

CODING CHALLENGE – SQL

TABLE CREATION:

```
create table Crime(  
  CrimeId int primary key,  
  IncidentType varchar(255),  
  IncidentDate date,  
  Location varchar(255),  
  Description text,  
  Status Varchar(20)  
);
```

```
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)  
);
```

INSERTING RECORDS:

insert into Crime 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');

/*VictimID,CrimeId,Name,ContactInfo,Injuries */

insert into Victim 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 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');

-- Table Updation

alter table Victim add (VictimAge int);

alter table Suspect add (SuspectAge int);

update Victim set VictimAge=42 where VictimId=1;

update Victim set VictimAge=32 where VictimId=2;

update Victim set VictimAge=35 where VictimId=3;

update Suspect set SuspectAge=27 where SuspectId=1;

update Suspect set SuspectAge=NULL where SuspectId=2;

update Suspect set SuspectAge=30 where SuspectId=3;

QUESTIONS:

1 Query to 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 Query to find the total number of incidents

select count(*) as TotalIncidents from Crime;

	TotalIncidents
▶	3

3 Query to list all unique incident types

select distinct IncidentType from Crime;

	IncidentType
▶	Robbery
	Homicide
	Theft

4 Query to retrieve incidents 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 Query to list persons involved in incidents in descending order of age

(select C.CrimeID,V.Name as Name,V.VictimAge as Age from Crime C join Victim V
on C.CrimeId=V.CrimeId union select C.CrimeID,S.Name as Name,S.SuspectAge as Age from
Crime C join Suspect S
on C.CrimeId=S.SuspectID) order by Age desc;

	CrimeID	Name	Age
▶	1	John Doe	42
	3	Alice Johnson	35
	2	Jane Smith	32
	3	Suspect 1	30
	1	Robber 1	27
	2	Unknown	NULL

6 Query to find the average age of persons involved in incidents

```
select avg(age) from(select V.VictimAge as age from Victim V union select S.SuspectAge as age from Suspect S) as AvgAge;
```

	avg(age)
▶	33.2000

7 Query to list incident types and their counts, only for open cases

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

	IncidentType	IncidentTypeCount
▶	Robbery	1

8 Query to find persons with names containing 'Doe'

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

	VictimID	CrimeId	Name	ContactInfo	Injuries	VictimAge
▶	1	1	John Doe	johndoe@example.com	Minor Injuries	42
•	NULL	NULL	NULL	NULL	NULL	NULL

9 Query to retrieve the names of persons involved in open cases and closed cases.

```
select V.Name,'Victim' as PersonType,'Open' as CaseStatus from Victim V join Crime C on V.CrimeId=C.CrimeId where C.Status='Open'
```

```
union select S.Name,'Suspect' as PersonType,'Open' as CaseStatus from Suspect S join Crime C on S.CrimeId=C.CrimeID where C.Status='Open'
```

```
union
```

```
select V.Name,'Victim' as PersonType,'Closed' as CaseStatus from Victim V join Crime C on V.CrimeId=C.CrimeID where C.Status='Closed'
```

union select S.Name,'Suspect' as PersonType,'Closed' as CaseStatus from Suspect S join Crime C on

S.CrimeId=C.CrimeId where C.Status='Closed';

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

10 Query to list incident types where there are persons aged 30 or 35 involved

select distinct C.IncidentType from Crime C join(select CrimeId from Victim where VictimAge between 30 and 35

union select CrimeId from Suspect where SuspectAge between 30 and 35) as PersonAge on C.CrimeId = PersonAge.CrimeId;

	IncidentType
▶	Homicide
	Theft

11 Query to find persons involved in incidents of the same type as 'Robbery'

select Name,'Robbery' as IncidentType from (

select V.Name from Victim V join Crime C on V.CrimeId=C.CrimeId where C.IncidentType='Robbery' union

select S.Name from Suspect S join Crime C on S.CrimeID=C.CrimeId where C.IncidentType='Robbery') as PersonsInvolved;

	Name	IncidentType
▶	John Doe	Robbery
	Robber 1	Robbery

12 Query to list incident types with more than one open case

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

	IncidentType	Count
▶	Robbery	1

13 Query to list all incidents with suspects whose names also appear as victims in other incidents

```
select * from Crime C join Suspect S on C.CrimeId = S.CrimeId
join Victim V on S.Name = V.Name AND S.CrimeId != V.CrimeId;
```

CrimeId	IncidentType	IncidentDate	Location	Description	Status	SuspectId	CrimeId	Name	Description	CriminalHistory	SuspectAge	VictimID	CrimeId	Name	ContactInfo	Injuries

14 Query to retrieve all incidents along with victim and suspect details

```
select          C.CrimeID,C.IncidentType,C.IncidentDate,V.VictimId,V.Name          as
VictimName,v.ContactInfo,
V.Injuries,S.SuspectId,S.Name as SuspectName,S.Description,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	VictimId	VictimName	ContactInfo	Injuries	SuspectId	SuspectName	Description	CriminalHistory
1	Robbery	2023-09-15	1	John Doe	johndoe@example.com	Minor Injuries	1	Robber 1	Armed and masked robber	Previous robbery convictions
2	Homicide	2023-09-20	2	Jane Smith	janesmith@example.com	Deceased	2	Unknown	Investigation Ongoing	None
3	Theft	2023-09-10	3	Alice Johnson	alicejohnson@example.com	None	3	Suspect 1	Shoplifting suspect	Prior shoplifting arrests

15 Query to incidents where the suspect is older than any victim

```
select * from (select C.CrimeId,C.IncidentType,C.IncidentDate from Crime C join Victim V
on C.CrimeId=V.CrimeId
join Suspect S on S.CrimeId=C.CrimeId where S.SuspectAge>V.VictimAge) as Age;
```

CrimeId	IncidentType	IncidentDate

16 Query to find suspects involved in multiple incidents

```
select SuspectId, Name, count(distinct CrimeId) as NumIncidents from Suspect
group by SuspectId, Name having count(distinct CrimeId) > 1;
```

SuspectId	Name	NumIncidents

17 Query to list incidents with no suspects involved

```
select C.CrimeId,C.IncidentType,C.IncidentDate from Crime C join Suspect S on C.CrimeId=S.CrimeId
```

```
where S.Name='Unknown';
```

	CrimeId	IncidentType	IncidentDate
▶	2	Homicide	2023-09-20

18 Query to 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' union
```

```
select * from Crime where IncidentType='Robbery') order 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

19 Query to 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.IncidentType,C.Location,C.Description,S.SuspectId,
```

```
if(S.Name!='Unknown',S.Name,'No Suspect') as SuspectName from Crime C left join Suspect S on C.CrimeId=S.CrimeId;
```

	CrimeId	IncidentType	IncidentType	Location	Description	SuspectId	SuspectName
▶	1	Robbery	Robbery	123 Main St, Cityville	Armed Robbery at a convenience store	1	Robber 1
	2	Homicide	Homicide	456 Elm St, Townsville	Investigation into a murder case	2	No Suspect
	3	Theft	Theft	789 Oak St, Village	456 Elm St, Townsville It at a mall	3	Suspect 1

20 Query to list all suspects who have been involved in incidents with incident types 'Robbery' or 'Assault'

```
select distinct * from Suspect S join Crime C on S.CrimeId = C.CrimeId
```

```
where C.IncidentType = 'Robbery' or C.IncidentType = 'Assault';
```

	SuspectId	CrimeId	Name	Description	CriminalHistory	SuspectAge	CrimeId	IncidentType	IncidentDate	Location	Description
▶	1	1	Robber 1	Armed and masked robber	Previous robbery convictions	27	1	Robbery	2023-09-15	123 Main St, Cityville	Armed Robbery at a convenience store