

```
mysql> /*Coding Challenge SQL
/*> Crime Management Shema DDL and DML*/
mysql> CREATE DATABASE IF NOT EXISTS CrimeManagement;
Query OK, 1 row affected (0.03 sec)
```

```
mysql> use crimemanagement;
Database changed
```

```
mysql> CREATE TABLE Crime (
-> CrimeID INT PRIMARY KEY,
-> IncidentType VARCHAR(255),
-> IncidentDate DATE,
-> Location VARCHAR(255),
-> Description TEXT,
-> Status VARCHAR(20)
-> );
Query OK, 0 rows affected (0.23 sec)
```

```
mysql> desc crime;
```

Field	Type	Null	Key	Default	Extra
CrimeID	int	NO	PRI	NULL	
IncidentType	varchar(255)	YES		NULL	
IncidentDate	date	YES		NULL	
Location	varchar(255)	YES		NULL	
Description	text	YES		NULL	
Status	varchar(20)	YES		NULL	

```
6 rows in set (0.03 sec)
```

```
mysql> CREATE TABLE Victim (
-> VictimID INT PRIMARY KEY,
-> CrimeID INT,
-> Name VARCHAR(255),
-> ContactInfo VARCHAR(255),
-> Injuries VARCHAR(255),
-> FOREIGN KEY (CrimeID) REFERENCES Crime(CrimeID)
-> );
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> desc victim;
```

Field	Type	Null	Key	Default	Extra
-------	------	------	-----	---------	-------

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5 rows in set (0.00 sec)

```
mysql> CREATE TABLE Suspect (  
-> SuspectID INT PRIMARY KEY,  
-> CrimeID INT,  
-> Name VARCHAR(255),  
-> Description TEXT,  
-> CriminalHistory TEXT,  
-> FOREIGN KEY (CrimeID) REFERENCES Crime(CrimeID)  
-> );
```

Query OK, 0 rows affected (0.04 sec)

```
mysql> desc suspect;
```

Field	Type	Null	Key	Default	Extra
SuspectID	int	NO	PRI	NULL	
CrimeID	int	YES	MUL	NULL	
Name	varchar(255)	YES		NULL	
Description	text	YES		NULL	
CriminalHistory	text	YES		NULL	

5 rows in set (0.01 sec)

```
mysql> INSERT INTO Crime (CrimeID, IncidentType, IncidentDate, Location, Description, Status)  
-> VALUES  
-> (1, 'Robbery', '2023-09-15', '123 Main St, Cityville', 'Armed robbery at a convenience store', 'Open'),  
-> (2, 'Homicide', '2023-09-20', '456 Elm St, Townsville', 'Investigation into a murder case', 'Under  
> Investigation'),  
-> (3, 'Theft', '2023-09-10', '789 Oak St, Villagetown', 'Shoplifting incident at a mall', 'Closed');
```

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> select * from crime;
```

CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open
2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation
3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed

3 rows in set (0.00 sec)

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```
->
-> (3, 3, 'Alice Johnson', 'alicejohnson@example.com', 'None');
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> select * from victim;
```

VictimID	CrimeID	Name	ContactInfo	Injuries
1	1	John Doe	johndoe@example.com	Minor injuries
2	2	Jane Smith	jan smith@example.com	Deceased
3	3	Alice Johnson	alicejohnson@example.com	None

```
3 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Suspect (SuspectID, CrimeID, Name, Description, CriminalHistory)
-> VALUES
-> (1, 1, 'Robber 1', 'Armed and masked robber', 'Previous robbery convictions'),
-> (2, 2, 'Unknown', 'Investigation ongoing', NULL),
-> (3, 3, 'Suspect 1', 'Shoplifting suspect', 'Prior shoplifting arrests');
```

```
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> select * from suspect;
```

SuspectID	CrimeID	Name	Description	CriminalHistory
1	1	Robber 1	Armed and masked robber	Previous robbery convictions
2	2	Unknown	Investigation ongoing	NULL
3	3	Suspect 1	Shoplifting suspect	Prior shoplifting arrests

```
3 rows in set (0.00 sec)
```

```
mysql> /*1. Select all open incidents.*/
```

```
mysql> SELECT *
-> FROM Crime
-> WHERE Status = 'Open';
```

CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open

```
1 row in set (0.00 sec)
```

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3 rows in set (0.00 sec)

mysql> /*1. Select all open incidents.*/

mysql> SELECT *
-> FROM Crime
-> WHERE Status = 'Open';

CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open

1 row in set (0.00 sec)

mysql> /*2. Find the total number of incidents*/

mysql> SELECT COUNT(*) AS TotalIncidents
-> FROM Crime;

TotalIncidents
3

1 row in set (0.06 sec)

mysql> /*3. List all unique incident types.*/

mysql> SELECT DISTINCT IncidentType
-> FROM Crime;

IncidentType
Robbery
Homicide
Theft

3 rows in set (0.00 sec)

mysql> /*4. Retrieve incidents that occurred between '2023-09-01' and '2023-09-10'.*/

mysql> SELECT *
-> FROM Crime
-> WHERE IncidentDate BETWEEN '2023-09-01' AND '2023-09-10';

CrimeID	IncidentType	IncidentDate	Location	Description	Status
3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed

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```
+-----+
3 rows in set (0.00 sec)
```

```
mysql> /*5. List persons involved in incidents in descending order of age./
```

```
/*> */
mysql> SELECT Name, Age
  -> FROM Victim
  -> WHERE AGE IS NOT NULL
  -> ORDER BY Age DESC;
```

```
ERROR 1054 (42S22): Unknown column 'Age' in 'field list'
```

```
mysql> /*6. Find the average age of persons involved in incidents.*/
```

```
mysql> SELECT AVG(Age) AS AverageAge
  -> FROM Victim;
```

```
ERROR 1054 (42S22): Unknown column 'Age' in 'field list'
```

```
mysql>
mysql> /*7. List incident types and their counts, only for open cases*/
```

```
mysql> SELECT IncidentType, COUNT(*) AS IncidentCount
  -> FROM Crime
  -> WHERE Status = 'Open'
  -> GROUP BY IncidentType;
```

```
+-----+-----+
| IncidentType | IncidentCount |
+-----+-----+
| Robbery      | 1             |
+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> /*8.. Find persons with names containing 'Doe'.
```

```
/*>
/*> */
mysql> SELECT *
  -> FROM Victim
  -> WHERE Name LIKE '%Doe%';
```

```
+-----+-----+-----+-----+-----+
| VictimID | CrimeID | Name   | ContactInfo          | Injuries |
+-----+-----+-----+-----+-----+
| 1        | 1       | John Doe | johndoe@example.com | Minor injuries |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

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1 row in set (0.00 sec)

mysql> /*9. Retrieve the names of persons involved in open cases and closed cases*/

```
mysql> SELECT Name
-> FROM Victim V
-> JOIN Crime C ON V.CrimeID = C.CrimeID
-> WHERE C.Status IN ('Open', 'Closed');
```

Name
John Doe
Alice Johnson

2 rows in set (0.00 sec)

```
mysql> SELECT Name
-> FROM Suspect S
-> JOIN Crime C ON S.CrimeID = C.CrimeID
-> WHERE C.Status IN ('Open', 'Closed');
```

Name
Robber 1
Suspect 1

2 rows in set (0.00 sec)

mysql> /*10. List incident types where there are persons aged 30 or 35 involved.*/

```
mysql> SELECT DISTINCT C.IncidentType
-> FROM Crime C
-> JOIN Victim V ON C.CrimeID = V.CrimeID
-> WHERE V.Age IN (30, 35);
```

ERROR 1054 (42S22): Unknown column 'V.Age' in 'where clause'

mysql>

mysql> /*11. Find persons involved in incidents of the same type as 'Robbery'*/

```
mysql> SELECT V.*
-> FROM Victim V
-> JOIN Crime C ON V.CrimeID = C.CrimeID
-> WHERE C.IncidentType = 'Robbery';
```

VictimID	CrimeID	Name	ContactInfo	Injuries
1	1	John Doe	johndoe@example.com	Minor injuries

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```
mysql> /*12. List incident types with more than one open case.
```

```
*/
```

```
mysql> SELECT IncidentType, COUNT(*) AS OpenCasesCount
```

```
-> FROM Crime
```

```
-> WHERE Status = 'Open'
```

```
-> GROUP BY IncidentType
```

```
-> HAVING COUNT(*) > 1;
```

```
Empty set (0.00 sec)
```

```
mysql> /*13. List all incidents with suspects whose names also appear as victims in other incidents*/
```

```
mysql> SELECT DISTINCT C.*
```

```
-> FROM Crime C
```

```
-> JOIN Suspect S ON C.CrimeID = S.CrimeID
```

```
-> JOIN Victim V ON S.Name = V.Name AND C.CrimeID <> V.CrimeID;
```

```
Empty set (0.01 sec)
```

```
mysql> /*14. Retrieve all incidents along with victim and suspect details.
```

```
*/
```

```
mysql> SELECT
```

```
-> C.*,
```

```
-> V.VictimID, V.Name AS VictimName, V.ContactInfo, V.Injuries,
```

```
-> S.SuspectID, S.Name AS SuspectName, S.Description AS SuspectDescription, S.CriminalHistory
```

```
-> FROM
```

```
-> Crime C
```

```
-> LEFT JOIN
```

```
-> Victim V ON C.CrimeID = V.CrimeID
```

```
-> LEFT JOIN
```

```
-> Suspect S ON C.CrimeID = S.CrimeID;
```

CrimeID	IncidentType	IncidentDate	Location	Description	Status	VictimID	VictimName	ContactInfo
	Injuries		SuspectID	SuspectName	SuspectDescription	CriminalHistory		
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	1	John Doe	johndoe@exam
1	Minor injuries		1	Robber 1	Armed and masked robber	Previous robbery convictions		
2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under			
Investigation		2	Jane Smith	janesmith@example.com	Deceased	2	Unknown	Investigation ongoing
							NULL	
3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	3	Alice Johnson	alicejohnson
@example.com	None		3	Suspect 1	Shoplifting suspect	Prior shoplifting arrests		

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```
mysql> /*15. Find incidents where the suspect is older than any victim.*/
mysql> SELECT DISTINCT C.*
  -> FROM Crime C
  -> JOIN Suspect S ON C.CrimeID = S.CrimeID
  -> JOIN Victim V ON C.CrimeID = V.CrimeID
  -> WHERE S.Age > ANY (SELECT Age FROM Victim WHERE CrimeID = C.CrimeID);
```

ERROR 1054 (42S22): Unknown column 'S.Age' in 'IN/ALL/ANY subquery'

```
mysql> /*16. Find suspects involved in multiple incidents:*/
```

```
mysql> SELECT S.SuspectID, S.Name AS SuspectName, COUNT(*) AS IncidentCount
  -> FROM Suspect S
  -> GROUP BY S.SuspectID, S.Name
  -> HAVING COUNT(*) > 1;
Empty set (0.00 sec)
```

```
mysql> /*17. List incidents with no suspects involved.*/
```

```
mysql> SELECT C.*
  -> FROM Crime C
  -> LEFT JOIN Suspect S ON C.CrimeID = S.CrimeID
  -> WHERE S.SuspectID IS NULL;
Empty set (0.00 sec)
```

```
mysql> /*18. List all cases where at least one incident is of type 'Homicide' and all other incidents are of type
/*> 'Robbery'*/
```

```
mysql> SELECT C.CrimeID, C.IncidentType, C.IncidentDate, C.Location, C.Description, C.Status
  -> FROM Crime C
  -> WHERE
  -> (C.IncidentType = 'Homicide' AND NOT EXISTS (SELECT 1 FROM Crime WHERE CrimeID = C.CrimeID AND IncidentType <> 'Homicide'))
  -> OR
  -> (C.IncidentType = 'Robbery' AND NOT EXISTS (SELECT 1 FROM Crime WHERE CrimeID = C.CrimeID AND IncidentType <> 'Robbery'));
```

CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open
2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation

2 rows in set (0.00 sec)

```
mysql>
```

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1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open
2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under

Investigation |

2 rows in set (0.00 sec)

mysql> /*19. Retrieve a list of all incidents and the associated suspects, showing suspects for each incident, or
/*> 'No Suspect' if there are none*/

mysql> SELECT
-> C.CrimeID,
-> C.IncidentType,
-> C.IncidentDate,
-> C.Location,
-> C.Description,
-> C.Status,
-> COALESCE(S.SuspectID, 'No Suspect') AS SuspectID,
-> COALESCE(S.Name, 'No Suspect') AS SuspectName,
-> S.Description AS SuspectDescription,
-> S.CriminalHistory
-> FROM
-> Crime C
-> LEFT JOIN
-> Suspect S ON C.CrimeID = S.CrimeID;

CrimeID	IncidentType	IncidentDate	Location	Description	Status	SuspectID	SuspectName	SuspectDescription
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	1	Robber 1	Armed and mas
2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under			
3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	3	Suspect 1	Shoplifting s

3 rows in set (0.00 sec)

mysql> _

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3 rows in set (0.00 sec)

mysql> /*20. List all suspects who have been involved in incidents with incident types 'Robbery' or 'Assault'*/

mysql> SELECT DISTINCT S.*

-> FROM Suspect S

-> JOIN Crime C ON S.CrimeID = C.CrimeID

-> WHERE C.IncidentType IN ('Robbery', 'Assault');

SuspectID	CrimeID	Name	Description	CriminalHistory
1	1	Robber 1	Armed and masked robber	Previous robbery convictions

1 row in set (0.00 sec)

mysql>

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