

U

# COMPUTER PROJECT

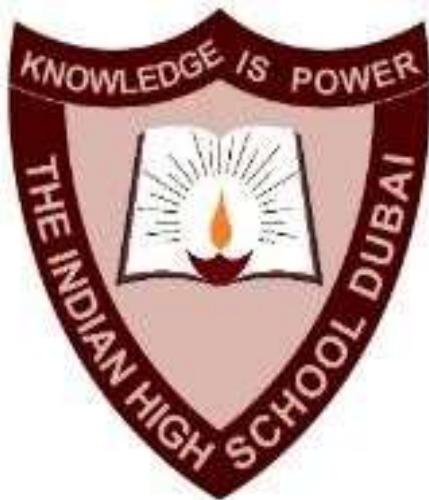


GLOBAL BUREAU OF INVESTIGATIONS  
**CRIME DATABASE**

By: Eshal Ajmal, Joann Elizabeth Byju and Krishita Sudhakaran

# THE INDIAN HIGH SCHOOL

## DUBAI



### CERTIFICATE

This is to certify that the work in this Project is the bonafide work of

***Master/Miss:*** \_\_\_\_\_

***Class:*** \_\_\_\_\_ ***Division:*** \_\_\_\_\_ ***Roll No:*** \_\_\_\_\_

done during the academic year

**2023-2024**

***Date:***

***Teacher in-charge:***

***Signature:***

# INDEX

<b>ACKNOWLEDGEMENT</b>	<b>2</b>
<b>OVERVIEW</b>	<b>3</b>
<b>MODULES</b>	<b>4</b>
MySQL.Connector	4
Pickle	5
Time	5
Crime_Module	5
<b>FUNCTIONS</b>	<b>6</b>
Built-in Functions	6
Functions Defined in Modules	6
User-Defined Functions	7
<b>FILE - GBI_Records.dat</b>	<b>11</b>
<b>SQL TABLE - USER_LOGIN</b>	<b>13</b>
<b>SQL CONNECTIVITY WITH PYTHON</b>	<b>15</b>
<b>PROGRAM</b>	<b>17</b>
Main Program	17
Module Program	18
<b>OUTPUT</b>	<b>45</b>
Authorized User	45
Guest User	52
<b>BIBLIOGRAPHY</b>	<b>55</b>

## **ACKNOWLEDGEMENT**

I would like to extend my heartfelt appreciation and sincere gratitude to all those who played pivotal roles in this project's successful development and completion. Their active guidance, unwavering assistance, collaborative spirit, and constant encouragement were indispensable factors that enabled me to present the project on time.

I extend special thanks to my teacher, Mrs. Vinita John, for her invaluable guidance and unwavering support throughout the entire journey of completing this project. Her expertise and mentorship were instrumental in shaping the project's outcomes.

Without a doubt, this project would not have been completed without the help, support, and cooperation of my group members and friends. Their support, cooperation, and assistance were appreciated and essential in navigating the challenges and complexities of the project.

I also express my gratitude to my friends and team members for providing insightful suggestions, which significantly enhanced the overall quality of the project. Their constructive feedback played a crucial role in refining and improving various aspects of the work.

In addition, I extend my deep reverence to my parents and other esteemed faculty members of the school for their unwavering support and encouragement. Their belief in my abilities and continuous support were key factors in overcoming obstacles and completing the project successfully.

## **OVERVIEW**

The primary objective of this project is to enhance the organization and accessibility of a crime database, making it more user-friendly for future reference. The crime records are meticulously stored in a binary file, and a specialized module has been developed. This module incorporates user-defined functions tailored for authorized personnel, facilitating seamless access to the database for tasks such as note comparison and identification of patterns.

Authorized users are equipped with functions that empower them to read, edit, add, remove, and find pertinent data from records. These functions are designed to cater to various criteria, including the nature of the crime, time and location of the incident, as well as details about victims and criminals.

Moreover, the system includes functions to accommodate viewers—individuals without authorized access. These functions enable viewers to search and view crime records, contributing to a broader awareness of the information contained in the database. The project strives to provide a comprehensive solution for efficient management and utilization of criminal data, ensuring accessibility for authorized users and awareness for others.

# MODULES

A module is essentially a self-contained file that encapsulates a set of functions and variables within it. Within this file, functions are defined to perform specific tasks, and variables are declared to store relevant information. The modular approach allows programmers to compartmentalize code, making it more organized and manageable.

The beauty of modules lies in their reusability. Once functions are defined within a module, they can be imported into other programs as needed. This promotes a modular programming paradigm, where code is broken down into smaller, more manageable pieces, enhancing the overall structure and readability of the codebase.

By importing modules into programs, developers gain easy access to the functions and variables defined within those modules. This not only streamlines the coding process but also facilitates code maintenance and updates. If a change or improvement is required in a particular functionality, developers can focus on the specific module without affecting the entire program.

The use of modules contributes to efficient coding practices, as developers can leverage existing code rather than reinventing the wheel for every program. It promotes a collaborative and modular approach to software development, making it easier to manage, understand, and enhance codebases over time.

**In this project we have imported three modules:**

1. MySQL.Connector
2. Pickle
3. Time

**We have also created a module Crime\_Module, encompassing all of our user-defined functions.**

The information and details of all the modules are as given:

## MySQL.Connector

MySQL Connector/Python is a powerful tool that facilitates the interaction between Python programs and MySQL databases. This connector adheres to the Python Database API Specification v2.0 (PEP 249), providing a standardized interface for Python developers to work seamlessly with MySQL databases. It is written entirely in Python, offering a pure Python implementation. This means that it doesn't rely on external C libraries or components, making it easy to install and use without additional dependencies. **It has been used in our project, to**

**connect our program with our MySQL Database ‘GBI\_Records’, to efficiently work out the login process.**

## Pickle

The Pickle module in Python serves as a crucial tool for the serialization and deserialization of Python objects. Serialization involves converting an object into a character stream or binary string, containing all the information needed to reconstruct the original object. Deserialization, on the other hand, entails loading the character stream or binary string and recreating the object from it. Pickle provides a convenient and efficient way to achieve these tasks in Python. **In our project, it is imported into both the main program and our module to enable easy access to the binary file ‘GBI\_Reocrds.dat’ in which all our data is stored.**

## Time

The Python time module is a versatile tool that enables developers to work with time-related functionalities in their Python programs. It offers a range of features, including obtaining the current time, introducing pauses in program execution, and performing other time-related operations. This module is particularly valuable for tasks that involve tracking, measuring, or manipulating time within a Python application. **We make use of it to facilitate the introduction of pauses or delays, by using the sleep() function to suspend the program for a specified duration, enabling controlled timing.**

## Crime\_Module

**This is a user-defined module that serves as a central repository for all of our custom functions and variables tailored to the specific requirements of our project.** This module is designed to manage and manipulate data related to various categories, including the nature of crimes, suspects, criminals, victims, and more. It is then imported into the main program, allowing these functionalities to be seamlessly integrated.

# FUNCTIONS

Functions in programming are essential components that encapsulate a set of instructions to perform specific tasks when called. There are different types of functions, including built-in functions, user-defined functions, and functions defined in modules. Here's a breakdown of these concepts:

## Built-in Functions

Built-in functions are predefined functions that come with the programming language. They can be used directly by programmers without having to define them. They provide common and fundamental operations, making them readily available for use in any program. The built-in functions used in our project are as follows:

1. **print()** – It is used to display information to the user.
2. **input()** – It is used to accept variables from the user.
3. **eval()** – It allows you to evaluate arbitrary Python expressions from a string-based or compiled-code-based input.
4. **str()** – It converts the specified value into a string.
5. **int()** – It converts the specified value into an integer number.
6. **range()** – It returns a sequence of numbers, starting from 0 by default, and increments by 1 (by default), and stops before a specified number.
7. **len()** – It returns the number of items (length) in an object.
8. **list.append()** – It adds an element to the list at the end.
9. **list.clear()** – It clears the list and returns an empty list.
10. **list.remove()** – It takes a value as an argument and removes it from the list.
11. **string.lower()** – It returns the string in lowercase.
12. **string.split()** – It splits given text into a list of words
13. **file.open()** – It returns a file object, which is used to identify a file.
14. **file.close()** – It flushes the buffer and closes an open file.

## Functions Defined in Modules

Functions defined in modules are those that are not part of the main program but are stored in external files or libraries (modules). These functions must be imported into the program before they can be used. They can be either

user-defined or part of built-in modules. Functions in modules promote code organization and modular design. They allow developers to group related functionalities together, making it easier to manage and maintain code. We have made use of the following functions, from the aforementioned modules:

1. **mysql.connector.connect()** - It connects the python module with MySQL
2. **time.sleep(n)** – This function gives a pause for ‘n’ seconds.
3. **pickle.dump()** – This function is imported from pickle module and is used to serialize (convert) python object into a byte stream.
4. **pickle.load()** – This function is imported from pickle module and is used to deserialize python objects convert byte stream to user-friendly python object

## User-Defined Functions

User-defined functions are created by the programmer to perform specific tasks tailored to the program's needs. These functions are invoked when called in the program, and they help in organizing and simplifying code. User-defined functions enhance code modularity, readability, and reusability. They allow programmers to break down complex tasks into smaller, more manageable units. We have created and defined the following functions, to ensure a smooth, efficient and user-friendly program:

1. **userlogin()** – It checks if the username and password if user is authorized
2. **updateinfile()** – It is defined to update the changes made in the dictionary ‘d’ defined in the module to the binary file ‘GBI\_Records.dat’
3. **file()** – It is defined to enter file number and cross check if it is valid. It is invoked in status(), accused(), suspects(), evidence()
4. **history()** – It is defined to return criminal history of user-inputted criminal.
5. **similar()** – It is defined to return details of similar crimes based on user-inputted details like charges, evidences collected etc.
6. **NewCase()** - It is defined to add a new case to the database. It also invokes the following user-defined functions:
  - a. **victim()** – It is defined for the user to add in victim details.
  - b. **crime()** – It is defined for the user to add in crime details
  - c. **evidences()** – It is defined for the user to add in evidence details.
  - d. **i\_suspects()** – It is defined for the user to add in suspect details.

- e. **accuse()** – It is defined for the user to add in accused details.
  - f. **multi\_an()** – It allows to enter multiple analysts and also checks if the entered analysts are valid.
  - g. **Valid\_IO()** - It allows to enter the investigating officer and checks if the entered value is a valid one.
7. **update()** - It is defined to update, add or remove, case details in the database across various parameters like status of crime, accused details, suspect details, evidences etc. It also invokes the following user-defined functions:
- a. **status()** – It is defined to update status of the case in the database.
  - b. **accused()** - It is defined to add or remove or update accused details in the database. The function further calls upon the following user - defined functions:
    - i. **ar()** – It is a function defined to remove accused from the database. It is called in accused().
    - ii. **uiea()** – It is a function defined to update accused details parameter by parameter. It is evoked in accused().
    - iii. **asu()** – It is a variant of status() that is called in ar() that allows you to update status in the file if accused has been removed.
  - c. **suspects()** - It is defined to add or remove or update accused details in the database. The function further calls upon the following user - defined functions:
    - i. **sur()** – It is a function defined to remove a suspect detail and its called in suspects().
    - ii. **ueis()** – It is a function defined to update suspect details parameter by parameter. It is evoked in suspects().
  - d. **evidence()** - It is defined to add or remove evidences (witness details and material samples) in the database. The function further calls upon the following user - defined functions:
    - i. **samples()** - It is defined to add or remove comparison samples for a case in the database. The following functions are invoked to perform the actions:
      - 1. **sr()** – It is defined to remove samples. It is invoked in samples() function.

- ii. **witnesses()** - It is defined to add or remove witness details for a case in the database. The following functions are invoked to perform the actions:
      - 1. **wr()** - It is defined to remove witness details. It is invoked in witnesses() function.
      - 2. **ueiw()** -It is a function defined to update witness details parameter by parameter. It is evoked in witnesses().
  - e. **uxdets()** – It is defined to update the department which handles the case, the investigating officers and analysts. The function further calls upon the following user - defined functions:
    - i. **multi\_an()** – It allows to enter multiple analysts and also checks if the entered analysts are valid.
    - ii. **Valid\_IO()** - It allows to enter the investigating officer and checks if the entered value is a valid one.
8. **adisplay()** – It is defined to display details of case depending on parameters like status, department etc. It also invokes the following user-defined functions:
- a. **Fno()** – It is defined to accept a file number and check if its there in the database and print the case details.
  - b. **adisplaystatus()** – It is defined to display case details based on status - ongoing, solved, unsolved.
  - c. **adisplaydpt()** – It further checks if authorized user wants to view all the cases in the department or cases handled by a particular investigating officer. The function further calls upon the following user - defined functions:
    - i. **AllCaseDpt()** – It is defined to display details of cases department wise. It displays the case details of the authorized person's dept. or other dept. It is invoked in adisplaydpt()
9. **gdisplay()** – It is defined to display details of cases depending on what type of cases the user wants to see.
- a. **Fno()** – It is defined to accept a file number and check if its there in the database and print the case details.
  - b. **gdisplaystatus()** – It is defined to display case details based on status - ongoing, solved, unsolved. It is called in gdisplay(). It differs from adisplaystatus in the 'Go back' option

- c. **gdisplaydpt()** – It further checks if user wants to view all the cases in the department or cases handled by a particular investigating officer.
10. **aoptions()** – This function displays a menu of options available to authorized users in the program. Given below are the options, and the corresponding functions invoked. For a detailed breakdown of the functions see above.
- a. For option 1, it invokes the update() function to update details as required by the user.
  - b. For option 2, it calls the history() function to retrieve the criminal history of a specified individual.
  - c. For option 3, it calls the similar() function to obtain details about cases similar to the specified one.
  - d. For option 4, it invokes the NewCase() function when the user wants to add a new case.
  - e. For option 5, it calls the adisplay() function to display case details.
  - f. For option 6, it breaks the loop, logs out the user, and exits from the program.
11. **goptions()** – Similar to aoptions(), this function displays a menu of options for guest users, that is for users who have not logged in with authorized credentials. It shares common functions with aoptions() except those that allow the user to make changes to the records, such as updating or adding a case.
- a. For option 1, it invokes the history() function to retrieve the criminal history of a specified individual.
  - b. For option 2, it calls the similar() function to obtain details about cases similar to the specified one.
  - c. For option 3, it calls the gdisplay() function to display case details.
  - d. For option 4, it breaks the loop, and exits from the program.

## FILE - GBI\_Records.dat

The data in this project is stored in a binary file named 'GBI\_Records.dat.' Binary files store information in a computer in a sequence of bytes. Unlike text files, binary files are not human-readable, as they contain raw binary data that represents the information. To handle the serialization and deserialization of Python objects in this binary file, the Pickle module is utilized.



```
d={"#001-B":  
    {'Victim Details':["Arianna","25 yrs","F","Villa 42, South Street, Jumeirah","056-7894321"],  
     'Charges':'Burglary',  
     'Details of Crime':["23/01/23","17:00","Victim's Home","TV and Jewellery Stolen"],  
     'Evidences':{'Comparison Samples (Forensic Evidence)':['DNA','Fingerprints'],  
                 'Witness Details':[["Nil"]]},  
     'Suspect Details':[["Nil"]],  
     'Accused Details':[["John C","27 yrs","M", "Flat#502, Black Building, Karama","065-9876356"]],  
     'Status':'Solved',  
     'Department':'Organized Crime Bureau',  
     'Investigating Officer':'Nancy Drew',  
     'Analyst(s)':[{"Andre Raines","Isobel Castile"}]},  
    "#001-M":  
    {'Victim Details':["Jack","20 yrs","M","Flat#901, Pearl Oasis Complex, Creek","050-9230487"],  
     'Charges':'Murder',  
     'Details of Crime':["29/01/23","23:30","Victim's Home","Knife Wound & Gunshot to Head","Laptop Missing"],  
     'Evidences':{'Comparison Samples (Forensic Evidence)':['Blue Fiber','Bloody Footprint - Male Size 10'],  
                 'Witness Details':[["Nil"]]},  
     'Suspect Details':[["Carlos","29 yrs","M","Flat#608, GreenView Apartments, Karama","067-9872347"],  
                      ["Rihanna","27 yrs","F","Villa 52, Southbridge Community, DSO","047-9823468"]],  
     'Accused Details':[["Nil"]],  
     'Status':'Ongoing',  
     'Department':'Homicide Bureau',  
     'Investigating Officer':'Rosa Diaz',  
     'Analyst(s)':[{"Kristen Vega","Ian Daniels"}]},  
    "#001-C":  
    {'Victim Details':["Caren","17 yrs","F","Flat#105, Al Tala Apartments, Jadaf","092-8762341"],  
     'Charges':'Cyber Crime',  
     'Details of Crime':["01/02/23","Via Instagram","Cyber Bullying followed by Account Hack"],  
     'Evidences':{'Comparison Samples (Forensic Evidence)':['Hacker's Signature'],  
                 'Witness Details':[["Nil"]]},  
     'Suspect Details':[["Rory_23_Rocking (Screen Name)","Unknown Age","Unknown Gender","Unknown Address", "Contact Info Unavailable"]],  
     'Accused Details':[["Nil"]],  
     'Status':'Unsolved',  
     'Department':'Cyber Crimes Bureau',  
     'Investigating Officer':'Erin Reagan',  
     'Analyst(s)':[{"Hana Gibson","Remy Scott","Katrin Jeager"}]},  
    "#002-M":  
    {'Victim Details':["Jasper","25 yrs","M","Flat#301, Avenue Bridge Builidng, Deira","050-8872231"],  
     'Charges':'Murder',  
     'Details of Crime':["03/02/23","22:30","Victim's Home","Knife Wound & Gunshot to Head","Laptop Missing"],  
     'Evidences':{'Comparison Samples (Forensic Evidence)':['Blue Fiber','Bloody Footprint - Male Size 10'],  
                 'Witness Details':[["Nil"]]},  
     'Suspect Details':[["Nil"]],  
     'Accused Details':[["Nil"]],  
     'Status':'Ongoing',  
     'Department':'Homicide Bureau',  
     'Investigating Officer':'Everly Kingston',  
     'Analyst(s)':[{"Jamie Kelle"}]},  
    "#001-A":  
    {'Victim Details':["Mairah","21 yrs","F","Villa 55, Stoneybridge Premium Villas, JVC","055-0900213"],  
     'Charges':'Assault',  
     'Details of Crime':["30/01/23","21:00","Neighbourhood Park","Blow to the Head","Stolen Purse and Diamond Bracelet"],  
     'Evidences':{'Comparison Samples (Forensic Evidence)':[["Nil"]],  
                 'Witness Details':[["Lana J","29 yrs","F","Room 2987, Green Time Hotel Apartments, Dubai Marina", "065-9903218"],  
                               ["Amira","21 yrs","F","Villa 57, JBR Beach, Jumeirah","076-9870273"]]},  
     'Suspect Details':[["Nil"]],  
     'Accused Details':[["Nil"]],  
     'Status':'Ongoing',  
     'Department':'Organized Crime Bureau',  
     'Investigating Officer':'Frank Hardy',  
     'Analyst(s)':[{"Jubal Valentine"}]},
```

```

"##003-M":
{'Victim Details':["Evan Buckley", "26 yrs", "M", "#2201, Starry Night Apartments, Broad Street, Elkfield Drive", "058-0913883"], 
'Charges':'Murder',
'Details of Crime':["23/01/2022", "02:00", "Elkfield Park", "Gunshot to Chest", "Missing Ring"],
'Evidences': {'Comparison Samples (Forensic Evidence)':["GSR on Victim's Clothing"], 
'Witness Details':["Nil"]},
'Suspect Details':[[ "Nil"]], 
'Accused Details':["Nil"], 
>Status': "Ongoing",
'Department': 'Homicide Bureau',
'Investigating Officer': 'Eve Dallas',
'Analyst(s)': ["Jamie Kellet", "Ian Daniels"]}}}

D={}
import pickle
f=open('GBI_Records.dat','wb+')
for k in d:
    x={}
    x[k]=d[k]
    pickle.dump(x,f)
f.seek(0)
print('Records Successfully Created ! \n')

f=open('GBI_Records.dat','rb')
try:
    while True:
        x=pickle.load(f)
        for k in x:
            D[k]=x[k]
            print(k)
            for i in x[k]:
                print(i,":",x[k][i])
            print()
except EOFError:
    print('Done')
f.close()

```

Records Successfully Created !

#001-B

Victim Details : ['Arianna', '25 yrs', 'F', 'Villa 42, South Street, Jumeirah', '056-7894321']

Charges : Burglary

Details of Crime : [23/01/23', '17:00', "Victim's Home", "TV and Jewellery Stolen"]

Evidences : {'Comparison Samples (Forensic Evidence)': ['DNA', 'Fingerprints'], 'Witness Details': [[ "Nil"]]}]

Suspect Details : [[ "Nil"]]

Accused Details : [['John C', '27 yrs', 'M', 'Flat#502, Black Building, Karama', '065-9876356']]

Status : Solved

Department : Organized Crime Bureau

Investigating Officer : Nancy Drew

Analyst(s) : ['Andre Raines', 'Isobel Castille']

#001-M

Victim Details : ['Jack', '20 yrs', 'M', 'Flat#901, Pearl Oasis Complex, Creek', '050-9230487']

Charges : Murder

Details of Crime : [29/01/23', '23:30', "Victim's Home", 'Knife Wound & Gunshot to Head', 'Laptop Missing']

Evidences : {'Comparison Samples (Forensic Evidence)': ['Blue Fiber', 'Bloody Footprint - Male Size 10'], 'Witness Details': [ "Nil"]}]

Suspect Details : [['Carlos', '29 yrs', 'M', 'Flat#608, GreenView Apartments, Karama', '067-9872347'], ['Rihanna', '27 yrs', 'F', 'Villa 52, Southbridge Community, DSO', '047-9823468']]

Accused Details : [ "Nil"]

Status : Ongoing

Department : Homicide Bureau

Investigating Officer : Rosa Diaz

Analyst(s) : ['Kristen Vega', 'Ian Daniels']

#001-C

Victim Details : ['Caren', '17 yrs', 'F', 'Flat#105, Al Tala Apartments, Jadaf', '092-8762341']

Charges : Cyber Crime

Details of Crime : [01/02/23', 'Via Instagram', 'Cyber Bullying followed by Account Hack']

Evidences : {'Comparison Samples (Forensic Evidence)': ['Hacker's Signature'], 'Witness Details': [ "Nil"]}]

Suspect Details : [['Rory\_23\_Rocking (Screen Name)', 'Unknown Age', 'Unknown Gender', 'Unknown Address', 'Contact Info Unavailable']]

Accused Details : [ "Nil"]

Status : Unsolved

Department : Cyber Crimes Bureau

Investigating Officer : Erin Reagan

Analyst(s) : ['Hana Gibson', 'Remy Scott', 'Katrin Jeager']

```

#002-M
Victim Details : ['Jasper', '25 yrs', 'M', 'Flat#301, Avenue Bridge Building, Deira', '050-8872231']
Charges : Murder
Details of Crime : ['03/02/23', '22:30', "Victim's Home", 'Knife Wound & Gunshot to Head', 'Laptop Missing']
Evidences : {'Comparison Samples (Forensic Evidence)': ['Blue Fiber', 'Bloody Footprint - Male Size 10'], 'Witness Details': ['Nil']}
Suspect Details : [['Nil']]
Accused Details : ['Nil']
Status : Ongoing
Department : Homicide Bureau
Investigating Officer : Everly Kingston
Analyst(s) : ['Jamie Kelle']

#001-A
Victim Details : ['Mairah', '21 yrs', 'F', 'Villa 55, Stoneybridge Premium Villas, JVC', '055-0900213']
Charges : Assault
Details of Crime : ['30/01/23', '21:00', 'Neighbourhood Park', 'Blow to the Head', 'Stolen Purse and Diamond Bracelet']
Evidences : {'Comparison Samples (Forensic Evidence)': [''], 'Witness Details': ['[Lana J, '29 yrs', 'F', 'Room 2987, Green Time Hotel Apartments, Dubai Marina', '065-9903218'], ['Amira', '21 yrs', 'F', 'Villa 57, JBR Beach, Jumeirah', '076-9870273']]}
Suspect Details : [['Nil']]
Accused Details : ['Nil']
Status : Ongoing
Department : Organized Crime Bureau
Investigating Officer : Frank Hardy
Analyst(s) : ['Jubal Valentine']

#003-M
Victim Details : ['Evan Buckley', '26 yrs', 'M', '#2201, Starry Night Apartments, Broad Street, Elkfield Drive', '058-0913883']
Charges : Murder
Details of Crime : ['23/01/2022', '02:00', 'Elkfield Park', 'Gunshot to Chest', 'Missing Ring']
Evidences : {'Comparison Samples (Forensic Evidence)': ["GSR on Victim's Clothing"], 'Witness Details': ['Nil']}
Suspect Details : [['Nil']]
Accused Details : ['Nil']
Status : Ongoing
Department : Homicide Bureau
Investigating Officer : Eve Dallas
Analyst(s) : ['Jamie Kelle', 'Ian Daniels']

Done

```

## SQL TABLE - USER\_LOGIN

SQL, which stands for Structured Query Language, is a standardized programming language designed for managing and manipulating relational databases. It provides a set of commands for storing, retrieving, and manipulating data in a database management system (DBMS).

In our project, we have created a database called GBI\_RECORDS, to store all the required information. Within the database, we created a table named 'USER\_LOGIN', to store the user credentials of authorized individuals.

```

mysql> desc user_login;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| S_NO | int | NO | PRI | NULL | auto_increment |
| FULL_NAME | varchar(100) | NO | | NULL | |
| EMAIL | varchar(50) | NO | UNI | NULL | |
| DESIGNATION | varchar(50) | NO | | NULL | |
| DEPARTMENT | varchar(100) | YES | | NULL | |
| USER_NAME | varchar(50) | NO | UNI | NULL | |
| PASSWORD | varchar(200) | NO | | NULL | |
| LAST_LOGGED_IN | datetime | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.24 sec)

```

S_NO	FULL_NAME	EMAIL	DESIGNATION	DEPARTMENT	USER_NAME	PASSWORD	LAST_LOGGED_IN
1	ESHAL AJMAL	ESHAL36542@GMAIL.COM	DATABASE ADMINISTOR	N/A	ESHAL_A	ESHAL@2006	2023-11-09 22:17:50
2	KRISHITA SUDHAKARAN	KRISHITAU4867@GMAIL.COM	DATABASE ADMINISTOR	N/A	KRISH_B	KRISHITAS	NULL
3	JOANN ELIZABETH BYJU	JOANNBYJU@GMAIL.COM	DATABASE ADMINISTOR	N/A	JOANN_B	JOANNEB	NULL
4	ALIZA CARR	ALIZCAR2412@GMAIL.COM	DIRECTOR	N/A	CARR_ALIZA	CARR_DIRECTOR@GBI_ALIZA	2023-11-15 09:30:02
5	ALICE FRANK	ALICE803_F@GMAIL.COM	DEPUTY DIRECTOR	N/A	FRANK_ALICE	FRANK_308_ALICE	NULL
6	NICOLE SEQUIRA	NICOLESSEQUIRA@GMAIL.COM	ASSISTANT DIRECTOR	N/A	SEQUIRA_NICOLE	NS475BQ052	NULL
7	IZMA MARWANI	IZMAMARWANI@GMAIL.COM	BUREAU DIRECTOR	HOMICIDE BUREAU	MARWANI_IZMA	MAR@2002@WANI_IZMA	NULL
8	BARBARA ROBERTS	BARBARARMROBERTS@GMAIL.COM	BUREAU DIRECTOR	FINANCIAL CRIMES BUREAU	ROBERTS_BARBARA	KENSUCKS	NULL
9	GLORIA FERNANDEZ	GLORIAF90GMAIL.COM	BUREAU DIRECTOR	ORGANIZED CRIME BUREAU	FERNANDEZ_GLORIA	GLORIO_FEE@&DEZ	NULL
10	DAYANARA RUIZ	DAYARUIZNARA@GMAIL.COM	BUREAU DIRECTOR	CYBER CRIMES BUREAU	RUIZ_DAYANARA	RUETODAYA	NULL
11	EVE DALLAS	DALLAS.EVE@GMAIL.COM	SPECIAL AGENT IN CHARGE	HOMICIDE BUREAU	DALLAS_EVE	EVE&ROARKE@NYSPPD	2023-11-27 21:28:36
12	JOHN WATSON	WATSONJ@GMAIL.COM	SPECIAL AGENT IN CHARGE	FINANCIAL CRIMES BUREAU	WATSON_JOHN	JOHNTHESEDEKICK	NULL
13	SHERLOCK HOLMES	HOMESSHERLOCK@GMAIL.COM	SPECIAL AGENT IN CHARGE	ORGANIZED CRIME BUREAU	HOLMES_SHERLOCK	ARTHURCONANDOYLE	NULL
14	IAN MERRICK	MERRICKIA@GMAIL.COM	SPECIAL AGENT IN CHARGE	CYBER CRIMES BUREAU	MERRICK_IAN	EIANEMERRICK	2023-11-16 22:20:23
15	ALEXANDER PERRO	ALEXPERRO@GMAIL.COM	ASST. SPECIAL AGENT IN CHARGE	HOMICIDE BUREAU	PERRO_ALEXANDER	123PERR0456ALEX	NULL
16	DELIA ROARKE	RODELIA@GMAIL.COM	ASST. SPECIAL AGENT IN CHARGE	FINANCIAL CRIMES BUREAU	ROARKE_DELIA	DELIA_IAN_L	NULL
17	JANE RIZZOLI	RIZZOLIJ@GMAIL.COM	ASST. SPECIAL AGENT IN CHARGE	ORGANIZED CRIME BUREAU	RIZZOLI_JANE	JANE@RIZZOLI@ISLES	2023-10-26 20:10:41
18	MAURA ISLES	ISLESMAUR@GMAIL.COM	ASST. SPECIAL AGENT IN CHARGE	CYBER CRIMES BUREAU	ISLES_MAURA	MAURAPEDIA	2023-10-26 20:08:51
19	DIANA PRINCE	PRINCE@GMAIL.COM	SPECIAL AGENT	HOMICIDE BUREAU	PRINCE_DIANA	THEMYSIRAH@EVER	2023-11-10 14:25:01
20	KEVIN JACKSON	JACKEDKEVIN@GMAIL.COM	SPECIAL AGENT	HOMICIDE BUREAU	JACKSON_Kevin	STUFFOFIMAGINATION	NULL
21	EVERLY KINGSTON	KINGSEVERLY@GMAIL.COM	SPECIAL AGENT	HOMICIDE BUREAU	KINGSTON_EVERLY	13@ALPHA_EVERLY	NULL
22	ROSA DIAZ	DIAZROR00@GMAIL.COM	SPECIAL AGENT	HOMICIDE BUREAU	DIAZ_ROSA	AUNTRORODIAZ	2023-12-04 10:56:14
23	EVANGELINE BLACK	BLACKEVAN@GMAIL.COM	SPECIAL AGENT	HOMICIDE BUREAU	BLACK_EVANGELINE	BLACKKNOWSNOBOUNDS	NULL
24	OLIVIA BENSON	BEN10LIVIE@GMAIL.COM	SPECIAL AGENT	FINANCIAL CRIMES BUREAU	BENSON_OLVIA	LIV@10BENSON	NULL
25	AMRITHA ANIL	AMRITHAANIL40305@GMAIL.COM	SPECIAL AGENT	FINANCIAL CRIMES BUREAU	ANIL_AMRITHA	AMMU@134340	2023-11-18 16:47:48
26	ELLiot STABBler	STABLERELLIOT@GMAIL.COM	SPECIAL AGENT	FINANCIAL CRIMES BUREAU	STABLER_ELLIOT	STABBYELLIOT	NULL
27	VINCE KORSAK	VINNIE2345@GMAIL.COM	SPECIAL AGENT	FINANCIAL CRIMES BUREAU	KORSAK_VINCE	WINVINVIE	NULL
28	BARRY FROST	FROSTBARRY@GMAIL.COM	SPECIAL AGENT	FINANCIAL CRIMES BUREAU	FROST_BARRY	FROSTYBARS224	NULL
29	NANCY DREW	DREWNANCY@GMAIL.COM	SPECIAL AGENT	ORGANIZED CRIME BUREAU	DREW_NANCY	TEEN@NANCY	2023-11-14 18:50:57
30	VERONICA MARS	VMARS@GMAIL.COM	SPECIAL AGENT	ORGANIZED CRIME BUREAU	MARS_VERONICA	PI@NEPTUNE	NULL
31	FRANK HARDY	F.HARDY@GMAIL.COM	SPECIAL AGENT	ORGANIZED CRIME BUREAU	HARDY_FRANK	FRBNK2433	NULL
32	MELISSA REO	MELLIE.R@GMAIL.COM	SPECIAL AGENT	ORGANIZED CRIME BUREAU	REO_MELISSA	LIZZ@REO	NULL
33	NADINE FERNANDEZ	NADINE.AARDRA.F@GMAIL.COM	SPECIAL AGENT	ORGANIZED CRIME BUREAU	FERNANDEZ_NADINE	NADINE2209AF	NULL
34	JOE HARDY	J.HARDY@GMAIL.COM	SPECIAL AGENT	CYBER CRIMES BUREAU	HARDY_JOE	JOEHARDY	NULL
35	MARIANNA SIDLEY	SIDLEY_MARIANNA@GMAIL.COM	SPECIAL AGENT	CYBER CRIMES BUREAU	SIDLEY_MARIANNA	M@R1N0S1D	NULL
36	VINCENT D'CRUZ	D'CRUZ.VINNIE@GMAIL.COM	SPECIAL AGENT	CYBER CRIMES BUREAU	D'CRUZ_VINCENT	VINNIECRUZ	NULL
37	MAGGIE BELL	MAGGSBELL@GMAIL.COM	SPECIAL AGENT	CYBER CRIMES BUREAU	BELL_MAGGIE	MAGGS@BELLS	NULL
38	ERIN REAGAN	E.REAGAN@GMAIL.COM	SPECIAL AGENT	CYBER CRIMES BUREAU	REAGAN_ERIN	HFJDE3@REAGAN	NULL
39	KRISTEN VEGA	KHRIS@GMAIL.COM	SENIOR ANALYST	HOMICIDE BUREAU	VEGA_KRISTEN	K_VEGA_KRISTEN	NULL
40	SCOTT FORRESTER	FORESTSCOTT@GMAIL.COM	SENIOR ANALYST	FINANCIAL CRIMES BUREAU	FORRESTER_SCOTT	SCOOTYFOREST	NULL
41	ANDRE RAINES	RAINANDRE@GMAIL.COM	SENIOR ANALYST	ORGANIZED CRIME BUREAU	RAINES_ANDRE	RAINY@NDRE	NULL
42	HANA GIBSON	GIBBSHANA@GMAIL.COM	SENIOR ANALYST	CYBER CRIMES BUREAU	GIBSON_HANA	H@N0GG!BS0N	NULL
43	IAN DANIELS	DANNY.IAN@GMAIL.COM	ANALYST	HOMICIDE BUREAU	DANIELS_IAN	DAN_IAN	NULL
44	JAMIE KELLET	KELLET.JAMIE@GMAIL.COM	ANALYST	HOMICIDE BUREAU	KELLET_JAMIE	JAMIEHSCOTT	NULL
45	CAMERON VO	VOCAM@GMAIL.COM	ANALYST	FINANCIAL CRIMES BUREAU	VO_CAMERON	CAMMY!VO#	NULL
46	MEGAN GARRETSON	GARRETMEG@GMAIL.COM	ANALYST	FINANCIAL CRIMES BUREAU	GARRET_MEGAN	MEGANGARRET	NULL
47	JUBAL VALENTINE	VALENTINE.J@GMAIL.COM	ANALYST	ORGANIZED CRIME BUREAU	VALENTINE_JUBAL	VALENTIN!JUB@L	NULL
48	ISOBEL CASTILLE	BELLACASTILLE@GMAIL.COM	ANALYST	ORGANIZED CRIME BUREAU	CASTILLE_ISOBEL	ISSYC0ST!LLE	NULL
49	REMY SCOTT	SCOTTYR@GMAIL.COM	ANALYST	CYBER CRIMES BUREAU	SCOTT_REMY	REMITSCOTT	NULL
50	KATRIN JAEGER	J.KATRIN@GMAIL.COM	ANALYST	CYBER CRIMES BUREAU	JAEGER_KATRIN	K@TTYJ@EGER	NULL

# SQL CONNECTIVITY WITH PYTHON

SQL databases can be accessed via python to perform various functions. Python needs a MySQL driver to access the MySQL database. In this project, we need to access MySQL databases to verify the user access credentials. We further use the information retrieved from the SQL database to decide what functions apply to the user and restrict the user from performing functions for which they do not have the authority to perform.



userlogin().py

```
import mysql.connector
import time

obj=mysql.connector.connect(
    host='localhost',
    database='GBI_RECORDS',
    user='root',
    password='Eshal@2006')
c=obj.cursor()
q='SELECT FULL_NAME, DESIGNATION, DEPARTMENT FROM USER_LOGIN'
c.execute(q)
l=c.fetchall()

def userlogin():
    global ut
    global user
    Q='SELECT * FROM USER_LOGIN'
    c.execute(Q)
    L=c.fetchall()

    print ("Welcome to the GBI Crime Records Dept.")
    print ("\nDo you wish to continue with authorized login?")
    print ("1. Yes")
    print ("2. No")
    print()
    x=str(input("Enter your choice: "))

    if x=="2":
        ut='View Only Access'
```

```

elif x=="1":
    for i in range(3):
        flag='not logged in'
        flag2="valid username"
        print("\nYou have",3-i,'attempt(s) to complete your login \n')
        u=str(input("Username: "))

    for i in L:
        if u in i:
            break
    else:
        flag2="invalid username"
        print ("Invalid Username!")

    if flag2=="valid username":
        p=str(input("Password: "))
        for i in L:
            if u==i[5] and p==i[6]:
                ut='Authorised Access'
                user=i
                flag='logged in'
                break
            else:
                print('Incorrect Password!')
        if flag=='logged in':
            q='UPDATE USER_LOGIN SET LAST_LOGGED_IN=CURRENT_TIMESTAMP WHERE USER_NAME=%s;'
            c.execute(q,(u,))
            obj.commit()
            break
    else:
        print("\nYou have exceeded the number of login attempts \nRedirecting to View Only Access...\n")
        ut='View Only Access'
else:
    print("\nInvalid Option")
    print("Auto-Redirecting to View Only Access...\n")
    time.sleep(2)
    ut='View Only Access'

```

# PROGRAM

## Main Program



Project File.py

```
import mysql.connector
import Crime_Module
import time

Crime_Module.userlogin()
print(Crime_Module.ut)
if Crime_Module.ut=='Authorised Access':
    x=Crime_Module.user[1].title()+' '+Crime_Module.user[3].title()
    print('\nHi',x)
if Crime_Module.user[7]!=None:
    s=str(Crime_Module.user[7])
    l1=s.split()
    print('Your last login was on ',l1[0],"at",l1[1],'\n')
else:
    print ("This is your First Login")
time.sleep(1)
Crime_Module.aoptions()
else:
    time.sleep(1)
Crime_Module.goptions()
```

## Module Program



Crime\_Module.py

```
import pickle
import mysql.connector
import time

obj=mysql.connector.connect(
    host='localhost',
    database='GBI_RECORDS',
    user='root',
    password='Eshal@2006')
c=obj.cursor()
q='SELECT FULL_NAME, DESIGNATION, DEPARTMENT FROM USER_LOGIN'
c.execute(q)
l=c.fetchall()

d={}
flag="red"
f=open('GBI_Records.dat','rb')
try:
    while True:
        x=pickle.load(f)
        for k in x:
            d[k]=x[k]
except EOFError:
    f.close()

def userlogin():
    global ut
    global user
    Q='SELECT * FROM USER_LOGIN'
    c.execute(Q)
    L=c.fetchall()

    print ("Welcome to the GBI Crime Records Dept.")
    print ("\nDo you wish to continue with authorized login?")
    print ("1. Yes")
    print ("2. No")
    print()
    x=str(input("Enter your choice: "))

    if x=="2":
        ut='View Only Access'
    elif x=="1":
        for i in range(3):
            flag='not logged in'
```

```

flag2="valid username"
print('\nYou have',3-i,'attempt(s) to complete your login \n')
u=str(input("Username: "))

for i in L:
    if u in i:
        break
else:
    flag2="invalid username"
    print ("Invalid Username!")

if flag2=="valid username":
    p=str(input("Password: "))
    for i in L:
        if u==i[5] and p==i[6]:
            ut='Authorised Access'
            user=i
            flag='logged in'
            break
        else:
            print('Incorrect Password!')
    if flag=='logged in':
        q='UPDATE USER_LOGIN SET LAST_LOGGED_IN=CURRENT_TIMESTAMP WHERE
USER_NAME=%s; '
        c.execute(q,(u,))
        obj.commit()
        break
    else:
        print('\nYou have exceeded the number of login attempts \nRedirecting to View
Only Access...\n')
        ut='View Only Access'
else:
    print("\nInvalid Option")
    print("Auto-Redirecting to View Only Access...\n")
    time.sleep(2)
    ut='View Only Access'

def victim():
    global lv
    lv=[]
    print()
    print('Victim Details')
    lv.append(str(input('Name: ')))
    lv.append(str(input('Age: ')))
    lv.append(str(input('Gender: ')))
    lv.append(str(input('Address: ')))
    lv.append(str(input('Contact: ')))

def crime():
    global ch
    global dets
    print()

```

```

print('Crime Details')
ch=str(input('Charges Pressed against the Accused: '))
dets=str(input('Enter the Details of the Crime (Date, Time, Location, Important Facts')
briefly: ')).split(',')
print()

def evidences():
    global de
    de={}
    lwn=[]
    print()
    print('Evidences')
    el=input('Enter the List of Comparison Samples: ')
    ec=el.split(',')
    if len(ec)==0:
        ec=["Nil"]
    nw=int(input('Enter the no. of Witnesses: '))
    print()
    for i in range(nw):
        lw=[]
        lw.append(str(input('Name: ')))
        lw.append(str(input('Age: ')))
        lw.append(str(input('Gender: ')))
        lw.append(str(input('Address: ')))
        lw.append(str(input('Contact: ')))
        lwn.append(lw)
    if nw==0:
        lwn+=['Nil']
    de['Comparison Samples (Forensic Evidence)']=ec
    de['Witness Details']=lwn

def i_suspects():
    global lsn
    lsn=[]
    print()
    print ("Suspect Details")
    ns=int(input('Enter the no. of Suspects: '))
    for i in range(ns):
        print()
        ls=[]
        ls.append(str(input('Name: ')))
        ls.append(str(input('Age: ')))
        ls.append(str(input('Gender: ')))
        ls.append(str(input('Address: ')))
        ls.append(str(input('Contact: ')))
        lsn.append(ls)
    if ns==0:
        lsn+=['Nil']

def accuse():
    global la
    la=[]
    print()

```

```

print('Accused Details')
j=input("Has the Accused been Identified? ")
if "y" in j.lower():
    print()
    x=str(input("Are there Multiple Accused? "))
    if "y" in x.lower():
        n=eval(input("Enter the no. Accused: "))
        for i in range(n):
            print()
            a=[]
            print ("Enter the Details of Accused no.",i,":")
            a.append(str(input('Name: ')))
            a.append(str(input('Age: ')))
            a.append(str(input('Gender: ')))
            a.append(str(input('Address: ')))
            a.append(str(input('Contact: ')))
            la.append(a)
    elif "n" in x.lower():
        print()
        print ("Enter the Details")
        la.append(str(input('Name: ')))
        la.append(str(input('Age: ')))
        la.append(str(input('Gender: ')))
        la.append(str(input('Address: ')))
        la.append(str(input('Contact: ')))
    else:
        print ("Enter Yes or No")
        accuse()
elif "n" in j.lower():
    la=["Nil"]
else:
    print ("Enter Yes or No")
    accuse()

def multi_an():
    global an
    global dpt
    an=[]
    dal=[]
    for i in l:
        if i[2]==dpt.upper() and "ANALYST" in i[1]:
            dal.append(i[0].title())
cp=input("Has an Analyst been Assigned? ")
if "y" in cp.lower():
    print()
    x=str(input("Are there Multiple Analysts? "))
    if "y" in x.lower():
        n=eval(input("Enter the no. analysts: "))
        print()
        i=1
        while i<=n:
            aa= input ("Enter the Name of the Analyst: ")

```

```

        if aa in dal:
            an.append(aa)
            i+=1
        else:
            print('Invalid Analyst')
            print('Select an analyst from the below analyst:')
            print(dal)
    elif "n" in x.lower():
        aaa=input ("Enter the Name of Ananlyst : ")
        an.append(aaa)
    else:
        print ("Enter Yes or No")
        multi_an()
    elif "n" in cp.lower():
        an=["Nil"]
    else:
        print ("Enter Yes or No")
        multi_an()

def Valid_IO():
    global dpt
    global ins
    for i in l:
        dl=[]
        if i[2]==dpt and i[1] in ['SPECIAL AGENT, SPECIAL AGENT IN CHARGE, ASST. SPECIAL AGENT IN CHARGE']:
            dl+=[i[0]]
            ins=str(input('Please Enter the Investigating Officer: '))
            if ins not in dl:
                print('Invalid Investigating Officer')
                print('Select an investigating officer from the below officers:')
                for k in dl:
                    print(k)
            Valid_IO()

def File():
    global file
    global fileee
    global flag
    print()
    file=input("Enter the File No.: ")
    if file not in d:
        print()
        print ("Invalid File No. ")
        File()
    fileee='valid'
    if user[3] in ['SPECIAL AGENT IN CHARGE','ASST. SPECIAL AGENT IN CHARGE','SENIOR ANALYST']:
        for i in d:
            if d[file]['Department']==user[4].title():
                fileee='valid'
                break
        else:

```

```

print("Access to file denied")
print("ERROR 404 - Cross Department Access")
fileee='invalid'
flag="green"
aoptions()
elif user[3] in ['SPECIAL AGENT', 'ANALYST']:
    for i in d:
        if (d[file]['Investigating Officer']==user[1].title()) or (user[1].title in d[file]['Analyst(s)']):
            fileee='valid'
            break
    else:
        print("Access to file denied")
        print("ERROR 404 - Cross Department Access")
        fileee='invalid'
        flag="green"
        aoptions()

def NewCase():
    global d
    global dpt
    global ins
    global flag
    global an
    flag="red"
    print()
    print('Options: ')
    print('i. Continue')
    print ('ii. Go Back')
    print()
    cp=input('Enter your Choice: ')
    if cp=="i":
        file_id=input("Enter File ID: ")
        if file_id in d:
            print ("File Exists")
            print()
            print ("Do you wish to Update the Details in the File?")
            print('Options: ')
            print('i. Update')
            print ('ii. Go Back')
            print()
            cn=input('Enter your Choice: ')
            if cn=="i":
                update()
            elif cn=="ii":
                flag="green"
                aoptions()
        else:
            NewCase()
    else:
        dpt=str(input("Please Enter the Department Investigating the Case: "))
        if dpt.upper()==user[4] or user[4]=='N/A':

```

```

victim()
crime()
evidences()
i_suspects()
accuse()
print()
stat=str(input('Status (Ongoing/Solved/Unsolved) : '))
if user[4]=="N/A" or user[3] in ["BUREAU DIRECTOR", "SPECIAL AGENT IN CHARGE",
"ASST. SPECIAL AGENT IN CHARGE"]:
    Valid_IO()
    multi_an()
elif user[3]=="SPECIAL AGENT":
    ins=user[1].title()
    multi_an()
elif user[3]=='SENIOR ANALYST':
    Valid_IO()
    multi_an()
elif i[1]=='ANALYST':
    Valid_IO()
    x=str(input("Are there Multiple Analysts Working with You? "))
    if "y" in x.lower():
        n=eval(input("Enter the no. analysts apart from yourself: "))
        print()
        i=1
        while i<=n:
            aa= input ("Enter the Name of the Analyst: ")
            if aa in dal:
                an.append(aa)
                i+=1
            else:
                print('Invalid Analyst')
                print('Select from the below analysts:')
                print(dal)
                an.append(user[1])
    elif 'n' in x.lower():
        an.append(i[0])
    else:
        print ("Enter a valid option")
        print ("Re-routing to Start")
        NewCase()
d1={'Victim Details':lv,'Charges':ch,'Details of
Crime':dets,'Evidences':de,'Suspect Details':lsn,'Accused
Details':la,'Status':stat,"Department":dpt,"Investigating Officer":ins,"Analyst(s)":an}
d[file_id]=d1
print()
print("Case Added")
else:
    print("Access to file denied")
    print("ERROR 404 - Cross Department Access")
    print ("Do you wish to add another case?")
NewCase()

```

```

elif cp=="ii":
    flag="green"
    aoptions()
else:
    print ("Invalid Option")
    NewCase()

#Status
def status():
    File()
    if fileee=='valid':
        a=input("Enter the New Status: ")
        d[file]["Status"]的文化=a
        print ("Status Updated")

defasu():
    q=input("Enter your Choice: ")
    if "y" in q.lower():
        a=input("Enter the New Status: ")
        d[file]["Status"]的文化=a
        print ("Status Updated")
    elif "n" in q.lower():
        pass
    else:
        print ("Invalid Choice")
        print()
        asu()

def ar():
    n=input("Enter the Name: ")
    for i in d[file]["Accused Details"]:
        if n in i:
            d[file]["Accused Details"].remove(i)
            print()
            print ("Accused Removed")
        if len(d[file]["Accused Details"])==0:
            d[file]["Accused Details"]+=[["Nil"]]
        if d[file]["Status"]=="Solved":
            print ()
            print ("You have 0 accused, would you like to change the status? ")
            asu()
            break
        else:
            print ("Invalid Name")
            ar()

def ueia():
    x=input("Enter the Name of Accused: ").lower()
    print()
    print('Parameters:')
    print('i. Name')
    print('ii. Age')

```

```

print('iii. Gender')
print('iv. Address')
print('v. Contact')
print()
for i in d[file]["Accused Details"]:
    if i[0].lower()==x:
        c=str(input('Enter your Choice: '))
        if c=="i":
            u=input("Enter the Updated Name: ")
            i[0]=u
            print ("Details Updated")
            break
        elif c=="ii":
            u=input("Enter the Updated Age: ")
            i[1]=u
            print ("Details Updated")
            break
        elif c=="iii":
            u=input("Enter the Updated Gender: ")
            i[2]=u
            print ("Details Updated")
            break
        elif c=="iv":
            u=input("Enter the Updated Address: ")
            i[3]=u
            print ("Details Updated")
            break
        elif c=="v":
            u=input("Enter the Updated Contact: ")
            i[4]=u
            print ("Details Updated")
            break
        else:
            print ("Invalid Choice")
            ueia()
    else:
        print ("Invalid Name")
        ueia()

#Accused
def accused():
    print()
    print('Parameters: ')
    print('i. Add')
    print('ii. Remove')
    print ('iiii. Update Existing Info')
    print('iv. Go Back')
    print()
    c=str(input('Enter your Choice: '))
    File()
    if fileee=='valid':
        l=d[file]["Accused Details"]

```

```

else:
    c='iv'
if c=="i":
    if l==["Nil"]:
        l.clear()
print()
print ("New Accused Details")
las=[]
las.append(str(input('Name: ')))
las.append(str(input('Age: ')))
las.append(str(input('Gender: ')))
las.append(str(input('Address: ')))
las.append(str(input('Contact: ')))
l.append(las)
d[file]["Accused Details"]=l
print()
print ("New Accused Added")
elif c=="ii":
    ar()
elif c=="iii":
    ueia()
elif c=="iv":
    update()
else:
    print ("Invalid Choice")
accused()

def sur():
n=input("Enter the Name: ")
for i in d[file]["Suspect Details"]:
    if n in i:
        d[file]["Suspect Details"].remove(i)
        print()
        print ("Suspect Removed")
        if len(d[file]["Suspect Details"])==0:
            d[file]["Suspect Details"]+=["Nil"]
            break
    else:
        print ("Invalid Name")
        sur()

def ueis():
x=input("Enter the name of suspect: ").lower()
print()
print('Parameters:')
print('i. Name')
print('ii. Age')
print('iii. Gender')
print('iv. Address')
print('v. Contact')
print()
c=str(input('Enter your Choice: '))

```

```

for i in d[file]["Suspect Details"]:
    if i[0].lower()==x:
        if c=="i":
            u=input("Enter the Updated Name: ")
            i[0]=u
            break
        elif c=="ii":
            u=input("Enter the Updated Age: ")
            i[1]=u
            break
        elif c=="iii":
            u=input("Enter the Updated Gender: ")
            i[2]=u
            break
        elif c=="iv":
            u=input("Enter the Updated Address: ")
            i[3]=u
            break
        elif c=="v":
            u=input("Enter the Updated Contact: ")
            i[4]=u
            break
        else:
            print ("Invalid Choice")
            ueis()
    else:
        print ("Invalid Name")
        ueis()

#Suspects
def suspects():
    print()
    print('Parameters: ')
    print('i. Add')
    print('ii. Remove')
    print ('iii. Update Existing Info')
    print ('iv. Go Back')
    print()
    c=str(input('Enter your Choice: '))
    File()
    if fileee=='valid':
        l=d[file]["Suspect Details"]
    else:
        c='iv'
    if c=="i":
        if l==[[["Nil"]]]:
            l.clear()
        print()
        print ("New Suspect Details")
        ls=[]
        ls.append(str(input('Name: ')))
        ls.append(str(input('Age: ')))

```

```

ls.append(str(input('Gender: ')))
ls.append(str(input('Address: ')))
ls.append(str(input('Contact: ')))
l.append(ls)
d[file]["Suspect Details"]=l
print()
print ("New Suspect Added")
elif c=="ii":
    sur()
elif c=="iii":
    ueis()
elif c=="iv":
    update()
else:
    print ("Invalid Choice")
suspects()

def sr():
    k=str(input("What sample would you like to remove? "))
    for i in d[file]["Evidences"]["Comparison Samples (Forensic Evidence)"]:
        if k in i:
            d[file]["Evidences"]["Comparison Samples (Forensic Evidence)"].remove(i)
            print()
            print ("Sample Removed")
            if len(d[file]["Evidences"]["Comparison Samples (Forensic Evidence)"])==0:
                d[file]["Evidences"]["Comparison Samples (Forensic Evidence)"]+=[["Nil"]]
                break
    else:
        print("Invalid Sample")
    sr()

def samples():
    print()
    print('Parameters: ')
    print('i. Add Sample')
    print('ii. Remove Sample')
    print('iii. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    l=d[file]["Evidences"]["Comparison Samples (Forensic Evidence)"]
    if cp=="i":
        if l==["Nil"]:
            l.clear()
        e=input("Enter the Sample: ")
        l.append(e)
        d[file]["Evidences"]["Comparison Samples (Forensic Evidence)"]=l
        print ("New Sample Added")
    elif cp=="ii":
        sr()
    elif c=="iii":
        evidence()
    else:

```

```

print ("Invalid Choice")
samples()

def wr():
    n=input("Enter the Name: ")
    for i in d[file]["Evidences"]["Witness Details"]:
        if n in i:
            d[file]["Evidences"]["Witness Details"].remove(i)
            print()
            print ("Witness Removed")
            if len(d[file]["Evidences"]["Witness Details"])==0:
                d[file]["Evidences"]["Witness Details"]+=["Nil"]
            break
    else:
        print ("Invalid Name")
        wr()

def ueiw():
    x=input("Enter the Name of Witness: ").lower()
    print()
    print('Parameters:')
    print('i. Name')
    print('ii. Age')
    print('iii. Gender')
    print('iv. Address')
    print('v. Contact')
    print()
    c=str(input('Enter your Choice: '))
    for i in d[file]["Evidences"]["Witness Details"]:
        if i[0].lower()==x:
            if c=="i":
                u=input("Enter the Updated Name: ")
                i[0]=u
                break
            elif c=="ii":
                u=input("Enter the Updated Age: ")
                i[1]=u
                break
            elif c=="iii":
                u=input("Enter the Updated Gender: ")
                i[2]=u
                break
            elif c=="iv":
                u=input("Enter the Updated Address: ")
                i[3]=u
                break
            elif c=="v":
                u=input("Enter the Updated Contact: ")
                i[4]=u
                break
            else:
                print ("Invalid Choice")

```

```

        ueiw()
else:
    print ("Invalid Name")
    ueiw()

def witnesses():
    print()
    print('Parameters:')
    print('i. Add Witness')
    print('ii. Remove Witness')
    print ("iii. Update Existing Info")
    print('iv. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    l=d[file]["Evidences"]["Witness Details"]
    if cp=="i":
        if l==[["Nil"]]:
            l.clear()
            print()
            print ("New Witness Details")
            ls=[]
            ls.append(str(input('Name: ')))
            ls.append(str(input('Age: ')))
            ls.append(str(input('Gender: ')))
            ls.append(str(input('Address: ')))
            ls.append(str(input('Contact: ')))
            l.append(ls)
            print()
            print ("New Witness Added")
    elif cp=="ii":
        wr()
    elif cp=="iii":
        ueiw()
    elif cp=="iv":
        evidence()
    else:
        print ("Invalid Choice")
        witnesses()

#Evidence
def evidence():
    print()
    print('Parameters: ')
    print('i. Comparison Samples')
    print('ii. Witness')
    print('iii. Go Back')
    print()
    c=str(input('Enter your Choice: '))
    File()
    if fileee=='valid':
        if c=="i":
            samples()

```

```

elif c=="ii":
    witnesses()
elif c=="iii":
    update()
else:
    print ("Invalid Choice")
    evidence()

def uxdets():
    global flg
    global dpt
    File()
    if fileee=='valid':
        print()
        print('Transfer Ownership: ')
        print('i. Department')
        print('ii. Investigating Officer')
        print('iii. Analyst(s)')
        print('iv. Go Back')
        print()
        if flg==0:
            c=str(input('Enter your Choice: '))
        if c=='i':
            dpt=str(input("Please Enter the Department: "))
            Valid_IO()
            d[file]['Investigating Officer']=ins
            multi_an()
            d[file]['Analyst(s)']=an
            print ("Case Transferred to Another Department")
        elif c=='ii' or flg==2:
            flg=2
            dl=[]
            for i in l:
                if i[2]==d[file]["Department"].upper() and "AGENT" in i[1]:
                    print (i)
                    dl.append(i[0].title())
            nio=str(input('Enter the New Investigating Officer: '))
            if nio in dl:
                d[file]['Investigating Officer']=nio
            else:
                print('Invalid Officer')
                print('Select Investigating Officer from the Available List of Officers - ',dl)
                uxdets()
            print ("Investigating Officer Changed")
        elif c=='iii' or flg==3:
            flg=3
            dal=[]
            for i in l:
                if i[2]==d[file]['Department'].upper() and "ANALYST" in i[1]:
                    dal.append(i[0].title())
            print('All Current Analysts removed \n Enter new analyst(s) details: \n')
            cp=input("Has a new analyst been Assigned? ")

```

```

if "y" in cp.lower():
    an=[]
    print()
    x=str(input("Are there Multiple Analysts? "))
    if "y" in x.lower():
        n=eval(input("Enter the no. analysts: "))
        print()
        i=1
        while i<=n:
            aa= input ("Enter the Name of Analyst: ")
            if aa in dal:
                an.append(aa)
                i+=1
            else:
                print('Invalid Analyst')
        d[file]['Analyst(s)']=an
    elif "n" in x.lower():
        aaa=input ("Enter the Name of Analyst : ")
        an.append(aaa)
        d[file]['Analyst(s)']=an
    else:
        print ("Enter Yes or No")
        uxdets()
    elif "n" in j.lower():
        an=["Nil"]
        print ("Analyst Details Changed")
    else:
        print ("Enter Yes or No")
        uxdets()
elif c=="iv":
    update()
else:
    print("Invalid Choice")
uxdets()

def update():
    global flag
    flag="red"
    print()
    print('Parameters :')
    print('i. Status')
    print('ii. Accused')
    print('iii. Suspects')
    print('iv. Evidence')
    print('v. Transfer Case')
    print('vi. Go Back')
    print()
    c=str(input('Enter your Choice: '))
    if c=="i":
        status()
    elif c=="ii":
        accused()

```

```

elif c=="iii":
    suspects()
elif c=="iv":
    evidence()
elif c=='v':
    global flg
    flg=0
    uxdets()
elif c=='vi':
    flag="green"
    aoptions()
else:
    print ("Invalid Choice")
    update()

#History
def history():
    global ut
    global flag
    flag="red"
    print()
    print('Options: ')
    print('i. Continue')
    print ('ii. Go Back')
    print()
    cp=input('Enter your Choice: ')
    if cp=="i":
        criminal=str(input('Enter Name of Criminal: ')).title()
        c=0
        for k in d:
            for w in d[k]['Accused Details']:
                if criminal in w[0].title():
                    print()
                    print("File No.:",k)
                    for j in d[k]:
                        print(j,":",d[k][j],end="\n")
                    c+=1
            else:
                if c==0:
                    print('All Clear')
    elif cp=="ii":
        if ut=="Authorised Access":
            aoptions()
            flag="green"
        else:
            goptions()
            flag="green"
    else:
        print ("Invalid Option")
        history()

#Similar

```

```

def similar():
    global flag
    flag="red"
    simc=0
    print()
    print('Parameters:')
    print('i. Charges')
    print('ii. Details')
    print('iii. Evidence')
    print ('iv. Go Back')
    print()
    cp=input('Enter your choice - ')
    if cp=="i":
        c=str(input('Enter charges - '))
        p=c.lower()
        for k in d:
            if d[k]['Charges'].lower()==p:
                print()
                simc+=1
                print("File No.:",k)
                for j in d[k]:
                    print(j,":",d[k][j],end="\n")
    else:
        if simc==0:
            print('No existing cases matches')
    elif cp=="ii":
        dt=str(input('Enter the Details of Crime (Date, Time, Location, Important Facts) briefly:')).lower()
        x=dt.split(",")
        for k in d:
            for y in d[k]['Details of Crime']:
                if y.lower() in x:
                    simc+=1
                    print()
                    print("File No.:",k)
                    for j in d[k]:
                        print(j,":",d[k][j],end="\n")
                    break
    else:
        if simc==0:
            print('No existing cases matches')
    elif cp=="iii":
        print()
        print('Parameters - ')
        print('i. Comparison Samples')
        print('ii. Witness')
        print('iii. Go Back')
        print()
        c=str(input('Enter your Choice: '))
        if c=="i":
            el_=str(input('Enter Comparison Sample: '))
            for k in d:

```

```

        for y in d[k]['Evidences']['Comparison Samples (Forensic Evidence)']:
            if el_==y:
                print()
                simc+=1
                print("File No.:",k)
                for j in d[k]:
                    print(j,":",d[k][j],end="\n")
                break
            else:
                if simc==0:
                    print('No existing cases matches')
        elif c=="ii":
            wl_=str(input('Enter Witness Name: '))
            for k in d:
                for y in d[k]['Evidences']['Witness Details']:
                    for l in y:
                        if wl_==y[0]:
                            print()
                            print("File No.:",k)
                            for j in d[k]:
                                print(j,":",d[k][j],end="\n")
                            simc+=1
                            break
                else:
                    if simc==0:
                        print('No existing cases matches')
        elif c=="iii":
            similar()
        else:
            print ("Invalid Choice")
            similar()

    elif cp=='iv':
        if ut=="Authorised Access":
            aoptions()
            flag="green"
        else:
            goptions()
            flag="green"
    else:
        print ("Invalid Choice")
        print()
        similar()

def Fno():
    f=str(input("Enter the file no.: "))
    for i in d:
        if i==f:
            print()
            print("File No.:",i)
            for j in d[i]:
                print(j,":",d[i][j],end="\n")

```

```

        break
    else:
        print("Invalid File No.")
        Fno()

#Display()

def adispalystatus():
    global flag
    flag="red"
    print()
    print('Parameters: ')
    print('i. Ongoing')
    print('ii. Solved')
    print('iii. Unsolved')
    print ('iv. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    if cp=='i':
        c=0
        for i in d:
            if d[i]["Status"].lower()=="ongoing":
                c+=1
                print()
                print("File No.:",i)
                for j in d[i]:
                    print(j,":",d[i][j],end="\n")
        else:
            if c==0:
                print ("No Ongoing Cases")
    elif cp=='ii':
        c=0
        for i in d:
            if d[i]["Status"].lower()=="solved":
                c+=1
                print()
                print("File No.:",i)
                for j in d[i]:
                    print(j,":",d[i][j],end="\n")
        else:
            if c==0:
                print ("No Solved Cases")
    elif cp=="iii":
        c=0
        for i in d:
            if d[i]["Status"].lower()=="unsolved":
                c+=1
                print()
                print("File No.:",i)
                for j in d[i]:
                    print(j,":",d[i][j],end="\n")
        else:

```

```

if c==0:
    print ("No Unsolved Cases")
elif cp=="iv":
    flag="green"
    adisplay()
else:
    print ("Invalid Option")
    adispalystatus()

def AllCaseDpt():
    global flag
    global user
    flag="red"
    print()
    print('Parameters: ')
    print('i. Your Department')
    print('ii. Other Department')
    print ('iii. Go Back')
    print()
    ch=str(input('Enter your Choice: '))
    if ch=="i":
        c=0
        for i in d:
            if d[i]["Department"].upper()==user[4]:
                c+=1
                print()
                print("File No.:",i)
                for j in d[i]:
                    print(j,":",d[i][j],end="\n")
        else:
            if c==0:
                print ("No Cases Exist in Your Deaprtment")
    elif ch=="ii":
        print()
        dpt=str(input("Enter the Department: "))
        c=0
        for i in d:
            if d[i]["Department"].upper()==dpt.upper():
                c+=1
                print()
                print("File No.:",i)
                for j in d[i]:
                    print(j,":",d[i][j],end="\n")
        else:
            if c==0:
                print ("No Cases Exist in the",dpt)
    elif ch=="iii":
        flag='green'
        adisplaydpt()
    else:
        AllCaseDpt()

```

```

def adisplaydpt():
    global flag
    global user
    flag="red"
    print()
    print('Parameters: ')
    print('i. All Cases in A Department')
    print('ii. Specific Investigating Officer')
    print ('iii. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    if cp=="i":
        AllCaseDpt()
    elif cp=="ii":
        print()
        ins=str(input("Enter the Investigating Offcier: "))
        c=0
        for i in d:
            if d[i]["Investigating Officer"].upper()==ins.upper():
                c+=1
                print()
                print("File No.:",i)
                for j in d[i]:
                    print(j,":",d[i][j],end="\n")
        else:
            if c==0:
                print (ins,"is not the investigating officer of any case")
    elif cp=="iii":
        flag='green'
        adisplay()
    else:
        print ("Invalid Option")
        adisplaydpt()

def adisplay():
    global flag
    flag="red"
    print()
    print('Parameters: ')
    print('i. File No.')
    print('ii. Status')
    print('iii. Department')
    print ('iv. All Cases')
    print ('v. My Cases')
    print ('vi. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    if cp=='i':
        Fno()
    elif cp=="ii":
        adispalystatus()
    elif cp=="iii":

```

```

adisplaypt()
elif cp=="iv":
    for i in d:
        print()
        print("File No.:",i)
        for j in d[i]:
            print(j,":",d[i][j],end="\n")
elif cp=="v":
    c=0
    if 'ANALYST' not in user[3]:
        for i in d:
            if d[i]["Investigating Officer"].upper()==user[1]:
                c+=1
                print()
                print("File No.:",i)
                for j in d[i]:
                    print (j,":",d[i][j], end="\n")
    else:
        if c==0:
            print ("You currently have 0 cases registered.")
elif 'ANALYST' in user[3]:
    for i in d:
        for j in d[i]["Analyst(s)"]:
            if j==user[1]:
                c+=1
                print()
                print("File No.:",i)
                for k in d[i]:
                    print (k,":",d[i][k], end="\n")
    else:
        if c==0:
            print ("You currently have 0 cases registered.")
elif cp=="vi":
    aoptions()
else:
    print ("Invalid Choice")
adisplay()

def gdisplaystatus():
    global flag
    flag="red"
    print()
    print('Parameters: ')
    print('i. Ongoing')
    print('ii. Solved')
    print('iii. Unsolved')
    print ('iv. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    if cp=='i':
        c=0
        for i in d:

```

```

if d[i]["Status"].lower() == "ongoing":
    c+=1
    print()
    print("File No.:", i)
    for j in d[i]:
        print(j, ":", d[i][j], end="\n")
else:
    if c==0:
        print ("No Ongoing Cases")
elif cp=='ii':
    c=0
    for i in d:
        if d[i]["Status"].lower() == "solved":
            c+=1
            print()
            print("File No.:", i)
            for j in d[i]:
                print(j, ":", d[i][j], end="\n")
        else:
            if c==0:
                print ("No Solved Cases")
elif cp=="iii":
    c=0
    for i in d:
        if d[i]["Status"].lower() == "unsolved":
            c+=1
            print()
            print("File No.:", i)
            for j in d[i]:
                print(j, ":", d[i][j], end="\n")
        else:
            if c==0:
                print ("No Unsolved Cases")
elif cp=="iv":
    flag="green"
    gdisplay()
else:
    print ("Invalid Option")
    gdispalystatus()

def gdisplaypt():
    global flag
    global user
    flag="red"
    print()
    print('Parameters: ')
    print('i. All Cases in A Department')
    print('ii. Specific Investigating Officer')
    print ('iii. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    if cp=="i":

```

```

print()
dpt=str(input("Enter the Department: "))
c=0
for i in d:
    if d[i]["Department"].upper()==dpt.upper():
        c+=1
        print()
        print("File No.:",i)
        for j in d[i]:
            print(j,":",d[i][j],end="\n")
    else:
        if c==0:
            print (ins,"is not investigating any case")
elif cp=="ii":
    print()
    ins=str(input("Enter the Investigating Offcier: "))
    c=0
    for i in d:
        if d[i]["Investigating Officer"].upper()==ins.upper():
            c+=1
            print()
            print("File No.:",i)
            for j in d[i]:
                print(j,":",d[i][j],end="\n")
        else:
            if c==0:
                print (ins,"is not the investigating officer of any case")
elif cp=="iii":
    flag='green'
    gdisplay()
else:
    print ("Invalid Option")
    gdisplaydpt()

def gdisplay():
    global flag
    flag="red"
    print()
    print('Parameters: ')
    print('i. File No.')
    print('ii. Status')
    print('iii. Department')
    print ('iv. All Cases')
    print ('v. Go Back')
    print()
    cp=str(input('Enter your Choice: '))
    if cp=='i':
        Fno()
    elif cp=="ii":
        gdisplaystatus()
    elif cp=="iii":
        gdisplaydpt()

```

```

elif cp=="iv":
    for i in d:
        print()
        print("File No.:",i)
        for j in d[i]:
            print(j,":",d[i][j],end="\n")
elif cp=="v":
    goptions()
else:
    print ("Invalid Choice")
    gdisplay()

def updateinfile():
    f=open('GBI_Records.dat','wb+')
    for k in d:
        x={}
        x[k]=d[k]
        pickle.dump(x,f)
    f.close()

def aoptions():
    global flag
    while True:
        print()
        print ("Please select the option you wish to execute")
        print()
        print('1. Update - Status | Accused | Suspects | Evidence | Case Handlers')
        print('2. Criminal History')
        print('3. Details of Similar Crimes - Charges | Details of Crime | Evidence')
        print('4. Add New Case')
        print('5. Display Details - File No. | Status | Department | All Cases | My Cases')
        print('6. Exit')
        print()
        c=str(input('Enter your Choice: '))
        if c=="1":
            update()
            updateinfile()
            if flag=="green":
                break
        elif c=="2":
            history()
            if flag=="green":
                break
        elif c=="3":
            similar()
            if flag=="green":
                break
        elif c=="4":
            NewCase()
            updateinfile()
            if flag=="green":
                break

```

```

elif c=="5":
    adisplay()
    if flag=="green":
        break
elif c=="6":
    print ("Logging Out...")
    print("Exiting Database")
    break
else:
    print("Invalid Option")
    goptions()

def goptions():
    global flag
    flag="red"
    while True:
        print()
        print ("Please select the option you wish to execute")
        print()
        print('1. Criminal History')
        print('2. Details of Similar Crimes - Charges | Details of Crime | Evidence')
        print('3. Display Details - File No. | Status | Department | All Cases')
        print('4. Exit')
        print()
        c=str(input('Enter your Choice: '))
        if c=="1":
            history()
            if flag=="green":
                break
        elif c=="2":
            similar()
            if flag=="green":
                break
        elif c=="3":
            gdisplay()
            if flag=="green":
                break
        elif c=="4":
            print ("Exiting Database")
            break
    else:
        print("Invalid Option")
        goptions()

```

# OUTPUT

## Authorized User

Welcome to the GBI Crime Records Dept.

Do you wish to continue with authorized login?

1. Yes

2. No

Enter your choice: 1

You have 3 attempt(s) to complete your login

Username: DIAZ\_ROSA

Password: AUNTRORODIAZ

Authorised Access

Hi Rosa Diaz, Special Agent

Your last login was on 2023-12-04 at 14:55:09

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 1

Parameters :

- i. Status
- ii. Accused
- iii. Suspects
- iv. Evidence
- v. Transfer Case
- vi. Go Back

Enter your Choice: ii

Parameters:

- i. Add
- ii. Remove
- iii. Update Existing Info
- iv. Go Back

Enter your Choice: i

Enter the File No.: #001-M

New Accused Details

Name: Melanie Blake

Age: 26 yrs

Gender: F

Address: Unknown

Contact: Unknown

New Accused Added

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 1

Parameters :

- i. Status
- ii. Accused
- iii. Suspects
- iv. Evidence
- v. Transfer Case
- vi. Go Back

Enter your Choice: i

Enter the File No.: #001-A

Access to file denied

ERROR 404 - Cross Department Access

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 2

Options:

- i. Continue
- ii. Go Back

Enter your Choice: i

Enter Name of Criminal: John

File No.: #001-B

Victim Details : ['Arianna', '25 yrs', 'F', 'Villa 42, South Street, Jumeirah', '056-7894321']

Charges : Burglary

Details of Crime : ['23/01/23', '17:00', "Victim's Home", 'TV and Jewellery Stolen']

Evidences : {'Comparison Samples (Forensic Evidence)': ['DNA', 'Fingerprints'], 'Witness Details': [['Nil']]}

Suspect Details : [['Nil']]

Accused Details : [['John C', '27 yrs', 'M', 'Flat#502, Black Building, Karama', '065-9876356']]

Status : Solved

Department : Organized Crime Bureau

Investigating Officer : Nancy Drew

Analyst(s) : ['Andre Raines', 'Isobel Castille']

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 3

Parameters:

- i. Charges
- ii. Details
- iii. Evidence
- iv. Go Back

Enter your choice - ii

Enter the Details of Crime (Date, Time, Location, Important Facts) briefly: Gunshot to Chest

File No.: #003-M

Victim Details : ['Evan Buckley', '26 yrs', 'M', '#2201, Starry Night Apartments, Broad Street, Elkfield Drive', '058-0913883']

Charges : Murder

Details of Crime : ['23/01/2022', '02:00', 'Elkfield Park', 'Gunshot to Chest', 'Missing Ring']

Evidences : {'Comparison Samples (Forensic Evidence)': ["GSR on Victim's Clothing"], 'Witness Details': ['Nil']}

Suspect Details : [['Nil']]

Accused Details : [['Nil']]

Status : Ongoing

Department : Homicide Bureau

Investigating Officer : Eve Dallas

Analyst(s) : ['Jamie Kelle', 'Ian Daniels']

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 3

Parameters:

- i. Charges
- ii. Details
- iii. Evidence
- iv. Go Back

Enter your choice - iii

Parameters -  
i. Comparison Samples  
ii. Witness  
iii. Go Back

Enter your Choice: i  
Enter Comparison Sample: Weapon  
No existing cases matches

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 4

Options:  
i. Continue  
ii. Go Back

Enter your Choice: i  
Enter File ID: #004-M  
File Exists

Do you wish to Update the Details in the File?

Options:  
i. Update  
ii. Go Back

Enter your Choice: i

Parameters :  
i. Status  
ii. Accused  
iii. Suspects  
iv. Evidence  
v. Transfer Case  
vi. Go Back

Enter your Choice: iv

Parameters:  
i. Comparison Samples  
ii. Witness  
iii. Go Back

Enter your Choice: ii

Enter the File No.: #004-M

Parameters:  
i. Add Witness  
ii. Remove Witness  
iii. Update Existing Info  
iv. Go Back

Enter your Choice: i  
New Witness Details  
Name: Blake Rho  
Age: 18 yrs  
Gender: M  
Address: Flat#426, Stoneybridge Apartments, Crossroad, Marine Drive  
Contact: 054-5679023

New Witness Added

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 4

Options:  
i. Continue  
ii. Go Back

Enter your Choice: i  
Enter File ID: #005-M  
Please Enter the Department Investigating the Case: Homicide Bureau

Victim Details

Name: Corrine Alistair  
Age: 35 yrs  
Gender: F  
Address: 1525, Cresent View Drive  
Contact: 058-9912231

Crime Details

Charges Pressed against the Accused: Vehicular Homicide  
Enter the Details of the Crime (Date, Time, Location, Important Facts) briefly: 21/01/2023, 2:00 P.M, Brooks Road, Hit and Run, Accused Vehicle Found - License J23612, Caught on CCTV

Evidences

Enter the List of Comparison Samples: Victim's Blood on the Windshield  
Enter the no. of Witnesses: 0

Suspect Details

Enter the no. of Suspects: 0

Accused Details

Has the Accused been Identified? y

Are there Multiple Accused? n

Enter the Details

Name: Clarkson James  
Age: 38 yrs  
Gender: M  
Address: 1345, Cresent View Drive  
Contact: 055-2313424

Status (Ongoing/Solved/Unsolved): Solved

Has an Analyst been Assigned? y

Are there Multiple Analysts? n

Enter the Name of Analyst : Jamie Kellel

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 4

Options:

- i. Continue
- ii. Go Back

Enter your Choice: i

Enter File ID: #002-A

Please Enter the Department Investigating the Case: Organized Crime Bureau

Access to file denied

ERROR 404 - Cross Department Access

Do you wish to add another case?

Options:

- i. Continue
- ii. Go Back

Enter your Choice: ii

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 5

Parameters:  
i. File No.  
ii. Status  
iii. Department  
iv. All Cases  
v. My Cases  
vi. Go Back

Enter your Choice: ii

Parameters:  
i. Ongoing  
ii. Solved  
iii. Unsolved  
iv. Go Back

Enter your Choice: ii

File No.: #001-B

Victim Details : ['Arianna', '25 yrs', 'F', 'Villa 42, South Street, Jumeirah', '056-7894321']

Charges : Burglary

Details of Crime : ['23/01/23', '17:00', "Victim's Home", 'TV and Jewellery Stolen']

Evidences : {'Comparison Samples (Forensic Evidence)': ['DNA', 'Fingerprints'], 'Witness Details': [['Nil']]}

Suspect Details : [['Nil']]

Accused Details : [['John C', '27 yrs', 'M', 'Flat#502, Black Building, Karama', '065-9876356']]

Status : Solved

Department : Organized Crime Bureau

Investigating Officer : Nancy Drew

Analyst(s) : ['Andre Raines', 'Isobel Castille']

File No.: #005-M

Victim Details : ['Corrine Alistair', '35 yrs', 'F', '1525, Cresent View Drive', '058-9912231']

Charges : Vehicular Homicide

Details of Crime : ['21/01/2023', '2:00 P.M', ' Brooks Road', ' Hit and Run', ' Accused Vehicle Found - License J23612', ' Caught on CCTV']

Evidences : {'Comparison Samples (Forensic Evidence)': ["Victim's Blood on the Windshield"], 'Witness Details': ['Nil']}

Suspect Details : ['Nil']]

Accused Details : ['Clarkson James', '38 yrs', 'M', '1345, Cresent View Drive', '055-2313424']

Status : Solved

Department : Homicide Bureau

Investigating Officer : Rosa Diaz

Analyst(s) : ['Jamie Kellet']

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 5

Parameters:  
i. File No.  
ii. Status  
iii. Department  
iv. All Cases  
v. My Cases  
vi. Go Back

Enter your Choice: iii

Parameters:

- i. All Cases in A Department
- ii. Specific Investigating Officer
- iii. Go Back

Enter your Choice: i

Parameters:

- i. Your Department
- ii. Other Department
- iii. Go Back

Enter your Choice: i

File No.: #001-M  
 Victim Details : ['Jack', '20 yrs', 'M', 'Flat#901, Pearl Oasis Complex, Creek', '050-9230487']  
 Charges : Murder  
 Details of Crime : ['29/01/23', '23:30', "Victim's Home", 'Knife Wound & Gunshot to Head', 'Laptop Missing']  
 Evidences : {'Comparison Samples (Forensic Evidence)': ['Blue Fiber', 'Bloody Footprint - Male Size 10'], 'Witness Details': ['Nil']}  
 Suspect Details : [['Carlos', '29 yrs', 'M', 'Flat#608, GreenView Apartments, Karama', '067-9872347'], ['Rihanna', '27 yrs', 'F', 'Villa 52, Southbridge Community, DSO', '047-9823468']]  
 Accused Details : [['Clara Mathews', '45 yrs', 'F', 'Unknown', 'Unknown'], ['Melanie Jack', '38 yrs', 'F', 'Unknown', 'Unknown'], ['Melanie Blake', '26 yrs', 'F', 'Unknown', 'Unknown']]  
 Status : Ongoing  
 Department : Homicide Bureau  
 Investigating Officer : Rosa Diaz  
 Analyst(s) : ['Kristen Vega', 'Ian Daniels']

File No.: #002-M  
 Victim Details : ['Jasper', '25 yrs', 'M', 'Flat#301, Avenue Bridge Building, Deira', '050-8872231']  
 Charges : Murder  
 Details of Crime : ['03/02/23', '22:30', "Victim's Home", 'Knife Wound & Gunshot to Head', 'Laptop Missing']  
 Evidences : {'Comparison Samples (Forensic Evidence)': ['Blue Fiber', 'Bloody Footprint - Male Size 10'], 'Witness Details': ['Nil']}  
 Suspect Details : [['Nil']]  
 Accused Details : ['Nil']  
 Status : Ongoing  
 Department : Homicide Bureau  
 Investigating Officer : Everly Kingston  
 Analyst(s) : ['Jamie Kellet']

File No.: #003-M  
 Victim Details : ['Evan Buckley', '26 yrs', 'M', '#2201, Starry Night Apartments, Broad Street, Elkfield Drive', '058-0913883']  
 Charges : Murder  
 Details of Crime : ['23/01/2022', '02:00', 'Elkfield Park', 'Gunshot to Chest', 'Missing Ring']  
 Evidences : {'Comparison Samples (Forensic Evidence)': ["GSR on Victim's Clothing"], 'Witness Details': ['Nil']}  
 Suspect Details : [['Nil']]  
 Accused Details : ['Nil']  
 Status : Ongoing  
 Department : Homicide Bureau  
 Investigating Officer : Eve Dallas  
 Analyst(s) : ['Jamie Kellet', 'Ian Daniels']

File No.: #004-M  
 Victim Details : ['Maria J', '21 yrs', 'F', '#Flat 22, Studio Apts, Broad Street, Elkfield Drive', '056-2351472']  
 Charges : Manslaughter, Burglary, Trespassing  
 Details of Crime : ['22/12/2022', 'TOD Undecided', 'Elkfield Park', '18 Stab Wounds to Abdomen']  
 Evidences : {'Comparison Samples (Forensic Evidence)': ['Murder Weapon with Blood Found'], 'Witness Details': ['Nil', ['Blake Rho', '18 yrs', 'M', 'Flat#426, Stoneybridge Apartments, Crossroad, Marine Drive', '054-5679023']]}  
 Suspect Details : ['Nil']  
 Accused Details : ['Nil']  
 Status : Ongoing  
 Department : Homicide Bureau  
 Investigating Officer : Rosa Diaz  
 Analyst(s) : ['Ian Daniels']

File No.: #005-M  
 Victim Details : ['Corrine Alistair', '35 yrs', 'F', '1525, Crescent View Drive', '058-9912231']  
 Charges : Vehicular Homicide  
 Details of Crime : ['21/01/2023', '2:00 P.M', 'Brooks Road', 'Hit and Run', 'Accused Vehicle Found - License J23612', 'Caught on CCTV']  
 Evidences : {'Comparison Samples (Forensic Evidence)': ['Victim's Blood on the Windshield'], 'Witness Details': ['Nil']}  
 Suspect Details : ['Nil']  
 Accused Details : ['Clarkson James', '38 yrs', 'M', '1345, Crescent View Drive', '055-2313424']  
 Status : Solved  
 Department : Homicide Bureau  
 Investigating Officer : Rosa Diaz  
 Analyst(s) : ['Jamie Kellet']

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 5

Parameters:  
i. File No.  
ii. Status  
iii. Department  
iv. All Cases  
v. My Cases  
vi. Go Back

Enter your Choice: v

File No.: #001-M

Victim Details : ['Jack', '20 yrs', 'M', 'Flat#901, Pearl Oasis Complex, Creek', '050-9230487']

Charges : Murder

Details of Crime : ['29/01/23', '23:30', "Victim's Home", 'Knife Wound & Gunshot to Head', 'Laptop Missing']

Evidences : {'Comparison Samples (Forensic Evidence)': ['Blue Fiber', 'Bloody Footprint - Male Size 10'], 'Witness Details': ['Nil']}

Suspect Details : [['Carlos', '29 yrs', 'M', 'Flat#608, GreenView Apartments, Karama', '067-9872347'], ['Rihanna', '27 yrs', 'F', 'Villa 52, Southbridge Community, DSO', '047-9823468']]

Accused Details : [['Clara Mathews', '45 yrs', 'F', 'Unknown', 'Unknown'], ['Melanie Jack', '38 yrs', 'F', 'Unknown', 'Unknown'], ['Melanie Blake', '26 yrs', 'F', 'Unknown', 'Unknown']]

Status : Ongoing

Department : Homicide Bureau

Investigating Officer : Rosa Diaz

Analyst(s) : ['Kristen Vega', 'Ian Daniels']

File No.: #004-M

Victim Details : ['Maria J', '21 yrs', 'F', '#Flat 22, Studio Apts, Broad Street, Elkfield Drive', '056-2351472']

Charges : Manslaughter, Burglary, Trespassing

Details of Crime : ['22/13/2022', 'TOD Undecided', 'Elkfield Park', '18 Stab Wounds to Abdomen']

Evidences : {'Comparison Samples (Forensic Evidence)': ['Murder Weapon with Blood Found'], 'Witness Details': ['Nil', ['Blake Rho', '18 yrs', 'M', 'Flat#426, Stoneybridge Apartments, Crossroad, Marine Drive', '054-5679023']]}

Suspect Details : ['Nil']

Accused Details : ['Nil']

Status : Ongoing

Department : Homicide Bureau

Investigating Officer : Rosa Diaz

Analyst(s) : ['Ian Daniels']

File No.: #005-M

Victim Details : ['Corrine Alistair', '35 yrs', 'F', '1525, Cresent View Drive', '058-9912231']

Charges : Vehicular Homicide

Details of Crime : ['21/01/2023', '2:00 P.M', 'Brooks Road', 'Hit and Run', 'Accused Vehicle Found - License J23612', 'Caught on CCTV']

Evidences : {'Comparison Samples (Forensic Evidence)': ['Victim's Blood on the Windshield'], 'Witness Details': ['Nil']}

Suspect Details : ['Nil']

Accused Details : ['Clarkson James', '38 yrs', 'M', '1345, Cresent View Drive', '055-2313424']

Status : Solved

Department : Homicide Bureau

Investigating Officer : Rosa Diaz

Analyst(s) : ['Jamie Kellef']

Please select the option you wish to execute

1. Update - Status | Accused | Suspects | Evidence | Case Handlers
2. Criminal History
3. Details of Similar Crimes - Charges | Details of Crime | Evidence
4. Add New Case
5. Display Details - File No. | Status | Department | All Cases | My Cases
6. Exit

Enter your Choice: 6

Logging Out...

Exiting Database

## Guest User

Welcome to the GBI Crime Records Dept.

Do you wish to continue with authorized login?

- 1. Yes
- 2. No

Enter your choice: 2

View Only Access

Please select the option you wish to execute

- 1. Criminal History
- 2. Details of Similar Crimes - Charges | Details of Crime | Evidence
- 3. Display Details - File No. | Status | Department | All Cases
- 4. Exit

Enter your Choice: 1

Options:

- i. Continue
- ii. Go Back

Enter your Choice: i

Enter Name of Criminal: Clara

File No.: #001-M

Victim Details : [Jack', '20 yrs', 'M', 'Flat#901, Pearl Oasis Complex, Creek', '050-9230487']

Charges : Murder

Details of Crime : ['29/01/23', '23:30', "Victim's Home", 'Knife Wound & Gunshot to Head', 'Laptop Missing']

Evidences : {'Comparison Samples (Forensic Evidence)': ['Blue Fiber', 'Bloody Footprint - Male Size 10'], 'Witness Details': ['Nil']}

Suspect Details : [['Carlos', '29 yrs', 'M', 'Flat#608, GreenView Apartments, Karama', '067-9872347'], ['Rihanna', '27 yrs', 'F', 'Villa 52, Southbridge Community, DSO', '047-9823468']]

Accused Details : [['Clara Mathews', '45 yrs', 'F', 'Unknown', 'Unknown'], [Melanie Jack', '38 yrs', 'F', 'Unknown', 'Unknown'], [Melanie Blake', '26 yrs', 'F', 'Unknown', 'Unknown']]

Status : Ongoing

Department : Homicide Bureau

Investigating Officer : Rosa Diaz

Analyst(s) : ['Kristen Vega', 'Ian Daniels']

File No.: #002-M

Victim Details : [Jasper', '25 yrs', 'M', 'Flat#301, Avenue Bridge Building, Deira', '050-8872231']

Charges : Murder

Details of Crime : ['03/02/23', '22:30', "Victim's Home", 'Knife Wound & Gunshot to Head', 'Laptop Missing']

Evidences : {'Comparison Samples (Forensic Evidence)': ['Blue Fiber', 'Bloody Footprint - Male Size 10'], 'Witness Details': ['Nil']}

Suspect Details : ['Nil']]

Accused Details : ['Nil']

Status : Ongoing

Department : Homicide Bureau

Investigating Officer : Everly Kingston

Analyst(s) : ['Jamie Kellet']

Please select the option you wish to execute

- 1. Criminal History
- 2. Details of Similar Crimes - Charges | Details of Crime | Evidence
- 3. Display Details - File No. | Status | Department | All Cases
- 4. Exit

Enter your Choice: 2

Parameters:

- i. Charges
- ii. Details
- iii. Evidence
- iv. Go Back

Enter your choice - iii

Parameters -

- i. Comparison Samples
- ii. Witness
- iii. Go Back

Enter your Choice: i  
Enter Comparison Sample: Murder Weapon with Blood Found

File No.: #004-M  
Victim Details : ['Maria J', '21 yrs', 'F', '#Flat 22, Studio Apts, Broad Street, Elkfield Drive', '056-2351472']  
Charges : Manslaughter, Burglary, Trespassing  
Details of Crime : ['22/13/2022', 'TOD Undecided', 'Elkfield Park', '18 Stab Wounds to Abdomen']  
Evidences : {'Comparison Samples (Forensic Evidence)': ['Murder Weapon with Blood Found'], 'Witness Details': ['Nil', ['Blake Rho', '18 yrs', 'M', 'Flat#426, Stoneybridge Apartments, Crossroad, Marine Drive', '054-5679023']]}  
Suspect Details : ['Nil']  
Accused Details : ['Nil']  
Status : Ongoing  
Department : Homicide Bureau  
Investigating Officer : Rosa Diaz  
Analyst(s) : ['Ian Daniels']

Please select the option you wish to execute

1. Criminal History
2. Details of Similar Crimes - Charges | Details of Crime | Evidence
3. Display Details - File No. | Status | Department | All Cases
4. Exit

Enter your Choice: 3

Parameters:  
i. File No.  
ii. Status  
iii. Department  
iv. All Cases  
v. Go Back

Enter your Choice: i  
Enter the file no.: #001-A

File No.: #001-A  
Victim Details : ['Mairah', '21 yrs', 'F', 'Villa 55, Stoneybridge Premium Villas, JVC', '055-0900213']  
Charges : Assault  
Details of Crime : ['30/01/23', '21:00', 'Neighbourhood Park', 'Blow to the Head', 'Stolen Purse and Diamond Bracelet']  
Evidences : {'Comparison Samples (Forensic Evidence)': [''], 'Witness Details': [['Lana J', '29 yrs', 'F', 'Room 2987, Green Time Hotel Apartments, Dubai Marina', '065-9903218'], ['Amira', '21 yrs', 'F', 'Villa 57, JBR Beach, Jumeirah', '076-9870273']]}  
Suspect Details : ['Nil']  
Accused Details : ['Nil']  
Status : Ongoing  
Department : Organized Crime Bureau  
Investigating Officer : Frank Hardy  
Analyst(s) : ['Jubal Valentine']

Please select the option you wish to execute

1. Criminal History
2. Details of Similar Crimes - Charges | Details of Crime | Evidence
3. Display Details - File No. | Status | Department | All Cases
4. Exit

Enter your Choice: 3

Parameters:  
i. File No.  
ii. Status  
iii. Department  
iv. All Cases  
v. Go Back

Enter your Choice: iii

Parameters:  
i. All Cases in A Department  
ii. Specific Investigating Officer  
iii. Go Back

Enter your Choice: i

Enter the Department: Organized Crime Bureau

File No.: #001-B

Victim Details : ['Arianna', '25 yrs', 'F', 'Villa 42, South Street, Jumeirah', '056-7894321']

Charges : Burglary

Details of Crime : ['23/01/23', '17:00', "Victim's Home", 'TV and Jewellery Stolen']

Evidences : {'Comparison Samples (Forensic Evidence)': ['DNA', 'Fingerprints'], 'Witness Details': [['Nil']]}

Suspect Details : [['Nil']]

Accused Details : [['John C', '27 yrs', 'M', 'Flat#502, Black Building, Karama', '065-9876356']]

Status : Solved

Department : Organized Crime Bureau

Investigating Officer : Nancy Drew

Analyst(s) : ['Andre Raines', 'Isobel Castille']

File No.: #001-A

Victim Details : ['Mairah', '21 yrs', 'F', 'Villa 55, Stoneybridge Premium Villas, JVC', '055-0900213']

Charges : Assault

Details of Crime : ['30/01/23', '21:00', 'Neighbourhood Park', 'Blow to the Head', 'Stolen Purse and Diamond Bracelet']

Evidences : {'Comparison Samples (Forensic Evidence)': [''], 'Witness Details': [['Lana J', '29 yrs', 'F', 'Room 2987, Green Time Hotel Apartments, Dubai Marina', '065-9903218'], ['Amira', '21 yrs', 'F', 'Villa 57, JBR Beach, Jumeirah', '076-9870273']]}

Suspect Details : [['Nil']]

Accused Details : [['Nil']]

Status : Ongoing

Department : Organized Crime Bureau

Investigating Officer : Frank Hardy

Analyst(s) : ['Jubal Valentine']

Please select the option you wish to execute

1. Criminal History

2. Details of Similar Crimes - Charges | Details of Crime | Evidence

3. Display Details - File No. | Status | Derpartment | All Cases

4. Exit

Enter your Choice: 4

Exiting Database

## BIBLIOGRAPHY

1. "Time — Time Access and Conversions." Python Documentation, [docs.python.org/3/library/time.html](https://docs.python.org/3/library/time.html).
2. GeeksforGeeks. "MySQL Connector Python Module in Python." GeeksforGeeks, 9 Mar. 2020, [www.geeksforgeeks.org/mysql-connector-python-module-in-python](https://www.geeksforgeeks.org/mysql-connector-python-module-in-python).
3. Python MySQL. [www.w3schools.com/python/python\\_mysql\\_getstarted.asp](https://www.w3schools.com/python/python_mysql_getstarted.asp).
4. SQL Introduction. [www.w3schools.com/sql/sql\\_intro.asp](https://www.w3schools.com/sql/sql_intro.asp).
5. SQL Tutorial. [www.w3schools.com/sql](https://www.w3schools.com/sql).
6. SQL Constraints. [www.w3schools.com/sql/sql\\_constraints.asp](https://www.w3schools.com/sql/sql_constraints.asp).
7. SQL CREATE TABLE Statement. [www.w3schools.com/sql/sql\\_create\\_table.asp](https://www.w3schools.com/sql/sql_create_table.asp).
8. "How Do I Rename a Column in a Database Table Using SQL?" Stack Overflow, [stackoverflow.com/questions/174582/how-do-i-rename-a-column-in-a-database-table-using-sql](https://stackoverflow.com/questions/174582/how-do-i-rename-a-column-in-a-database-table-using-sql).
9. "Check Constraint for Date." Stack Overflow, [stackoverflow.com/questions/5938523/check-constraint-for-date](https://stackoverflow.com/questions/5938523/check-constraint-for-date).
10. SQL DEFAULT Constraint. [www.w3schools.com/sql/sql\\_default.asp](https://www.w3schools.com/sql/sql_default.asp).
11. SQL AUTO INCREMENT a Field. [www.w3schools.com/SQl/sql\\_autoincrement.asp](https://www.w3schools.com/SQl/sql_autoincrement.asp).
12. Ian. List of Date and Time Functions in SQL Server (T-SQL). 18 June 2018, [database.guide/list-of-date-and-time-functions-in-sql-server-t-sql](https://database.guide/list-of-date-and-time-functions-in-sql-server-t-sql).
13. SQL DROP COLUMN. [www.w3schools.com/SQl/sql\\_ref\\_drop\\_column.asp](https://www.w3schools.com/SQl/sql_ref_drop_column.asp).
14. SQL Server DATEADD() Function. [www.w3schools.com/sql/func\\_sqlserver\\_dateadd.asp](https://www.w3schools.com/sql/func_sqlserver_dateadd.asp).
15. "SQL @@RowCount on Select Statement." Stack Overflow, [stackoverflow.com/questions/37441744/sql-rowcount-on-select-statement](https://stackoverflow.com/questions/37441744/sql-rowcount-on-select-statement).