // Replace invalid characters with '_'
        }
    }
    };

sanitize(caseType);
sanitize(location);

// Construct the filename
string filename = "C++ Project/" + caseType + "-" + location + "-" + name + ".txt";

ofstream file(filename);
if (file) {
    file << "Reported by: " << name << "\n";
    file << "Phone: " << phone << "\n";
    file << "Location: " << location << "\n";
    file << "Description: " << description << "\n";
    file << "--------------------------------------\n";

    cout << "\nIncident report saved successfully!!\n";
    cout << "Please select the level of emergency:\n";
            cout << "1. Highly Emergency (Sending location to control room and nearest hospital)\n";
            cout << "2. Normal Crime (To be solved after investigation)\n";
            cout << "Enter your choice: ";

            int emergencyLevel;
            cin >> emergencyLevel;

            if (emergencyLevel == 1) {
                cout << "An emergency alert has been sent with your location to the control room and the nearest hospital.\n";
            }
            else if (emergencyLevel == 2) {
                cout << "Your case has been recorded and will be solved after investigation.\n";
            }
            else {
                cout << "Invalid choice! Defaulting to normal processing.\n";
            }
        }
        else {
            cout << "Error saving the report.\n";
        }
    }

};

// Public User Database
class PublicUserDatabase {
    Public** publicUsers;
    int userCount;
    int capacity;

    void resize() {
        capacity *= 2;
        Public** newUsers = new Public * [capacity];
        for (int i = 0; i < userCount; ++i) {
            newUsers[i] = publicUsers[i];
        }
```

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CRIME CONTROL

PROJECT CODE

```
        delete[] publicUsers;
        publicUsers = newUsers;
    }

public:
    PublicUserDatabase(int initialCapacity = 5) : userCount(0), capacity(initialCapacity) {
        publicUsers = new Public * [capacity];
        loadUsersFromFile();
    }

    ~PublicUserDatabase() {
        saveUsersToFile();
        for (int i = 0; i < userCount; ++i) {
            delete publicUsers[i];
        }
        delete[] publicUsers;
    }

    void addPublicUser(Public* newUser) {
        if (userCount == capacity) {
            resize();
        }
        publicUsers[userCount++] = newUser;
    }

    Public* findPublicUser(const string& name, const string& phone, const string& password) const {
        for (int i = 0; i < userCount; ++i) {
            if (publicUsers[i]->getName() == name && publicUsers[i]->getPhone() == phone &&
                publicUsers[i]->getPassword() == password) {
                return publicUsers[i];
            }
        }
        return nullptr;
    }

    void loadUsersFromFile() {
        ifstream file("public_users.txt");
        string name, phone, password;
        while (file >> name >> phone >> password) {
            addPublicUser(new Public(name, phone, password));
        }
    }

    void saveUsersToFile() const {
        ofstream file("public_users.txt");
        for (int i = 0; i < userCount; ++i) {
            file << publicUsers[i]->getName() << " " << publicUsers[i]->getPhone() << " "
                 << publicUsers[i]->getPassword() << "\n";
        }
    }
};

// Helper function
static string getValidatedInput(const string& prompt, bool (*validate)(const string&)) {
    string input;
    while (true) {
        cout << prompt;
        cin >> input;
        if (validate(input)) {
            return input;
        }
        else {
            cout << "Invalid input! Please try again.\n";
        }
    }
}

// Sign-Up function
static void signUp(PublicUserDatabase& db) {
    string name = getValidatedInput("Enter your name: ", User::isValidName);
    string phone = getValidatedInput("Enter your phone number: ", User::isValidPhone);
    string password = getValidatedInput("Enter your password: ", User::isValidPassword);

    // Check if the user already exists
    Public* existingUser = db.findPublicUser(name, phone, password);
```

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CRIME CONTROL

PROJECT CODE

```
    Public* existingUser = db.findPublicUser(name, phone, password);
    if (existingUser) {
        cout << "User already exists! Please sign in instead.\n";
        return;
    }

    // Add new user and save to file
    db.addPublicUser(new Public(move(name), move(phone), move(password)));
    cout << "Public user signed up successfully!\n";
}

// Sign-In function
static void signIn(PublicUserDatabase& db, Authority* authorityUsers, int authorityCount) {
    string name = getValidatedInput("Enter your name: ", User::isValidName);
    string phone = getValidatedInput("Enter your phone number: ", User::isValidPhone);
    string password = getValidatedInput("Enter your password: ", User::isValidPassword);

    char choice;
    cout << "Are you signing in as an Authority? (y/n): ";
    cin >> choice;
    cin.ignore();

    if (tolower(choice) == 'y') {
        for (int i = 0; i < authorityCount; ++i) {
            if (authorityUsers[i].getName() == name && authorityUsers[i].getPhone() == phone &&
                authorityUsers[i].getPassword() == password) {
                cout << "Signed in successfully as Authority!\n";

                string keyword;
                cout << "Enter a keyword to search reports: ";
                getline(cin, keyword);
                authorityUsers[i].searchReports(keyword);

                return;
            }
        }
        cout << "Invalid credentials for Authority.\n";
    }
    else {
        Public* user = db.findPublicUser(name, phone, password);
        if (user) {
            cout << "Signed in successfully as Public user!\n";
            user->reportIncident();
        }
        else {
            cout << "Invalid credentials for Public user.\n";
        }
    }
}

// Main Function
int main() {
    PublicUserDatabase publicDb;
    Authority authorityUsers[] = {
        Authority("Dr.Kavatha Rani", "1234512345", "password1"),
        Authority("Prudhvi", "1234567890", "password2"),
        Authority("Navnith", "6789067890", "password3"),
        Authority("Kishore", "0987654321", "password4"),
        Authority("Adithya", "2345678910", "password5")

    };
    int authorityCount = sizeof(authorityUsers) / sizeof(authorityUsers[0]);

    int choice;
    do {
        cout << "\nCrime Control System\n";
        cout << "1. Sign Up\n";
        cout << "2. Sign In\n";
        cout << "0. Exit\n";
        cout << "Enter your choice: ";
        cin >> choice;

        switch (choice) {
```

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CRIME CONTROL

PROJECT CODE

```
        switch (choice) {
        case 1:
            signUp(publicDb);
            break;
        case 2:
            signIn(publicDb, authorityUsers, authorityCount);
            break;
        case 0:
            cout << "Exiting the system. Goodbye!\n";
            break;
        default:
            cout << "Invalid choice. Try again.\n";
        }
    } while (choice != 0);

    return 0;
}
```

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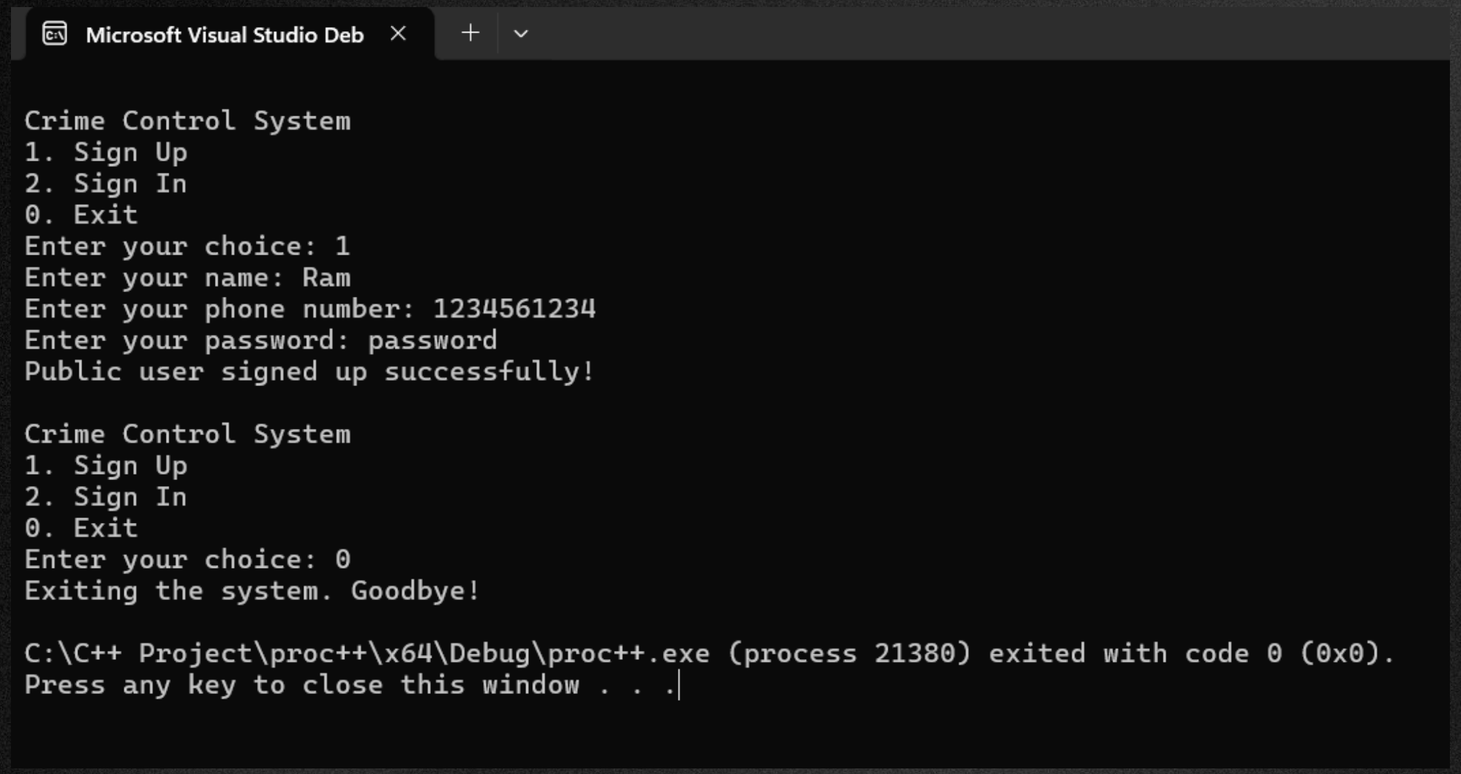
CRIME CONTROL

TEST CASES



THE SIGN UP

The sign up page is only for the public users and the authority can't sign in using the sign up present here.

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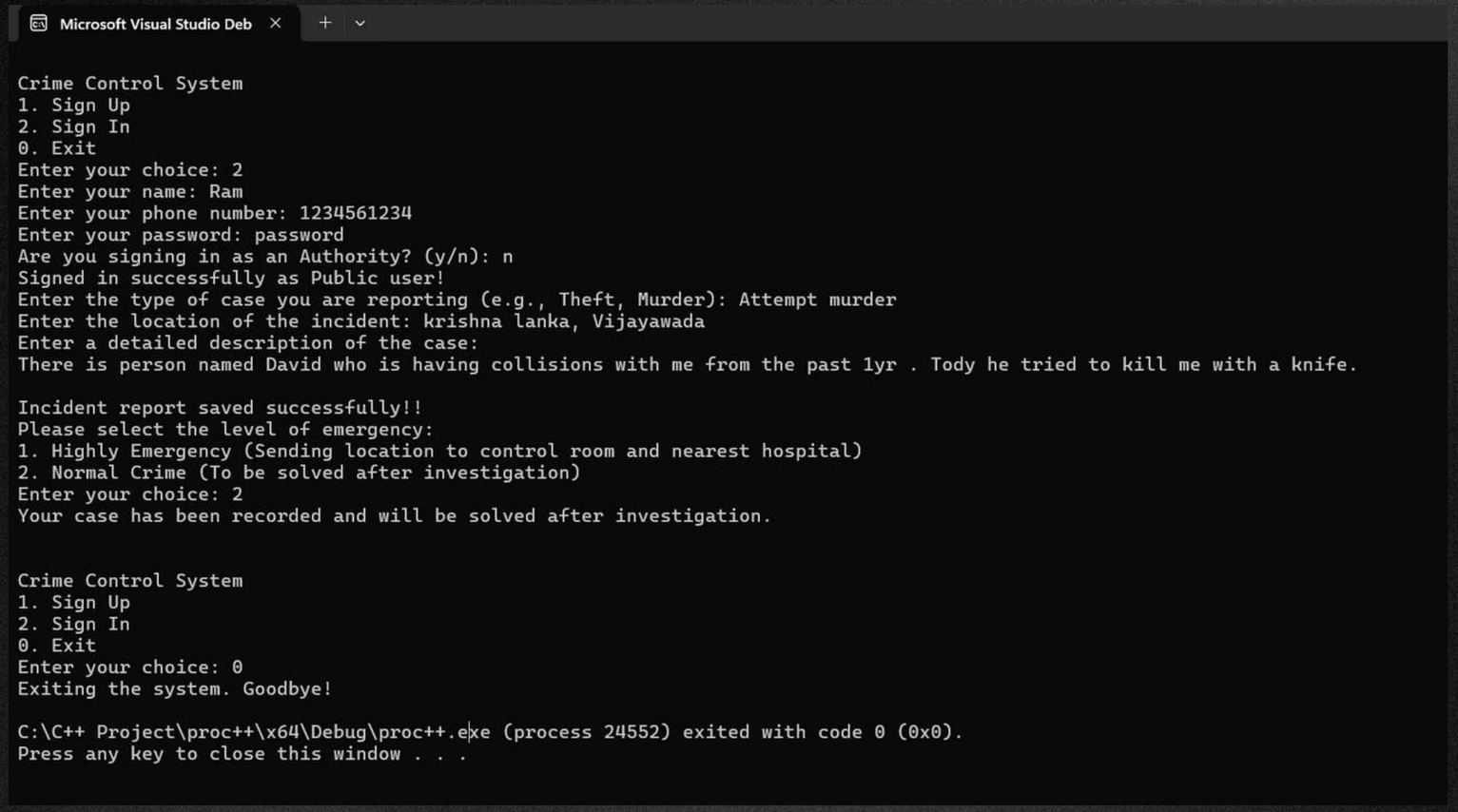
CRIME CONTROL

TEST CASES



SIGN IN AND REPORTING

This is how the user can sign in with exact details and then report the incident.

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CRIME CONTROL

TEST CASES

C:\C++ Project\proc++\x64'

```
Crime Control System
1. Sign Up
2. Sign In
0. Exit
Enter your choice:
2
Enter your name: Prudhvi
Enter your phone number: 1234567890
Enter your password: password2
Are you signing in as an Authority? (y/n): y
Signed in successfully as Authority!
Enter a keyword to search reports: Kidnapping
Searching reports for keyword: Kidnapping
No reports found with the keyword "Kidnapping".
Do you want to search for another keyword? (y/n): y
Enter a new keyword to search: Murder
Searching reports for keyword: Murder
Found in filename: "Murder-Prakasham_barrage_-Ram.txt"

Files found:
1. "Murder-Prakasham_barrage_-Ram.txt"
Enter the number of the file you want to read (or 0 to search for another keyword, -1 to exit): 1

--- Contents of "Murder-Prakasham_barrage_-Ram.txt" ---
Reported by: Ram
Phone: 1234561234
Location: Prakasham_barrage_
Description: Some deadbody is present here. It's covered in blood and has multiple stabs
----------------------------------------
----------------------------------------

Files found:
1. "Murder-Prakasham_barrage_-Ram.txt"
Enter the number of the file you want to read (or 0 to search for another keyword, -1 to exit): 0
Enter a new keyword to search: Chain
Searching reports for keyword: Chain
Found in filename: "Chain snaching-benz circle-Gnana.txt"
Found in filename: "Chain_snatching-Benz_circle-Gnana.txt"

Files found:
1. "Chain snaching-benz circle-Gnana.txt"
2. "Chain_snatching-Benz_circle-Gnana.txt"
Enter the number of the file you want to read (or 0 to search for another keyword, -1 to exit): 1

--- Contents of "Chain snaching-benz circle-Gnana.txt" ---
Reported by: Gnana
Phone: 1234567890
Location: benz circle
Description: someone has robbed my chain when I was walking near the benz circle beside the trendset mall
----------------------------------------
```

AUTHORITY SIGN IN AND REPORT SEARCHING

The authority can search for any key word until he finds the desired file, if exists.

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CRIME CONTROL

TEST CASES

```
Enter a new keyword to search: Ram
Searching reports for keyword: Ram
Found in filename: "Attempt murder-krishna lanka, Vijayawada-Ram.txt"
Found in content of: "Attempt murder-krishna lanka, Vijayawada-Ram.txt"
Found in filename: "Murder-Prakasham_barrage_-Ram.txt"
Found in content of: "Murder-Prakasham_barrage_-Ram.txt"
Found in filename: "Theft-Balaji_nagar__Vijayawada-Ram.txt"
Found in content of: "Theft-Balaji_nagar__Vijayawada-Ram.txt"

Files found:
1. "Attempt murder-krishna lanka, Vijayawada-Ram.txt"
2. "Attempt murder-krishna lanka, Vijayawada-Ram.txt"
3. "Murder-Prakasham_barrage_-Ram.txt"
4. "Murder-Prakasham_barrage_-Ram.txt"
5. "Theft-Balaji_nagar__Vijayawada-Ram.txt"
6. "Theft-Balaji_nagar__Vijayawada-Ram.txt"
Enter the number of the file you want to read (or 0 to search for another keyword, -1 to exit): |
```

AUTHORITY SIGN IN AND REPORT SEARCHING

The keywords can include any word name of the person who reported or place or type of case that's been reported

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CRIME CONTROL

TEST CASES

```
Files found:
1. "Attempt murder-krishna lanka, Vijayawada-Ram.txt"
2. "Attempt murder-krishna lanka, Vijayawada-Ram.txt"
3. "Murder-Prakasham_barrage_-Ram.txt"
4. "Murder-Prakasham_barrage_-Ram.txt"
5. "Theft-Balaji_nagar__Vijayawada-Ram.txt"
6. "Theft-Balaji_nagar__Vijayawada-Ram.txt"
Enter the number of the file you want to read (or 0 to search for another keyword, -1 to exit): -1
Exiting the search.

Crime Control System
1. Sign Up
2. Sign In
0. Exit
Enter your choice: 0
Exiting the system. Goodbye!

C:\C++ Project\proc++\x64\Debug\proc++.exe (process 8920) exited with code 0 (0x0).
Press any key to close this window . . .
```

The Exit

To exit the search we should press -1 and to exit completely we should press 0.

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CRIME CONTROL

THANK YOU

RASAMSETTI GNANA PRUDHVI AP23110010542
VUPPU KISHORE AP23110010563
KODUR ADITHYA AP23110010573
NAVANIT REDDY TURPINTI AP23110010578

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