

## Coding Challenge MYSQL

### Meenakshi M

#### Creating database:

```
create database crimemanagement;  
use crimemanagement;
```

#### Creating tables:

```
CREATE TABLE Crime (  
  CrimeID INT PRIMARY KEY,  
  IncidentType VARCHAR(255),  
  IncidentDate DATE,  
  Location VARCHAR(255),  
  Description TEXT,  
  Status VARCHAR(20)  
);
```

	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	

```
CREATE TABLE Victim (  
  VictimID INT PRIMARY KEY,  
  CrimeID INT,  
  Name VARCHAR(255),  
  ContactInfo VARCHAR(255),  
  Injuries VARCHAR(255),  
  FOREIGN KEY (CrimeID) REFERENCES Crime(CrimeID)  
);
```

	Field	Type	Null	Key	Default	Extra
►	VictimID	int	NO	PRI	NULL	
	CrimeID	int	YES	MUL	NULL	
	Name	varchar(255)	YES		NULL	
	ContactInfo	varchar(255)	YES		NULL	
	Injuries	varchar(255)	YES		NULL	

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

	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	

### Inserting values into the table:

```
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');
```

	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
•	NULL	NULL	NULL	NULL	NULL	NULL

```
INSERT INTO Victim (VictimID, CrimeID, Name, ContactInfo, Injuries) VALUES
(1, 1, 'John Doe', 'johndoe@example.com', 'Minor injuries'),
(2, 2, 'Jane Smith', 'janesmith@example.com', 'Deceased'),
(3, 3, 'Alice Johnson', 'alicejohnson@example.com', 'None');
```

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

```
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');

	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
•	NULL	NULL	NULL	NULL	NULL

### Solve the below queries:

#### 1. Select all open incidents.

```
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
•	NULL	NULL	NULL	NULL	NULL	NULL

#### 2. Find the total number of incidents.

```
select count(*) from crime;
```

	count(*)
▶	3

#### 3. List all unique incident types.

```
select distinct incidenttype from crime;
```

	incidenttype
▶	Robbery
	Homicide
	Theft

#### 4. Retrieve incidents that occurred between '2023-09-01' and '2023-09-10'.

```
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
•	NULL	NULL	NULL	NULL	NULL	NULL

#### 5. List persons involved in incidents in descending order of age.

```
alter table suspect add age int;
```

	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	
	age	int	YES		NULL	

alter table victim add age int;

	Field	Type	Null	Key	Default	Extra
▶	VictimID	int	NO	PRI	NULL	
	CrimeID	int	YES	MUL	NULL	
	Name	varchar(255)	YES		NULL	
	ContactInfo	varchar(255)	YES		NULL	
	Injuries	varchar(255)	YES		NULL	
	age	int	YES		NULL	

update victim set age = 30 where victimid = 1;

update victim set age = 45 where victimid = 2;

update victim set age = 25 where victimid = 3;

	VictimID	CrimeID	Name	ContactInfo	Injuries	age
▶	1	1	John Doe	johndoe@example.com	Minor injuries	30
	2	2	Jane Smith	janesmith@example.com	Deceased	45
	3	3	Alice Johnson	alicejohnson@example.com	None	25
★	NULL	NULL	NULL	NULL	NULL	NULL

update suspect set age = 28 where suspectid = 1;

update suspect set age = 35 where suspectid = 2;

update suspect set age = 40 where suspectid = 3;

	SuspectID	CrimeID	Name	Description	CriminalHistory	age
▶	1	1	Robber 1	Armed and masked robber	Previous robbery convictions	28
	2	2	Unknown	Investigation ongoing	NULL	35
	3	3	Suspect 1	Shoplifting suspect	Prior shoplifting arrests	40
★	NULL	NULL	NULL	NULL	NULL	NULL

select name , age from victim union all select name, age from suspect order by age desc;

	name	age
▶	Jane Smith	45
	Suspect 1	40
	Unknown	35
	John Doe	30
	Robber 1	28
	Alice Johnson	25

**6. Find the average age of persons involved in incidents.**

```
select avg(age) as avg_age_involved_in_incident from
(select age from suspect union all select age from victim) as avg_age;
```

	avg_age_involved_in_incident
▶	33.8333

**7. List incident types and their counts, only for open cases.**

```
select incidenttype, count(*) as counts from crime where crimeid in
(select crimeid from crime where status = 'open') group by incidenttype;
```

	incidenttype	counts
▶	Robbery	1

**8. Find persons with names containing 'Doe'.**

```
select name from suspect where name like '%Doe%' union all select name from victim where name like '%Doe%';
```

	name
▶	John Doe

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

```
select s.name as suspect_name, v.name as victimname, c.status from crime c join suspect s on c.crimeid = s.crimeid
join victim v on c.crimeid = v.crimeid where c.status = "open" or c.status = "closed";
```

	suspect_name	victimname	status
▶	Robber 1	John Doe	Open
	Suspect 1	Alice Johnson	Closed

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

```
select c.incidenttype, v.age from crime c join victim v on c.crimeid = v.crimeid where v.age = 30 or
v.age = 35
union all
```

```
select c.incidenttype, s.age from crime c join suspect s on c.crimeid = s.crimeid where s.age = 30 or s.age = 35;
```

	incidenttype	age
▶	Robbery	30
	Homicide	35

### 11. Find persons involved in incidents of the same type as 'Robbery'.

```
select c.incidenttype, v.name from crime c join victim v on c.crimeid = v.crimeid where c.incidenttype = 'Robbery'
```

```
union all
```

```
select c.incidenttype, s.name from crime c join suspect s on c.crimeid = s.crimeid where c.incidenttype = 'Robbery';
```

	incidenttype	name
▶	Robbery	John Doe
	Robbery	Robber 1

### 12. List incident types with more than one open case.

```
select incidenttype from crime where status = "open" group by incidenttype having count(*) > 1;
```

	incidenttype
--	--------------

### 13. List all incidents with suspects whose names also appear as victims in other incidents.

```
select c.incidenttype from crime c join victim v on c.crimeid = v.crimeid where v.name in (select name from suspect);
```

	incidenttype
--	--------------

### 14. Retrieve all incidents along with victim and suspect details.

```
select c.*, s.*, v.* from crime c join suspect s on c.crimeid = s.crimeid join victim v on c.crimeid = v.crimeid;
```

	CrimeID	IncidentType	IncidentDate	Location	Description	Status	SuspectID	CrimeID	Name	Description	
▶	1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	1	1	Robber 1	Armed and masked robber	P
	2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation	2	2	Unknown	Investigation ongoing	M
	3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	3	3	Suspect 1	Shoplifting suspect	P

  

	SuspectID	CrimeID	Name	Description	CriminalHistory	age	VictimID	CrimeID	Name	ContactInfo	Injuries	age
	1	1	Robber 1	Armed and masked robber	Previous robbery convictions	28	1	1	John Doe	john.doe@example.com	Minor injuries	30
	2	2	Unknown	Investigation ongoing	None	35	2	2	Jane Smith	jane.smith@example.com	Deceased	45
	3	3	Suspect 1	Shoplifting suspect	Prior shoplifting arrests	40	3	3	Alice Johnson	alice.johnson@example.com	None	25

### 15. Find incidents where the suspect is older than any victim.

```
select c.incidenttype, s.name, v.name from crime c join suspect s on c.crimeid = s.crimeid join victim v
```

```
on c.crimeid = v.crimeid
where s.age > v.age;
```

	incidenttype	name	name
►	Theft	Suspect 1	Alice Johnson

#### 16. Find suspects involved in multiple incidents.

```
select name, count(crimeid) as number_of_crime from suspect group by name having count(crimeid) > 1;
```

	name	number_of_crime
--	------	-----------------

#### 17. List incidents with no suspects involved.

```
select c.* from crime c join suspect s on c.crimeid = s.crimeid where s.crimeid is null;
```

	CrimeID	IncidentType	IncidentDate	Location	Description	Status
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#### 18. List all cases where at least one incident is of type 'Homicide' and all other incidents are of type 'Robbery'.

```
select * from crime where incidenttype = 'homicide' or incidenttype = 'robbery' group by crimeid;
```

	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
*	NULL	NULL	NULL	NULL	NULL	NULL

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

```
select c.*, ifnull(s.name,'No suspect') from crime c join suspect s on c.crimeid = s.crimeid;
```

	CrimeID	IncidentType	IncidentDate	Location	Description	Status	ifnull(s.name,'No suspect')
►	1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	Robber 1
	2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation	Unknown
	3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	Suspect 1

#### 20. List all suspects who have been involved in incidents with incident types 'Robbery' or 'Assault'

```
select c.*, s.name from crime c join suspect s on c.crimeid = s.crimeid where c.incidenttype = "Robbery" or c.incidenttype = "Assault";
```

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