STATE/CITY WISE CYBER CRIME MOTIVES

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ABSTRACT

The case study focuses on designing database that stores information regarding cybercrimes in metropolitan cities. Cybercrime refers to illegal activities conducted in cyber space, targeting computer systems, networks and individuals for financial gain or disruption. These activities include ransomware attacks, identity theft hacking etc. Cybercrimes are considered a major risk because they have devastating effects like financial loses, breaches of sensitive data and also it can affect the victim's reputation and life.

Cybercrime is a growing problem in metropolitan cities/states. This case study examines the motives of cyber criminals in the cities/states. The study found that the most common motives for cybercrimes are revenge, sexual exploitation, political reasons and toxic ideologies. Cyber criminals are increasingly using complex techniques to steal data commit fraud and disrupt operations. The schema in the DBMS includes relations which accommodate information about cities/states, victims, cybercriminals, statistics of the crime rate and the motives behind them etc. The functionalities of this software allow user to retrieve, store, update, insert and delete data in a secured manner.

To conclude, the utilization of a DBMS for this case study enables efficient data management and the exploration, facilitating a deeper understanding of the motives behind cybercriminal activities in a specified metropolitan context. The result of this study can aid law enforcement agencies, policy makers and cyber security professionals in devising targeted strategies to mitigate cyber threads and enhance the digital resilience of urban environment.

FUNCTIONALITIES:

1. User Registration and Authentication:

   i) Allow users to create accounts and log in securely.

   ii)Implement role-based access control(P,O), with appropriate permissions

2. Data collection and storage:

   i) The database accumulates and stores various types of cybercrime data, including Incident reports, attacks patterns, malware signatures, and other relevant information.

3. Search and Retrieval:

   i) Provide a search feature to find statistics, details of the case based on various c keywords.

   ii) Implement advanced search options such as filtering by year or city.

4. User Profiles:

i) Enable users to update their profiles and change passwords.

5. Victim information:

i) Maintains details about affected victims or organizations, their vulnerabilities and the impact of cyber incidents on them.

6. Malware analysis and signature:

i) Includes information on different malware strains, their behaviour, characteristics, and known signatures to aid in identification and defense.

7. Backup and Restore:

i) Regularly backup the database and provide a restore option in case of data loss.

8. Security:

i) Implement security measures like encryption, SQL injection prevention, and user access control.

MODULES:

1. User Authentication and Authorization module:

i) User registration and login system.

ii) Different user roles (P,O) with varying access levels.

2. Data collection and storage module :

i)Stores data .

ii) Includes incident report ,attack patterns ,malware signatures and other information .

3. Search module :

i) Search options with the help of keywords and filtering options.

4. Victim module :

i) Victim details .

ii)Their impacts on cybercrime .

5. Malware analysis module :

i) Store information of malware strains

ii) Helps in identifying known crime signatures for identification and defense.

6.Backup module :

i) Back up and provide restoration.

7.Security module :

i) Provides user control

ii) Ensures the integrity of data.

ENTITY RELATIONSHIP DIAGRAM:

ENTITIES:

1.User

2.Victim

3.Accused

4.City

5.Statistics

6.Case

7.Cybercrime

8.Investigator

CARDINALITY:

1.Many to Many (User to Statistics)

2.One to One (Statistics to City)

3.One to Many (City/State to Case)

4.One to One (Case to Accused)

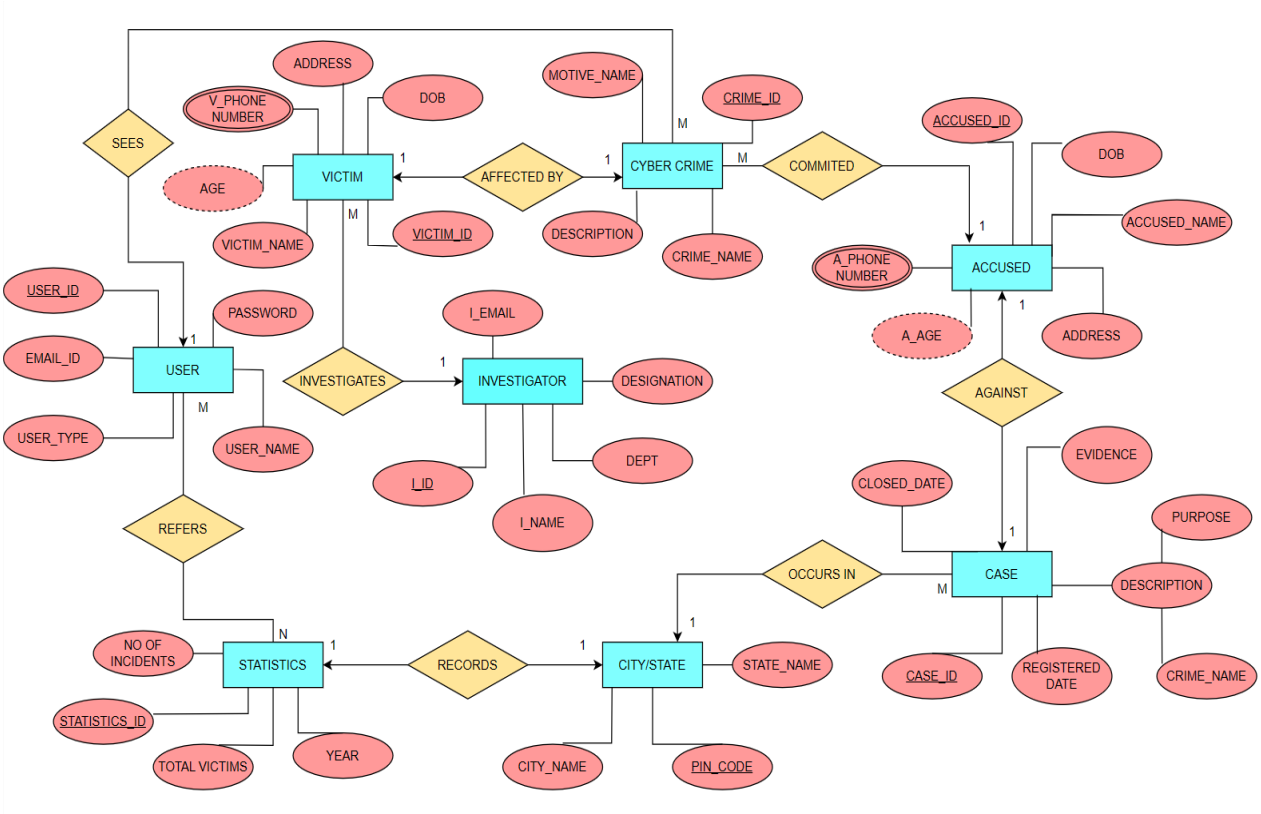
5.One to Many (Accused to cybercrime)

6.One to One (Cybercrime to Victim)

7.Many to One (Victim to Investigator)

8.One to Many (User to Cybercrime)

ER DIAGRAM:



ER to Schema:

USER (user_id, email_id, user_type, user_name, password)

STATISTICS (Statistics_id,year, no_of_incidents, time_period, total_victims, pin_code)

REFERS (user_id, statistics_id)

CITY (pin_code, state_name, city_name)

CASE (case_id, registered_date, crime_name, purpose, evidence, closed_date, pin_code)

ACCUSED (accused_id, dob, accused_name, address, case_id)

A_PHONENUMBER (accused_id, a_phonenumber)

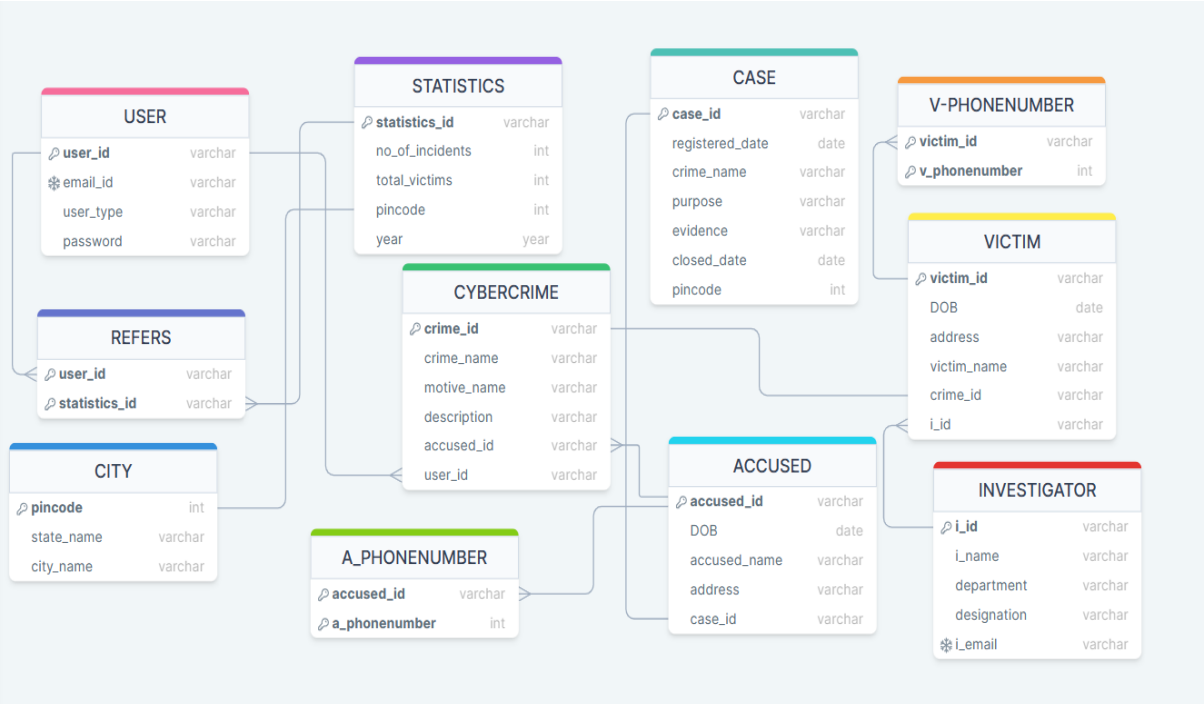
CYBERCRIME (crime_id, crime_name, motive_name, description, accused_id, user_id)

VICTIM (victim_id, dob, address, victim_name, crime_id, i_id)

V_PHONENUMBER (victim_id, v_phonenumber)

INVESTIGATOR (i_id, i_name, dept, designation,i_email)

Schema Diagram:



Creation of Tables and Queries:

USER (user_id, email_id, user_type, user_name, password)

```
mysql>  create table USER(user_id varchar(20) primary key,email_
id varchar(20) unique,user_type varchar(20) not null,user_name v
archar(20) not null,password varchar(20) not null);
Query OK, 0 rows affected (0.06 sec)

mysql> describe USER;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| user_id   | varchar(20) | NO   | PRI | NULL    |       |
| email_id  | varchar(20) | YES  | UNI | NULL    |       |
| user_type | varchar(20) | NO   |     | NULL    |       |
| user_name | varchar(20) | NO   |     | NULL    |       |
| password  | varchar(20) | NO   |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

```
mysql> insert into USER values("U001","Dev","dev@gmail.com","O",
"dev01");
Query OK, 1 row affected (0.04 sec)

mysql> insert into USER values("U002","Ram","ram@gmail.com","P",
"ram02");
Query OK, 1 row affected (0.01 sec)

mysql> insert into USER values("U003","Ravi","ravi@gmail.com","O
","ravi03");
Query OK, 1 row affected (0.04 sec)

mysql> insert into USER values("U004","Krishna","krishna@gmail.c
om","P","krish04");
Query OK, 1 row affected (0.04 sec)
```

```
mysql> select * from USER;
+---------+----------+------------------+-----------+----------
+
| user_id | email_id | user_type        | user_name | password
|
+---------+----------+------------------+-----------+----------
+
| U001    | Dev      | dev@gmail.com    | O         | dev01
|
| U002    | Ram      | ram@gmail.com    | P         | ram02
|
| U003    | Ravi     | ravi@gmail.com   | O         | ravi03
|
| U004    | Krishna  | krishna@gmail.com | P         | krish04
|
+---------+----------+------------------+-----------+----------
+
4 rows in set (0.00 sec)
```

STATISTICS (s_id,year,no_of_incidents, total_victims, pincode)

```
mysql> create table STATISTICS(s_id varchar(20) primary key,year
 integer,no_of_incidents integer, total_victims integer,pincode
integer, foreign key(pincode) references CITY(pincode));
Query OK, 0 rows affected (0.07 sec)

mysql> describe STATISTICS;
+----------------+------------+------+-----+---------+-------+
| Field          | Type       | Null | Key | Default | Extra |
+----------------+------------+------+-----+---------+-------+
| s_id           | varchar(20) | NO   | PRI | NULL    |       |
| year           | int        | YES  |     | NULL    |       |
| no_of_incidents | int       | YES  |     | NULL    |       |
| total_victims  | int        | YES  |     | NULL    |       |
| pincode        | int        | YES  | MUL | NULL    |       |
+----------------+------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

```
mysql> insert into STATISTICS values('S01',2016,6,3,800008);
Query OK, 1 row affected (0.04 sec)

mysql> insert into STATISTICS values('S02',2010,10,6,123401);
Query OK, 1 row affected (0.04 sec)

mysql> insert into STATISTICS values('S03',2000,14,9,226001);
Query OK, 1 row affected (0.04 sec)

mysql> insert into STATISTICS values('S04',2019,9,4,143104);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from STATISTICS;
+------+------+----------------+--------------+---------+
| s_id | year | no_of_incidents | total_victims | pincode |
+------+------+----------------+--------------+---------+
| S01  | 2016 |              6 |            3 |  800008 |
| S02  | 2010 |             10 |            6 |  123401 |
| S03  | 2000 |             14 |            9 |  226001 |
| S04  | 2019 |              9 |            4 |  143104 |
+------+------+----------------+--------------+---------+
4 rows in set (0.00 sec)
```

REFERS (user_id, s_id)

```
mysql> create table REFERS(user_id varchar(20),s_id varchar(20),
foreign key(user_id)references USER(user_id),foreign key(s_id)re
ferences STATISTICS(s_id),primary key(user_id,s_id));
Query OK, 0 rows affected (0.03 sec)

mysql> describe REFERS;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| user_id | varchar(20) | NO   | PRI | NULL    |       |
| s_id    | varchar(20) | NO   | PRI | NULL    |       |
+---------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> insert into REFERS values("U001","S01");
Query OK, 1 row affected (0.02 sec)

mysql> insert into REFERS values("U001","S01");
ERROR 1062 (23000): Duplicate entry 'U001-S01' for key 'refers.P
RIMARY'
mysql> insert into REFERS values("U001","S02");
Query OK, 1 row affected (0.00 sec)

mysql> insert into REFERS values("U002","S01");
Query OK, 1 row affected (0.01 sec)

mysql>  insert into REFERS values("U003","S01");
Query OK, 1 row affected (0.01 sec)

mysql>  insert into REFERS values("U004","S03");
Query OK, 1 row affected (0.01 sec)

mysql>  insert into REFERS values("U003","S03");
Query OK, 1 row affected (0.01 sec)

mysql>  insert into REFERS values("U003","S04");
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from REFERS;
+---------+------+
| user_id | s_id |
+---------+------+
| U001    | S01  |
| U002    | S01  |
| U003    | S01  |
| U001    | S02  |
| U003    | S03  |
| U004    | S03  |
| U003    | S04  |
+---------+------+
7 rows in set (0.00 sec)
```

CITY (pin_code, state_name, city_name)

```
mysql> create table CITY(pincode integer primary key,state_name
varchar(100) not null,city_name varchar(100) not null);
Query OK, 0 rows affected (0.06 sec)

mysql> describe CITY;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| pincode    | int          | NO   | PRI | NULL    |       |
| state_name | varchar(100) | NO   |     | NULL    |       |
| city_name  | varchar(100) | NO   |     | NULL    |       |
+------------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> insert into CITY values(800008,'Bihar','Patna');
Query OK, 1 row affected (0.04 sec)

mysql> insert into CITY values(123401,'Haryana','Gurgaon');
Query OK, 1 row affected (0.04 sec)

mysql> insert into CITY values(226001,'Uttar Pradesh','Lucknow')
;
Query OK, 1 row affected (0.04 sec)

mysql> insert into CITY values(143104,'Punjab','Amritsar');
Query OK, 1 row affected (0.04 sec)

mysql> select * from CITY;
+---------+--------------+-----------+
| pincode | state_name   | city_name |
+---------+--------------+-----------+
|  123401 | Haryana      | Gurgaon   |
|  143104 | Punjab       | Amritsar  |
|  226001 | Uttar Pradesh | Lucknow   |
|  800008 | Bihar        | Patna     |
+---------+--------------+-----------+
4 rows in set (0.00 sec)
```

CASE (<u>case_id</u>, registered_date, crime_name, purpose, evidence, closed_date, pincode)

```
mysql> create table CASES(case_id varchar(100) primary key,registered_date
date, crime_name varchar(200),purpose varchar(200), evidence varchar(200),c
losed_date date,pincode integer, foreign key(pincode) references CITY(pinco
de));
Query OK, 0 rows affected (0.07 sec)

mysql> describe CASES;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| case_id         | varchar(100) | NO   | PRI | NULL    |       |
| registered_date | date        | YES  |     | NULL    |       |
| crime_name      | varchar(200) | YES  |     | NULL    |       |
| purpose         | varchar(200) | YES  |     | NULL    |       |
| evidence        | varchar(200) | YES  |     | NULL    |       |
| closed_date     | date        | YES  |     | NULL    |       |
| pincode         | int         | YES  | MUL | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

```
mysql> insert into CASES valUES('CA01','2000-09-02','Debit/Credit card frau
d','financial needs','Money cutdown from the bank','2000-09-12',800008);
Query OK, 1 row affected (0.04 sec)

mysql> insert into CASES valUES('CA02','2016-05-28','Online job fraud','fin
ancial benefits','Job postings and correspondance','2016-07-01',123401);
Query OK, 1 row affected (0.04 sec)

mysql> insert into CASES valUES('CA03','2019-10-20','Cyber bullying','perso
nal revenge','Tracking IP address','2019-10-25',226001);
Query OK, 1 row affected (0.04 sec)

mysql> insert into CASES valUES('CA04','2014-07-30','Sim swap scam','authen
tication to get acces to bank accounts','Location data','2014-08-10',143104
);
Query OK, 1 row affected (0.04 sec)
```

```
mysql> select * from CASES;
+---------+---------------+--------------------+-----------------------------------------+--------------------------+-------------+---------+
| case_id | registered_date | crime_name         | purpose                                 | evidence                 | closed_date | pincode |
+---------+---------------+--------------------+-----------------------------------------+--------------------------+-------------+---------+
| CA01    | 2000-09-02    | Debit/Credit card fraud | financial needs                    | Money cutdown from the bank | 2000-09-12 | 800008 |
| CA02    | 2016-05-28    | Online job fraud   | financial benefits                      | Job postings and correspondance | 2016-07-01 | 123401 |
| CA03    | 2019-10-20    | Cyber bullying     | personal revenge                        | Tracking IP address      | 2019-10-25  | 226001  |
| CA04    | 2014-07-30    | Sim swap scam      | authentication to get acces to bank accounts | Location data          | 2014-08-10  | 143104  |
+---------+---------------+--------------------+-----------------------------------------+--------------------------+-------------+---------+
4 rows in set (0.00 sec)
```

ACCUSED (accused_id, accused_name, address, DOB,case_id)

```
mysql> create table ACCUSED(accused_ID varchar(100) primary key,accused_name varch
ar(100) not null,address varchar(100),A_phnum bigint,DOB date,case_id varchar(100)
, foreign key(case_id) references CASES(case_id));
Query OK, 0 rows affected (0.06 sec)

mysql> describe ACCUSED;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| accused_ID   | varchar(100) | NO   | PRI | NULL    |       |
| accused_name | varchar(100) | NO   |     | NULL    |       |
| address      | varchar(100) | YES  |     | NULL    |       |
| A_phnum      | bigint       | YES  |     | NULL    |       |
| DOB          | date         | YES  |     | NULL    |       |
| case_id      | varchar(100) | YES  | MUL | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

```
mysql> insert into ACCUSED values('A01','Mark Abene','Hazratganj,Lucknow', 9274662
894,'1988-05-25','CA03');
Query OK, 1 row affected (0.04 sec)

mysql> insert into ACCUSED values('A02','Julian Paul',' Ganga Path,Patna', 8974655
442,'1982-02-08','CA01');
Query OK, 1 row affected (0.04 sec)

mysql> insert into ACCUSED values('A03','David Amato','Heritage street,Amritsar',
7838656783,'1994-10-16','CA04');
Query OK, 1 row affected (0.04 sec)

mysql> insert into ACCUSED values('A04','Richard Jones','Sandalpur Road,Bihar', 97
76366377,'1999-06-20','CA02');
Query OK, 1 row affected (0.04 sec)
```

```
mysql> select * from ACCUSED;
+------------+---------------+--------------------------+------------+------------+---------+
| accused_ID | accused_name  | address                  | A_phnum    | DOB        | case_id |
+------------+---------------+--------------------------+------------+------------+---------+
| A01        | Mark Abene    | Hazratganj,Lucknow       | 9274662894 | 1988-05-25 | CA03    |
| A02        | Julian Paul   |  Ganga Path,Patna        | 8974655442 | 1982-02-08 | CA01    |
| A03        | David Amato   | Heritage street,Amritsar | 7838656783 | 1994-10-16 | CA04    |
| A04        | Richard Jones | Sandalpur Road,Bihar     | 9776366377 | 1999-06-20 | CA02    |
+------------+---------------+--------------------------+------------+------------+---------+
4 rows in set (0.00 sec)
```

```
mysql> alter table ACCUSED
    -> drop column A_phnum;
Query OK, 0 rows affected (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe ACCUSED;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| accused_ID   | varchar(100) | NO   | PRI | NULL    |       |
| accused_name | varchar(100) | NO   |     | NULL    |       |
| address      | varchar(100) | YES  |     | NULL    |       |
| DOB          | date         | YES  |     | NULL    |       |
| case_id      | varchar(100) | YES  | MUL | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> select * from ACCUSED;
+------------+---------------+--------------------------+------------+---------+
| accused_ID | accused_name  | address                  | DOB        | case_id |
+------------+---------------+--------------------------+------------+---------+
| A01        | Mark Abene    | Hazratganj,Lucknow       | 1988-05-25 | CA03    |
| A02        | Julian Paul   |  Ganga Path,Patna        | 1982-02-08 | CA01    |
| A03        | David Amato   | Heritage street,Amritsar | 1994-10-16 | CA04    |
| A04        | Richard Jones | Sandalpur Road,Bihar     | 1999-06-20 | CA02    |
+------------+---------------+--------------------------+------------+---------+
4 rows in set (0.00 sec)
```

A_PHONENUMBER (accused_id, a_phonenumber)

```
mysql> create table A_PHONENUMBER(accused_ID varchar(20),a_phone
number bigint,foreign key(accused_ID)references ACCUSED(accused_
ID),primary key(accused_ID,a_phonenumber));
Query OK, 0 rows affected (0.06 sec)

mysql> describe A_PHOONENUMBER;
ERROR 1146 (42S02): Table 'db1.a_phoonenumber' doesn't exist
mysql> describe A_PHONENUMBER;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| accused_ID   | varchar(20) | NO   | PRI | NULL    |       |
| a_phonenumber | bigint     | NO   | PRI | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> insert into A_PHONENUMBER values("A01",7665432165);
Query OK, 1 row affected (0.01 sec)

mysql> insert into A_PHONENUMBER values("A02",9876643275);
Query OK, 1 row affected (0.01 sec)

mysql> insert into A_PHONENUMBER("A02",8976098798);
ERROR 1064 (42000): You have an error in your SQL syntax; check
the manual that corresponds to your MySQL server version for the
 right syntax to use near '"A02",8976098798)' at line 1
mysql>  insert into A_PHONENUMBER values("A02",9076643275);
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM A_PHONENUMBER;
+------------+--------------+
| accused_ID | a_phonenumber |
+------------+--------------+
| A01        |    7665432165 |
| A02        |    9076643275 |
| A02        |    9876643275 |
+------------+--------------+
3 rows in set (0.00 sec)
```

CYBERCRIME (crime_id, crime_name, motive_name, description, accused_id, user_id)

```
mysql> create table CYBERCRIME(crime_id varchar(100) primary key,crime_name varchar(100),motive_name
 varchar(100),description varchar(200),accused_ID varchar(100),user_id varchar(100),foreign key(accu
sed_ID) references ACCUSED(accused_ID),foreign key(user_id) references USER(user_id));
Query OK, 0 rows affected (0.07 sec)

mysql> describe CYBERCRIME;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| crime_id    | varchar(100) | NO   | PRI | NULL    |       |
| crime_name  | varchar(100) | YES  |     | NULL    |       |
| motive_name | varchar(100) | YES  |     | NULL    |       |
| description | varchar(200) | YES  |     | NULL    |       |
| accused_ID  | varchar(100) | YES  | MUL | NULL    |       |
| user_id     | varchar(100) | YES  | MUL | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

```
mysql> insert into CYBERCRIME values('C01','Credit/Debit card fraud','financial needs','unauthorized
 use of anothers credit or debit card information','A01','U001');
Query OK, 1 row affected (0.04 sec)

mysql> insert into CYBERCRIME values('C02','Online job fraud','financial benefits','defraud people w
ho are in need of employment','A02','U002');
Query OK, 1 row affected (0.04 sec)

mysql> insert into CYBERCRIME values('C03','Cyber bullying','persoonal revenge',' A form of harassme
nt or bullying inflicted through the use of mobile,laptop etc.,','A03','U003');
Query OK, 1 row affected (0.04 sec)

mysql> insert into CYBERCRIME values('C04','SIM swap scam','authentication to get acces to bank acco
unts','Getting a new SIM card against a registered mobile number fraudulently is known as SIM Swap.'
,'A04','U004');
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from CYBERCRIME;
+----------+-------------------------+-----------------------------------------+-----------------------------------------------------------------------------------------------------------+------------+---------+
| crime_id | crime_name              | motive_name                             | description                                                                                               | accused_ID | user_id |
+----------+-------------------------+-----------------------------------------+-----------------------------------------------------------------------------------------------------------+------------+---------+
| C01      | Credit/Debit card fraud | financial needs                         | unauthorized use of anothers credit or debit card information                                             | A01        | U001    |
| C02      | Online job fraud        | financial benefits                      | defraud people who are in need of employment                                                              | A02        | U002    |
| C03      | Cyber bullying          | persoonal revenge                       |  A form of harassment or bullying inflicted through the use of mobile,laptop etc.,                        | A03        | U003    |
| C04      | SIM swap scam           | authentication to get acces to bank accounts | Getting a new SIM card against a registered mobile number fraudulently is known as SIM Swap.         | A04        | U004    |
+----------+-------------------------+-----------------------------------------+-----------------------------------------------------------------------------------------------------------+------------+---------+
4 rows in set (0.00 sec)
```

VICTIM (victim_id, dob, address, victim_name, crime_id, i_id)

```
mysql> create table VICTIM(victim_ID varchar(100) primary key,victim_name v
archar(100),address varchar(100),DOB date,crime_id varchar(100), i_id varch
ar(100), foreign key(crime_id) references CYBERCRIME(crime_id),foreign key(
I_id) references INVESTIGATOR(I_id));
Query OK, 0 rows affected (0.07 sec)

mysql> describe VICTIM;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| victim_ID   | varchar(100) | NO   | PRI | NULL    |       |
| victim_name | varchar(100) | YES  |     | NULL    |       |
| address     | varchar(100) | YES  |     | NULL    |       |
| DOB         | date        | YES  |     | NULL    |       |
| crime_id    | varchar(100) | YES  | MUL | NULL    |       |
| i_id        | varchar(100) | YES  | MUL | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

```
mysql> insert into VICTIM values('V01',' Harsh',' KhRoad,Gandhinagar,Gujarat','1994-08-12','C01','I01');
Query OK, 1 row affected (0.04 sec)

mysql> insert into VICTIM values('V02','Kishore',' Park Street,Kolkata','1992-04-08','C02','I02');
Query OK, 1 row affected (0.04 sec)

mysql> insert into VICTIM values('V03','Carol','Tilak Marg,Delhi','1996-09-11','C03','I03');
Query OK, 1 row affected (0.04 sec)

mysql> insert into VICTIM values('V04','Suresh','Hill Road,Mumbai','1990-05-28','C04','I04');
Query OK, 1 row affected (0.04 sec)

mysql> select * from VICTIM;
+----------+------------+--------------------------+-----------+----------+------+
| victim_ID | victim_name | address                  | DOB       | crime_id | i_id |
+----------+------------+--------------------------+-----------+----------+------+
| V01      |  Harsh     |  KhRoad,Gandhinagar,Gujarat | 1994-08-12 | C01     | I01  |
| V02      | Kishore    |  Park Street,Kolkata     | 1992-04-08 | C02     | I02  |
| V03      | Carol      | Tilak Marg,Delhi         | 1996-09-11 | C03     | I03  |
| V04      | Suresh     | Hill Road,Mumbai         | 1990-05-28 | C04     | I04  |
+----------+------------+--------------------------+-----------+----------+------+
4 rows in set (0.00 sec)
```

V_PHONENUMBER (victim_id, v_phonenumber)

```
mysql> create table V_PHONENUMBER(victim_ID varchar(20),v_phonen
umber bigint,foreign key(victim_ID)references VICTIM(victim_ID),
primary key(victim_ID,v_phonenumber));
Query OK, 0 rows affected (0.06 sec)

mysql> describe V_PHONENUMBER;
+--------------+------------+------+-----+---------+-------+
| Field        | Type       | Null | Key | Default | Extra |
+--------------+------------+------+-----+---------+-------+
| victim_ID    | varchar(20) | NO   | PRI | NULL    |       |
| v_phonenumber | bigint     | NO   | PRI | NULL    |       |
+--------------+------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql>  insert into V_PHONENUMBER values("V01",7345675678);
Query OK, 1 row affected (0.03 sec)

mysql> insert into V_PHONENUMBER values("V01",7654321234);
Query OK, 1 row affected (0.04 sec)

mysql> insert into V_PHONENUMBER values("V02",8967453434);
Query OK, 1 row affected (0.00 sec)

mysql> Select * from V_PHONENUMBER;
+-----------+--------------+
| victim_ID | v_phonenumber |
+-----------+--------------+
| V01       |    7345675678 |
| V01       |    7654321234 |
| V02       |    8967453434 |
+-----------+--------------+
3 rows in set (0.00 sec)
```

INVESTIGATOR (i_id, i_name,i_email_id, dept, designation)

```
mysql> create table INVESTIGATOR(i_id varchar(20) primary key,i_
name varchar(20) not null,i_email_id varchar(20) unique,dept var
char(20) not null,designation varchar(20) not null);
Query OK, 0 rows affected (0.06 sec)

mysql> describe INVESTIGATOR;
+-------------+------------+------+-----+---------+-------+
| Field       | Type       | Null | Key | Default | Extra |
+-------------+------------+------+-----+---------+-------+
| i_id        | varchar(20) | NO   | PRI | NULL    |       |
| i_name      | varchar(20) | NO   |     | NULL    |       |
| i_email_id  | varchar(20) | YES  | UNI | NULL    |       |
| dept        | varchar(20) | NO   |     | NULL    |       |
| designation | varchar(20) | NO   |     | NULL    |       |
+-------------+------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

```
mysql>  insert into INVESTIGATOR values("I01","Priya","priya@gma
il.com","Forensic.dept","SP(CID)");
Query OK, 1 row affected (0.04 sec)

mysql> insert into INVESTIGATOR values("I02","Hemanth","hemanth@
gmail.com","Network security","DSP");
Query OK, 1 row affected (0.04 sec)

mysql> insert into INVESTIGATOR values("I03","Sneha","sneha@gmai
l.com","Cyber intelligence","DGP");
Query OK, 1 row affected (0.00 sec)

mysql> insert into INVESTIGATOR values("I04","Prem","prem@gmail.
com","Cyber defence","SP");
Query OK, 1 row affected (0.04 sec)
```

```
mysql> select * from INVESTIGATOR;
+------+--------+-----------------+-------------------+-------------+
| i_id | i_name | i_email_id      | dept              | designation |
+------+--------+-----------------+-------------------+-------------+
| I01  | Priya  | priya@gmail.com | Forensic.dept     | SP(CID)     |
| I02  | Hemanth | hemanth@gmail.com | Network security | DSP         |
| I03  | Sneha  | sneha@gmail.com | Cyber intelligence | DGP        |
| I04  | Prem   | prem@gmail.com  | Cyber defence     | SP          |
+------+--------+-----------------+-------------------+-------------+
4 rows in set (0.00 sec)
```