Crime Management Coding Challenge SQL

Creating database

Query

```
create database crime;
show databases;
```

Output

10	11:48:24	create database crime	1 row(s) affected
12	11:49:01	show databases	8 row(s) returned

Database
crime
information_schema
mysql
order_details
performance_schema

Creating Tables

Crime Table

Query

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

```
desc crime;
```

Output

13	11:53:17	create table Crime (CrimeID int primary key, In...		0 row(s) affected
14	11:53:35	desc crime		6 row(s) returned

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	

Victim Table

Query

```
create table Victim (
    VictimID int primary key,
    CrimeID int,
    Name varchar(255),
    ContactInfo varchar(255),
    Injuries varchar(255),
    Age int,
    foreign key (CrimeID) references Crime(CrimeID)
);
desc Victim;
```

Output

16	11:58:52	create table Victim (VictimID int primary key, Cr...		0 row(s) affected
17	11:59:09	desc Victim		6 row(s) returned

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	

Suspect Table

Query

```
create table Suspect (
    SuspectID int primary key,
    CrimeID int,
    Name varchar(255),
    Description text,
    CriminalHistory text,
    Age int,
    foreign key (CrimeID) references Crime(CrimeID)
);

desc Suspect;
```

Output

22	12:05:45	create table Suspect (	SuspectID int primary key,	CrimeID int,	Name varchar(255),	Description text,	...	0 row(s) affected
23	12:05:49	desc Suspect						6 row(s) returned

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	

Inserting the values into the tables

Crime table

Query

```
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'),
(4, 'Robbery', '2023-09-02', '22 Lakeview Ave, Rivertown', 'Street mugging case', 'Open'),
(5, 'Assault', '2023-09-05', '33 Hill St, Cityville', 'Bar fight incident', 'Closed'),
(6, 'Homicide', '2023-09-07', '12 Beach Rd, Seaville', 'Double homicide case', 'Open'),
(7, 'Burglary', '2023-09-03', '88 Ocean Dr, Coastville', 'Home burglary', 'Closed'),
(8, 'Assault', '2023-09-04', '77 Forest Rd, Greenfield', 'Park assault', 'Open'),
(9, 'Robbery', '2023-09-08', '101 River St, Newcity', 'Bank robbery', 'Open'),
(10, 'Vandalism', '2023-09-22', '99 Street Ln, Oldtown', 'School wall graffiti', 'Closed');
select * from Crime;
```

```sql
INSERT INTO Crime (CrimeID, IncidentType, IncidentDate, Location, Description, Status)
VALUES (11, 'Burglary', '2023-09-09', '200 Willow St, Windtown', 'Break-in reported, no suspect identified', 'Open');
```

Output

19	12:04:12	insert into Crime (CrimeID, IncidentType, IncidentDate, Location, Description, Status) values (1, 'Robbery', '2023-...	10 row(s) affected Records: 10 Duplicates: 0 Warnings: 0	
20	12:04:21	select * from Crime LIMIT 0, 1000	10 row(s) returned	

26	12:12:08	INSERT INTO Crime (CrimeID, IncidentType, IncidentDate, Location, Description, Status) VALUES (11, 'Burglary...	1 row(s) affected	
27	12:12:12	select * from Crime LIMIT 0, 1000	11 row(s) returned	

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
4	Robbery	2023-09-02	22 Lakeview Ave, Rivertown	Street mugging case	Open
5	Assault	2023-09-05	33 Hill St, Cityville	Bar fight incident	Closed
6	Homicide	2023-09-07	12 Beach Rd, Seaville	Double homicide case	Open
7	Burglary	2023-09-03	88 Ocean Dr, Coastville	Home burglary	Closed
8	Assault	2023-09-04	77 Forest Rd, Greenfield	Park assault	Open
9	Robbery	2023-09-08	101 River St, Newcity	Bank robbery	Open
10	Vandalism	2023-09-22	99 Street Ln, Oldtown	School wall graffiti	Closed
11	Burglary	2023-09-09	200 Willow St, Windtown	Break-in reported, no suspect identified	Open
NULL	NULL	NULL	NULL	NULL	NULL

Victim table

Query

```sql
insert into Victim (VictimID, CrimeID, Name, ContactInfo, Injuries, Age) values
(1, 1, 'John Doe', 'johndoe@example.com', 'Minor injuries', 32),
(2, 2, 'Jane Smith', 'janesmith@example.com', 'Deceased', 45),
(3, 3, 'Alice Johnson', 'alicej@example.com', 'None', 28),
(4, 4, 'Emily Doe', 'emilydoe@example.com', 'Bruised arm', 30),
(5, 5, 'Carlos Vega', 'carlosv@example.com', 'Fractured rib', 35),
(6, 6, 'Sarah Connor', 'sconnor@example.com', 'Critical condition', 27),
(7, 7, 'Michael Ray', 'mray@example.com', 'Broken window injury', 40),
(8, 8, 'Laura Doe', 'lauradoe@example.com', 'Cut on hand', 33),
(9, 9, 'James Lee', 'jlee@example.com', 'Gunshot wound', 36),
(10, 10, 'Tony Stark', 'tstark@example.com', 'Paint fumes', 50),
(11, 11, 'Diana Prince', 'diana@example.com', 'No physical injuries', 38);
select * from Victim;
```

Output

32	12:18:10	insert into Victim (VictimID, CrimeID, Name, ContactI...	11 row(s) affected Records: 11 Duplicates: 0 Wam...	0.
33	12:18:23	select * from Victim LIMIT 0, 1000	11 row(s) returned	0.

VictimID	CrimeID	Name	ContactInfo	Injuries	Age
1	1	John Doe	johndoe@example.com	Minor injuries	32
2	2	Jane Smith	janesmith@example.com	Deceased	45
3	3	Alice Johnson	alicej@example.com	None	28
4	4	Emily Doe	emilydoe@example.com	Bruised arm	30
5	5	Carlos Vega	carlosv@example.com	Fractured rib	35
6	6	Sarah Connor	sconnor@example.com	Critical condition	27
7	7	Michael Ray	mray@example.com	Broken window injury	40
8	8	Laura Doe	lauradoe@example.com	Cut on hand	33
9	9	James Lee	jlee@example.com	Gunshot wound	36
10	10	Tony Stark	tstark@example.com	Paint fumes	50
11	11	Diana Prince	diana@example.com	No physical injuries	38

Suspect table

Query

```sql
INSERT INTO Suspect (SuspectID, CrimeID, Name, Description, CriminalHistory, Age) VALUES
(1, 1, 'Robber 1', 'Armed and masked robber', 'Previous robbery convictions', 35),
(2, 2, 'Unknown', 'Investigation ongoing', NULL, NULL),
(3, 3, 'Suspect 1', 'Shoplifting suspect', 'Prior shoplifting arrests',25),
(4, 4, 'John Doe', 'Repeat offender', 'Assault and robbery', 40),
(5, 5, 'Emily Ray', 'Involved in altercation', 'First-time offender', 30),
(6, 6, 'Suspect X', 'Witness identified', 'Murder suspect', 42),
(7, 7, 'Unknown', 'Suspect fled scene', NULL, NULL),
(8, 8, 'John Wayne', 'Seen running', 'Assault in 2019', 31),
(9, 9, 'Robber 1', 'Same as case #1', 'Repeat robbery suspect', 35),
(10, 10, 'Tony Stark', 'Graffiti suspect', 'Minor vandalism', 50),
(11, 5, 'John Doe', 'Also seen near crime scene', 'Repeat offender', 40);
SELECT * FROM suspect;
```

Output

34	12:20:44	INSERT INTO Suspect (SuspectID, CrimeID, Name...	11 row(s) affected Records: 11 Duplicates: 0 Warn...
35	12:21:10	SELECT * FROM suspect LIMIT 0, 1000	11 row(s) returned

SuspectID	CrimeID	Name	Description	CriminalHistory	Age
1	1	Robber 1	Armed and masked robber	Previous robbery convictions	35
2	2	Unknown	Investigation ongoing	NULL	NULL
3	3	Suspect 1	Shoplifting suspect	Prior shoplifting arrests	25
4	4	John Doe	Repeat offender	Assault and robbery	40
5	5	Emily Ray	Involved in altercation	First-time offender	30
6	6	Suspect X	Witness identified	Murder suspect	42
7	7	Unknown	Suspect fled scene	NULL	NULL
8	8	John Wayne	Seen running	Assault in 2019	31
9	9	Robber 1	Same as case #1	Repeat robbery suspect	35
10	10	Tony Stark	Graffiti suspect	Minor vandalism	50
11	5	John Doe	Also seen near crime scene	Repeat offender	40

Queries

1. Select all open incidents.

Query

```
/*1. Select all open incidents*/
select * from crime
where status = 'Open';
```

Output

37 12:25:14 select * from crime where status = 'Open' LIMIT 0, 1000 6 row(s) returned

CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open
4	Robbery	2023-09-02	22 Lakeview Ave, Rivertown	Street mugging case	Open
6	Homicide	2023-09-07	12 Beach Rd, Seaville	Double homicide case	Open
8	Assault	2023-09-04	77 Forest Rd, Greenfield	Park assault	Open
9	Robbery	2023-09-08	101 River St, Newcity	Bank robbery	Open
11	Burglary	2023-09-09	200 Willow St, Windtown	Break-in reported, no suspect identified	Open

2. Find the total number of incidents.

Query

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

Output

39 12:31:16 select count(*) as total_number_incidents from crime LIMIT 0, 1000 1 row(s) returned

total_number_incidents
11

3. List all unique incident types.

Query

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

Output

40 12:34:03 select distinct incidenttype from crime LIMIT 0, 1000 6 row(s) returned

	incidenttype
▶	Robbery
	Homicide
	Theft
	Assault
	Burglary
	Vandalism

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

Query

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

Output

41 12:38:05 select * from crime where IncidentDate between '2023-09-01' and '2023-09-10' LIMIT 0, 1000 8 row(s) returned

	CrimeID	IncidentType	IncidentDate	Location	Description	Status
▶	3	Theft	2023-09-10	789 Oak St, Villagetown	Shoplifting incident at a mall	Closed
	4	Robbery	2023-09-02	22 Lakeview Ave, Rivertown	Street mugging case	Open
	5	Assault	2023-09-05	33 Hill St, Cityville	Bar fight incident	Closed
	6	Homicide	2023-09-07	12 Beach Rd, Seaville	Double homicide case	Open
	7	Burglary	2023-09-03	88 Ocean Dr, Coastville	Home burglary	Closed
	8	Assault	2023-09-04	77 Forest Rd, Greenfield	Park assault	Open
	9	Robbery	2023-09-08	101 River St, Newcity	Bank robbery	Open
	11	Burglary	2023-09-09	200 Willow St, Windtown	Break-in reported, no suspect identified	Open
	NULL	NULL	NULL	NULL	NULL	NULL

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

Query

```
select name, age from victim
union
select name, age from suspect where age is not null
order by age desc;
```

Output

44 12:46:18 select name, age from victim union select name, age from suspect where age is not null order by age desc 17 row(s) returned

name	age
Tony Stark	50
Jane Smith	45
Suspect X	42
Michael Ray	40
John Doe	40
Diana Prince	38
James Lee	36
Carlos Vega	35
Robber 1	35
Laura Doe	33
John Doe	32
John Wayne	31
Emily Doe	30
Emily Ray	30
Alice Johnson	28
Sarah Connor	27
Suspect 1	25

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

Query

```
select avg(age) as average_age
from (
    select age from victim
    union all
    select age from suspect where age is not null
) as all_persons;
```

Output

45 12:51:53 select avg(age) as average_age from (select age from victim union all select age from suspect where ag... 1 row(s) returned

average_age
36.1000

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

Query

```
select incidenttype, count(*) from crime
where status = 'Open'
group by incidenttype;
```

Output

49 12:57:37 select incidenttype, count(*) from crime where status = 'Open' group by incidenttype LIMIT 0, 1000 4 row(s) returned

incidenttype	count(*)
Robbery	3
Homicide	1
Assault	1
Burglary	1

8. Find persons with names containing 'Doe'.

Query

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

Output

53 13:02:33 select name from victim where name like '%Doe%' union select name from suspect where name like '%Doe%' 3 row(s) returned

name
John Doe
Emily Doe
Laura Doe

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

Query

```
select v.name, c.status
from victim v
join crime c on v.crimeid = c.crimeid
where c.status in ('Open', 'Closed')
union
select s.name, c.status
from suspect s
join crime c on s.crimeid = c.crimeid
where c.status in ('Open', 'Closed');
```

Output

54	13:14:53	select v.name, c.status from victim v join crime c on v.crimeid = c.crimeid where c.status in ('Open', 'Closed') unio...	17 row(s) returned

name	status
John Doe	Open
Alice Johnson	Closed
Emily Doe	Open
Carlos Vega	Closed
Sarah Connor	Open
Michael Ray	Closed
Laura Doe	Open
James Lee	Open
Tony Stark	Closed
Diana Prince	Open
Robber 1	Open
Suspect 1	Closed
Emily Ray	Closed
John Doe	Closed
Suspect X	Open
Unknown	Closed
John Wayne	Open

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

Query

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

Output

57 13:21:42 select c.incidenttype from crime c join victim v on v.crimeid = c.crimeid where v.age = 30 or v.age = 35 union sel... 2 row(s) returned

incidenttype
Robbery
Assault

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

Query

```
select name from victim
where crimeid in (
    select crimeid from crime
    where incidenttype = 'Robbery'
)
union
select name from suspect
where crimeid in (
    select crimeid from crime
    where incidenttype = 'Robbery'
);
```

Output

59 13:29:21 select name from victim where crimeid in (select crimeid from crime where incidenttype = 'Robbery') union s... 4 row(s) returned

	name
▶	John Doe
	Emily Doe
	James Lee
	Robber 1

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

Query

Updating the row before finding the open case more than one

```
update crime set status = 'Open' where crimeid = 2;

select incidenttype, COUNT(*) as open_case_count from crime
where status = 'Open'
group by incidenttype
having COUNT(*) > 1;
```

Output

✓	65	13:34:41	update crime set status = 'Open' where crimeid = 2	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0
✓	66	13:35:59	select incidenttype, COUNT(*) as open_case_count from crime where status = 'Open' group by incidenttype havi...	2 row(s) returned

	incidenttype	open_case_count
▶	Robbery	3
	Homicide	2

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

Query

```
select distinct c.* FROM crime c
join suspect s on c.crimeid = s.crimeid
where s.name in (
    select v.name from victim v
);
```

Output

67 13:38:26 select distinct c.* FROM crime c join suspect s on c.crimeid = s.crimeid where s.name in (select v.name from v... 3 row(s) returned

CrimeID	IncidentType	IncidentDate	Location	Description	Status
4	Robbery	2023-09-02	22 Lakeview Ave, Rivertown	Street mugging case	Open
5	Assault	2023-09-05	33 Hill St, Cityville	Bar fight incident	Closed
10	Vandalism	2023-09-22	99 Street Ln, Oldtown	School wall graffiti	Closed

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

Query

```
select c.CrimeID, c.IncidentType,
  v.Name as VictimName,
  s.Name as SuspectName
from crime c
left join victim v on c.CrimeID = v.CrimeID
left join suspect s on c.CrimeID = s.CrimeID;
```

Output

70 13:43:48 select c.CrimeID, c.IncidentType, v.Name as VictimName, s.Name as SuspectName from crime c left join victi... 12 row(s) returned

CrimeID	IncidentType	VictimName	SuspectName
1	Robbery	John Doe	Robber 1
2	Homicide	Jane Smith	Unknown
3	Theft	Alice Johnson	Suspect 1
4	Robbery	Emily Doe	John Doe
5	Assault	Carlos Vega	Emily Ray
5	Assault	Carlos Vega	John Doe
6	Homicide	Sarah Connor	Suspect X
7	Burglary	Michael Ray	Unknown
8	Assault	Laura Doe	John Wayne
9	Robbery	James Lee	Robber 1
10	Vandalism	Tony Stark	Tony Stark
11	Burglary	Diana Prince	NULL

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

Query

```sql
select * from crime c
where c.CrimeID in (
    select s.CrimeID from suspect s
    where s.Age > (select MIN(v.Age) from victim v
    )
);
```

Output

71 13:47:03 select * from crime c where c.CrimeID in (select s.CrimeID from suspect s where s.Age > (select MIN(v.Age)... 7 row(s) returned

CrimeID	IncidentType	IncidentDate	Location	Description	Status
1	Robbery	2023-09-15	123 Main St, Cityville	Armed robbery at a convenience store	Open
4	Robbery	2023-09-02	22 Lakeview Ave, Rivertown	Street mugging case	Open
5	Assault	2023-09-05	33 Hill St, Cityville	Bar fight incident	Closed
6	Homicide	2023-09-07	12 Beach Rd, Seaville	Double homicide case	Open
8	Assault	2023-09-04	77 Forest Rd, Greenfield	Park assault	Open
9	Robbery	2023-09-08	101 River St, Newcity	Bank robbery	Open
10	Vandalism	2023-09-22	99 Street Ln, Oldtown	School wall graffiti	Closed
NULL	NULL	NULL	NULL	NULL	NULL

16. Find suspects involved in multiple incidents

Query

```sql
select name
from suspect
group by name
having count(distinct crimeid) > 1;
```

Output

72 13:48:29 select name from suspect group by name having count(distinct crimeid) > 1 LIMIT 0, 1000 3 row(s) returned

name
John Doe
Robber 1
Unknown

17. List incidents with no suspects involved.

Query

Inserting one more value before running the above question's query

```
insert into crime (crimeid, incidenttype, incidentdate, location, description, status)
values (12, 'Vandalism', '2023-09-25', '202 Pine St, Greentown', 'Graffiti on public property', 'Open');
select *
from crime
where crimeid not in (
    select crimeid from suspect
);
```

Output

75 13:51:08 select * from crime where crimeid not in (select crimeid from suspect) LIMIT 0, 1000 2 row(s) returned

CrimeID	IncidentType	IncidentDate	Location	Description	Status
11	Burglary	2023-09-09	200 Willow St, Windtown	Break-in reported, no suspect identified	Open
12	Vandalism	2023-09-25	202 Pine St, Greentown	Graffiti on public property	Open
NULL	NULL	NULL	NULL	NULL	NULL

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

Query

Output

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

Query

```
select
  c.crimeid,
  c.incidenttype,
  c.incidentdate,
  c.location,
  c.status,
  ifnull(s.name, 'No Suspect') as suspect_name
from crime c
left join suspect s on c.crimeid = s.crimeid;
```

Output

81 13:55:34 select c.crimeid, c.incidenttype, c.incidentdate, c.location, c.status, ifnull(s.name, 'No Suspect') as suspe... 15 row(s) returned

crimeid	incidenttype	incidentdate	location	status	suspect_name
1	Robbery	2023-09-15	123 Main St, Cityville	Open	Robber 1
2	Homicide	2023-09-20	456 Elm St, Townsville	Open	Unknown
3	Theft	2023-09-10	789 Oak St, Villagetown	Closed	Suspect 1
4	Robbery	2023-09-02	22 Lakeview Ave, Rivertown	Open	John Doe
5	Assault	2023-09-05	33 Hill St, Cityville	Closed	Emily Ray
5	Assault	2023-09-05	33 Hill St, Cityville	Closed	John Doe
6	Homicide	2023-09-07	12 Beach Rd, Seaville	Open	Suspect X
7	Burglary	2023-09-03	88 Ocean Dr, Coastville	Closed	Unknown
8	Assault	2023-09-04	77 Forest Rd, Greenfield	Open	John Wayne
9	Robbery	2023-09-08	101 River St, Newcity	Open	Robber 1
10	Vandalism	2023-09-22	99 Street Ln, Oldtown	Closed	Tony Stark
11	Burglary	2023-09-09	200 Willow St, Windtown	Open	No Suspect
12	Vandalism	2023-09-25	202 Pine St, Greentown	Open	No Suspect
14	Robbery	2023-09-30	501 Pine St, Springfield	Open	No Suspect

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

Query

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

Output

82 13:56:44 select distinct s.name from suspect s join crime c on s.crimeid = c.crimeid where c.incidenttype in ('Robbery', 'Ass... 4 row(s) returned

name
Robber 1
John Doe
Emily Ray
John Wayne