CODING CHALLENGE
CRIME MANAGEMENT

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CODING CHALLENGE: CRIME MANAGEMENT

```sql
use CrimeManagement;

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

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

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


-- Insert sample data
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');

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');
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');
```

/*CREATED DATABASE AND TABLES AND INSERTED RECORDS*/

```sql
alter table Victim add Age int;
update Victim set Age=51 where Name='John Doe';
update Victim set Age=30 where Name='Jane Smith';

alter table Suspect add Age int;
update Suspect set Age=47 where Name='Robber 1';
update Suspect set Age=31 where Name='Unknown';
update Suspect set Age=33 where Name='Suspect 1';
```
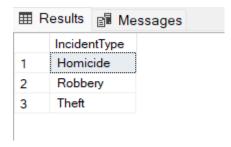
QUERIES:

1. Select all open incidents.

```sql
select * from Crime where status='open';
```

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

2. Find the total number of incidents.

```sql
select count(CrimeID) as no_of_incidents from Crime;
```

	no_of_incidents
1	3

3. List all unique incident types.

```sql
select distinct IncidentType from Crime;
```

	IncidentType
1	Homicide
2	Robbery
3	Theft

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

```sql
select * from Crime where IncidentDate between '2023-09-01' and '2023-09-10';
```

	CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	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.

```sql
select Name,Age
from Suspect
```

```
order by Age desc;
```

	Name	Age
1	Robber 1	47
2	Suspect 1	33
3	Unknown	31

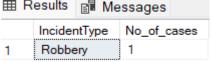## 6. Find the average age of persons involved in incidents.

```
select avg(Victim.Age) as Victims_avg_age, avg(Suspect.Age) Suspects_avg_age
from Victim
join Suspect on Victim.CrimeID=Suspect.CrimeID;
```

	Victims_avg_age	Suspects_avg_age
1	40	37

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

```
select IncidentType, count(IncidentType) as No_of_cases
from Crime
where Status='Open' group by IncidentType;
```

	IncidentType	No_of_cases
1	Robbery	1

8. Find persons with names containing 'Doe'.

```
select Victim.Name
from Victim
where Victim.Name like '%Doe';
```

	Name
1	John Doe

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

```
select Victim.Name,Suspect.Name,Status from Crime
join Victim on Crime.CrimeID=Victim.CrimeID
join Suspect on Crime.CrimeID=Suspect.CrimeID
where Status='Open' or Status='closed';
```

	Name	Name	Status
1	John Doe	Robber 1	Open
2	Alice Johnson	Suspect 1	Closed

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

```
select IncidentType ,Victim.Age as Victim_age
```

```
from Crime
join Victim on Crime.CrimeID=Victim.CrimeID
where Victim.Age between 30 and 35 ;
```

	IncidentType	Victim_age
1	Homicide	30

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

```
select Suspect.Name from Crime
join Suspect on Crime.CrimeID=Suspect.CrimeID
where IncidentType='Robbery';
```

	Name
1	Robber 1

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

```
select IncidentType,count(*) as Open_cases
from Crime
where Status='Open'
group by IncidentType
having count(*) > 1;
```

✓ Query executed successfully.

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

```
select c.*,
s.Name as SuspectName, v.Name as VictimName
from Crime c
full outer JOIN Suspect s ON c.CrimeID = s.CrimeID
full outer JOIN Victim v ON s.Name = v.Name
WHERE v.CrimeID <> c.CrimeID;
```
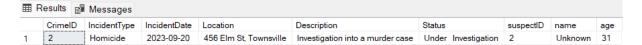
✓ Query executed successfully.

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

```
select Crime.*,Victim.*,Suspect.*
from Crime
join Victim on Crime.CrimeID=Victim.CrimeID
join Suspect on Crime.CrimeID=Suspect.CrimeID;
```

	CrimeID	IncidentType	IncidentDate	Location	Description	Status	VictimID	CrimeID	Name	ContactInfo	Injuries	Age	SuspectID	CrimeID	Name	Description
1	1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	1	1	John Doe	johndoe@example.com	Minor injuries	51	1	1	Robber 1	Armed and masked robber
2	2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation	2	2	Jane Smith	janesmith@example.com	Deceased	30	2	2	Unknown	Investigation ongoing
3	3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	3	3	Alice Johnson	alicejohnson@example.com	None	NULL	3	3	Suspect 1	Shoplifting suspect

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

```
select Crime.*,s.suspectID,s.name,s.age
from Crime
JOIN Suspect s ON Crime.CrimeID = s.CrimeID
where s.age > ALL (select v.age from Victim v
where v.CrimeID = Crime.CrimeID);
```

	CrimeID	IncidentType	IncidentDate	Location	Description	Status	suspectID	name	age
1	2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation	2	Unknown	31

16. Find suspects involved in multiple incidents.

```
select s.Name, count(s.CrimeID) as No_of_incidents
from Suspect s
group by s.Name
having count(s.CrimeID) > 1;
```

✅ Query executed successfully.

17. List incidents with no suspects involved.

```
select * from Crime
join Suspect on Crime.CrimeID=Suspect.CrimeID
where Suspect.Name is null;
```

✅ Query executed successfully.

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

```
select  Crime.*
from Crime
where IncidentType = 'Homicide'and CrimeID NOT IN (select CrimeID
from Crime
where IncidentType <> 'Robbery' and IncidentType <> 'Homicide');
```

	CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation

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.CrimeID, c.IncidentType, c.IncidentDate, c.Location, s.Name as SuspectName
from Crime c
join Suspect s on c.CrimeID = s.CrimeID
union
select c.CrimeID, c.IncidentType, c.IncidentDate, c.Location, 'No Suspect' as
SuspectName
from Crime c
where NOT EXISTS (select 1 from Suspect s where s.CrimeID = c.CrimeID);
```

	CrimeID	IncidentType	IncidentDate	Location	SuspectName
1	1	Robbery	2023-09-15	123 Main St, Cityville	Robber 1
2	2	Homicide	2023-09-20	456 Elm St, Townsville	Unknown
3	3	Theft	2023-09-10	789 Oak St, Villagetown	Suspect 1

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

```
select s.Name, c.IncidentType
from Suspect s
join (select CrimeID, IncidentType
```

```sql
from Crime
where IncidentType IN ('Robbery', 'Assault')) c on s.CrimeID = c.CrimeID;
```

	Name	IncidentType
1	Robber 1	Robbery