

SQL CODING CHALLENGE - CRIME MANAGEMENT

CREATING TABLES:

Crime Table:

```
create table crime(  
  crimeid int primary key,  
  incidentType varchar(255),  
  incidentDate date,  
  Location varchar(255),  
  Description text,  
  status varchar(20)  
);
```

Victim Table:

```
create table victim(  
  victimid int primary key,  
  crimeid int,  
  name varchar(255),  
  contactinfo varchar(255),  
  injuries varchar(255),  
  foreign key(crimeid) references crime(crimeid)  
);
```

Suspect Table:

```
create table suspect(  
  suspectid int primary key,  
  crimeid int,  
  name varchar(255),  
  description text,  
  criminalhistory text,  
  foreign key(crimeid) references crime(crimeid)  
);
```

INSERTING VALUES:

Crime 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');

Victim Table:

```
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');
```

Suspect Table:

```
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');
```

SQL 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(*) as total_incident from crime;
```

	total_incident
▶	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

```
select name,age,'victim' as role from victim
union
select name,age,'suspect' as role from suspect
order by age desc;
```

	name	age	role
▶	Robber 1	45	suspect
	Alice Johnson	40	victim
	Suspect 1	38	suspect
	John Doe	35	victim
	Unknown	32	suspect
	Jane Smith	28	victim

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

```
select avg(age) as Avg_Age from(
select age from victim
union all
select age from suspect) as AllPersons;
```

	Avg_Age
▶	36.3333

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

```
select incidentType,count(*) as IncidentCount from crime
where status='open'
group by incidentType;
```

	incidentType	IncidentCount
▶	Robbery	1

8) Find persons with names containing 'Doe'

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

	name
▶	John Doe

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

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

	name	Status
▶	John Doe	Open
	Jane Smith	Under Inves...
	Alice Johnson	Closed
	Robber 1	Open
	Unknown	Under Inves...
	Suspect 1	Closed

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

```
select distinct c.incidentType from crime c join victim v on c.crimeid=v.crimeid where v.age in(30,35)
union
select distinct c.incidentType from crime c join suspect s on c.crimeid=s.crimeid where s.age in(30,35);
```

	incidentType
▶	Robbery

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

```
select v.name from victim v join crime c on c.crimeid=v.crimeid where c.incidentType='Robbery'
union
select s.name from suspect s join crime c on s.crimeid=c.crimeid where c.incidentType='Robbery';
```

	name
▶	John Doe
	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
▶	Robbery
	Theft

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

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

	crimeid	incidentType	incidentDate	Location	Description	status
▶	9	Fraud	2023-10-01	666 Pine St, Townsville	Financial scam investigation	Under Investigation

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

```
select c.*,v.name as Victim_Name,v.contactinfo,v.injuries,s.name as Suspect_Name,s.description,
s.criminalhistory
from crime c
left join victim v on c.crimeid=v.crimeid
left join suspect s on s.crimeid=c.crimeid;
```

	crimeid	incidentType	incidentDate	Location	Description	status	Victim_Name
▶	1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open	John Doe
	2	Homicide	2023-09-20	456 Elm St, Townsville	Investigation into a murder case	Under Investigation	Jane Smith
	3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed	Alice Johnson
	4	Robbery	2023-09-25	111 Pine St, Cityville	Bank robbery	Open	Michael Brown
	5	Robbery	2023-09-26	222 Maple St, Cityville	Jewelry store robbery	Open	Emily Davis
	6	Theft	2023-09-27	333 Cedar St, Townsville	Pickpocketing incident	Open	Daniel Wilson
	7	Theft	2023-09-28	444 Birch St, Townsville	Bicycle stolen	Open	Sophia Martine
	8	Assault	2023-09-30	555 Walnut St, Cityville	Physical altercation reported	Open	Michael Brown

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

```
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>(select min(age) from victim where crimeid=c.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 Inves...
	4	Robbery	2023-09-25	111 Pine St, Cityville	Bank robbery	Open
	7	Theft	2023-09-28	444 Birch St, Townsville	Bicycle stolen	Open

16) Find suspects involved in multiple incidents:

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

	name	Incident_Count
▶	Robber X	2
	Thief Y	2

17) List incidents with no suspects involved.

```
select crimeid from crime where crimeid not in(select distinct crimeid from suspect);
```

	crimeid
▶	8
*	NULL

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';
```

	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 Inves...
	4	Robbery	2023-09-25	111 Pine St, Cityville	Bank robbery	Open
	5	Robbery	2023-09-26	222 Maple St, Cityville	Jewelry store robbery	Open
	10	Robbery	2024-01-10	101 Market St, Cityville	Bank robbery	Open
	11	Robbery	2024-01-12	102 Mall St, Townsville	Jewelry store robbery	Open
*	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.crimeid,c.incidentType,coalesce(s.name,'No Suspect') as suspect_name from crime c
left join suspect s on c.crimeid=s.crimeid;
```

	crimeid	incidentType	suspect_name
►	1	Robbery	Robber 1
	2	Homicide	Unknown
	3	Theft	Suspect 1
	4	Robbery	Robber 2
	5	Robbery	Robber 3
	6	Theft	Thief 1
	7	Theft	Thief 2
	8	Assault	No Suspect
	9	Fraud	Michael Brown
	10	Robbery	Robber X

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

```
select distinct s.* from suspect s join crime c on c.crimeid=s.crimeid
where c.incidentType in('Robbery', 'Assault');
```

	suspectid	crimeid	name	description	criminalhistory	Age
►	1	1	Robber 1	Armed and masked robber	Previous robbery convictions	45
	4	4	Robber 2	Masked individual with a firearm	Previous burglary charges	45
	5	5	Robber 3	Suspect wearing black hoodie	Shoplifting history	30
	10	10	Robber X	Masked individual with a firearm	Previous burglary cases	42
	11	11	Robber X	Repeat offender	Multiple robbery charges	42