Coding Challenge: 3
Crime Management Schema DDL and DML

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

2. Find the total number of incidents.

```
SELECT COUNT(*) AS TotalIncidents
FROM Crime;
```

TotalIncidents
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

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

```
SELECT Name, TIMESTAMPDIFF(YEAR, Birthdate, CURDATE()) AS Age
FROM Victim
ORDER BY Age DESC;
```

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

```
SELECT AVG(TIMESTAMPDIFF(YEAR, Birthdate, CURDATE())) AS AverageAge
FROM Victim;
```

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

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

Result Grid

IncidentType	IncidentCou...
Robbery	1

8. Find persons with names containing 'Doe'.

```
-- from the Victim table
SELECT *
FROM Victim
WHERE Name LIKE '%Doe%';
```

Result Grid

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

```
-- from the Suspect table
SELECT *
FROM Suspect
WHERE Name LIKE '%Doe%';
```

Result Grid

SuspectID	CrimeID	Name	Description	CriminalHisto...
NULL	NULL	NULL	NULL	NULL

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

```sql
-- Names of persons involved in open cases from the Victim table
SELECT Name, 'Victim' AS PersonType, 'Open' AS CaseStatus
FROM Victim v
JOIN Crime c ON v.CrimeID = c.CrimeID
WHERE c.Status = 'Open'
UNION
-- Names of persons involved in open cases from the Suspect table
SELECT Name, 'Suspect' AS PersonType, 'Open' AS CaseStatus
FROM Suspect s
JOIN Crime c ON s.CrimeID = c.CrimeID
WHERE c.Status = 'Open'
UNION
-- Names of persons involved in closed cases from the Victim table
SELECT Name, 'Victim' AS PersonType, 'Closed' AS CaseStatus
FROM Victim v
JOIN Crime c ON v.CrimeID = c.CrimeID
WHERE c.Status = 'Closed'
UNION
-- Names of persons involved in closed cases from the Suspect table
SELECT Name, 'Suspect' AS PersonType, 'Closed' AS CaseStatus
FROM Suspect s
JOIN Crime c ON s.CrimeID = c.CrimeID
WHERE c.Status = 'Closed';
```

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Result Grid | Filter Rows: Search | Export:

Name	PersonType	CaseStatus
John Doe	Victim	Open
Robber 1	Suspect	Open
Alice Johnson	Victim	Closed
Suspect 1	Suspect	Closed

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

```sql
-- Assuming the Victim table has a Birthdate column
SELECT DISTINCT c.IncidentType
FROM Crime c
JOIN Victim v ON c.CrimeID = v.CrimeID
WHERE TIMESTAMPDIFF(YEAR, v.Birthdate, CURDATE()) IN (30, 35);

-- Assuming the Suspect table has a Birthdate column
SELECT DISTINCT c.IncidentType
FROM Crime c
JOIN Suspect s ON c.CrimeID = s.CrimeID
WHERE TIMESTAMPDIFF(YEAR, s.Birthdate, CURDATE()) IN (30, 35);
```

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

```sql
SELECT DISTINCT v.Name, 'Victim' AS PersonType
FROM Victim v
JOIN Crime c ON v.CrimeID = c.CrimeID
WHERE c.IncidentType = 'Robbery'
UNION
SELECT DISTINCT s.Name, 'Suspect' AS PersonType
FROM Suspect s
JOIN Crime c ON s.CrimeID = c.CrimeID
WHERE c.IncidentType = 'Robbery';
```

100% 1:126

Result Grid | Filter Rows: Search | Export:

Name	PersonType
John Doe	Victim
Robber 1	Suspect

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

```sql
SELECT IncidentType, COUNT(*) AS OpenCaseCount
FROM Crime
WHERE Status = 'Open'
GROUP BY IncidentType
HAVING COUNT(*) > 1;
```

100% 21:143

Result Grid | Filter Rows: Search | Export:

IncidentType	OpenCaseCount

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

```
146 •  SELECT DISTINCT c.*
147    FROM Crime c
148    JOIN Suspect s ON c.CrimeID = s.CrimeID
149    JOIN Victim v ON c.CrimeID = v.CrimeID
150    WHERE s.Name = v.Name;
151
```

100% 1:151

Result Grid | Filter Rows: Search | Export:

CrimeID	IncidentType	IncidentDate	Location	Description	Status

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

```
153 •  SELECT c.*, v.Name AS VictimName, v.ContactInfo AS VictimContactInfo, v.Injuries AS VictimInjuries,
154                s.Name AS SuspectName, s.Description AS SuspectDescription, s.CriminalHistory AS SuspectCriminalHistory
155    FROM Crime c
156    LEFT JOIN Victim v ON c.CrimeID = v.CrimeID
157    LEFT JOIN Suspect s ON c.CrimeID = s.CrimeID;
158
```

100% 1:158

Result Grid | Filter Rows: Search | Export:

CrimeID	IncidentType	IncidentDate	Location	Description	Status	VictimName	VictimContactInfo	VictimInjuri...	SuspectName	SuspectDescriptior
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	John Doe	johndoe@example.com	Minor injuries	Robber 1	Armed and masked r
2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation	Jane Smith	janesmith@example.com	Deceased	Unknown	Investigation ongoing
3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	Alice Johnson	alicejohnson@example.com	None	Suspect 1	Shoplifting suspect

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

```
160 •  SELECT c.*, s.Name AS SuspectName, v.Name AS VictimName
161    FROM Crime c
162    JOIN Suspect s ON c.CrimeID = s.CrimeID
163    JOIN Victim v ON c.CrimeID = v.CrimeID
164    WHERE TIMESTAMPDIFF(YEAR, s.Birthdate, CURDATE()) > (SELECT MAX(TIMESTAMPDIFF(YEAR, Birthdate, CURDATE())) FROM Victim WHERE CrimeID = c.CrimeID);
165
```

16. Find suspects involved in multiple incidents.

```
169 •  SELECT SuspectID, Name, COUNT(DISTINCT CrimeID) AS IncidentCount
170    FROM Suspect
171    GROUP BY SuspectID, Name
172    HAVING COUNT(DISTINCT CrimeID) > 1;
173
```

100% 1:173

Result Grid | Filter Rows: Search | Export:

SuspectID	Name	IncidentCou...

17. List incidents with no suspects involved.

```
175 •  SELECT c.*
176    FROM Crime c
177    LEFT JOIN Suspect s ON c.CrimeID = s.CrimeID
178    WHERE s.SuspectID IS NULL;
179
```

100% 1:179

Result Grid | Filter Rows: Search | Export:

CrimeID	IncidentType	IncidentDate	Location	Description	Status

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

```
181 •  SELECT DISTINCT c1.*
182    FROM Crime c1
183    JOIN Crime c2 ON c1.CrimeID = c2.CrimeID
184    WHERE c1.IncidentType = 'Homicide' AND c2.IncidentType = 'Robbery'
185      AND NOT EXISTS (
186          SELECT 1
187          FROM Crime c3
188          WHERE c3.CrimeID = c1.CrimeID
189            AND c3.IncidentType <> 'Homicide'
190      );
```

100% 6:190

Result Grid | Filter Rows: Search | Export:

CrimeID	IncidentType	IncidentDate	Location	Description	Status

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

```
192 •  SELECT c.*,
193           COALESCE(s.Name, 'No Suspect') AS SuspectName,
194           COALESCE(s.Description, 'No Suspect') AS SuspectDescription,
195           COALESCE(s.CriminalHistory, 'No Suspect') AS SuspectCriminalHistory
196    FROM Crime c
197    LEFT JOIN Suspect s ON c.CrimeID = s.CrimeID;
198
199
```

100% 1:199

Result Grid | Filter Rows: Search | Export:

CrimeID	IncidentType	IncidentDate	Location	Description	Status	SuspectName	SuspectDescription	SuspectCriminalHistory
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	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	Unknown	Investigation ongoing	No Suspect
3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	Suspect 1	Shoplifting suspect	Prior shoplifting arrests

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

```
200 •  SELECT DISTINCT s.*
201    FROM Suspect s
202    JOIN Crime c ON s.CrimeID = c.CrimeID
203    WHERE c.IncidentType IN ('Robbery', 'Assault');
204
```

100% 1:204

Result Grid | Filter Rows: Search | Export:

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