Coding Challenge SQL - Crime Management

Crime Management Shema DDL and DML

```
-- Create tables
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),
           age int,
           contactinfo varchar(255),
           injuries varchar(255),
           foreign key (crimeid) references crime(crimeid)
        );
CREATE TABLE Suspect (
           suspectid int primary key,
           crimeid int,
           name varchar(255),
           age int,
           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'),
- (4, 'robbery', '2023-09-21', '987 pine st, cityville', 'bank robbery reported', 'open'),
- (5, 'assault', '2023-09-18', '321 birch st, townsville', 'physical altercation outside club', 'open'),
- (6, 'vandalism', '2023-09-25', '999 broken wall st, ghosttown', 'graffiti on public property', 'open');

INSERT INTO Victim (VictimID, CrimeID, Name, ContactInfo, Injuries)

VALUES

- (1, 1, 'john doe', 35, 'johndoe@example.com', 'minor injuries'),
- (2, 2, 'jane smith', 29, 'janesmith@example.com', 'deceased'),
- (3, 3, 'alice johnson', 40, 'alicejohnson@example.com', 'none'),
- (4, 4, 'emma clark', 30, 'emma@example.com', 'minor'),
- (5, 5, 'bob ray', 35, 'bob@example.com', 'moderate');

INSERT INTO Suspect (SuspectID, CrimeID, Name, Description, CriminalHistory)

VALUES

- (1, 1, 'robber 1', 45, 'armed and masked robber', 'previous robbery convictions'),
- (2, 2, 'unknown', 27, 'investigation ongoing', null),
- (3, 3, 'suspect 1', 32, 'shoplifting suspect', 'prior shoplifting arrests'),
- (4, 4, 'robber 2', 30, 'armed with knife', 'prior robbery and assault cases'),
- (5, 5, 'suspect 2', 35, 'club brawl suspect', null),
- (6, 2, 'john doe', 42, 'repeat offender', 'prior assault charges'),
- (7, 4, 'robber 1', 45, 'duplicate entry in another case', 'repeat offender');

Solve the below queries:

1. Select all open incidents.

select * from Crime where status = 'open';

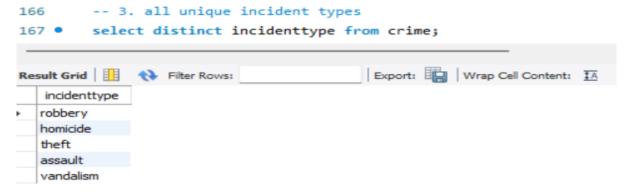
```
160
         -- 1. select all open incidents
         select * from crime where status = 'open';
161 •
Edit: 🚄 📆 🗒 Export/Import: 🗓 👸
           incidenttype incidentdate location
                                                              description
                                                                                               status
                       2023-09-15 123 main st, cityville
                                                             armed robbery at a convenience store
                                                                                              open
                      2023-09-21 987 pine st, cityville
                                                            bank robbery reported
                       2023-09-18
                                  321 birch st, townsville
                                                             physical altercation outside club
                                                                                              open
                       2023-09-25 999 broken wall st, ghosttown graffiti on public property
                                                                                              open
```

2. Find the total number of incidents.

select count(*) as totalincidents from crime;

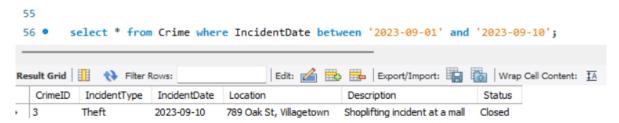
3. List all unique incident types.

select distinct incidenttype from Crime;



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';



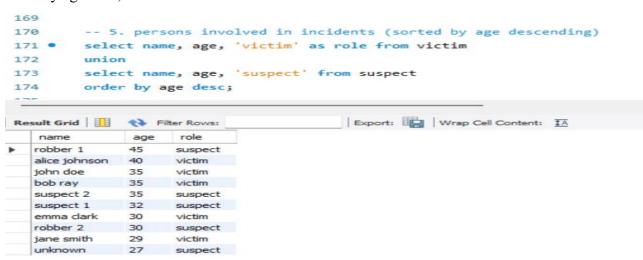
5. List persons involved in incidents in descending order of age.

select name, age, 'victim' as role from victim

union

select name, age, 'suspect' from suspect

order by age desc;



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

```
select round(avg(age), 2) as average from (
select age from victim
union all
select age from suspect
) as allpersons;
  178
          -- 6. average age of all persons
  179 • ⊖ select round(avg(age), 2) as average from (
  180
              select age from victim
              union all
  182
              select age from suspect
         ) as allpersons;
  183
  184
  Export: Wrap Cell Content: IA
    average
   35.42
```

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

```
select incidenttype, count(*) as opencases
  from crime
  where status = 'open'
  group by Incidenttype;
         -- 7. incident types and their counts (for open cases only)
185
         select incidenttype, count(*) as opencases
186 •
        from crime
187
        where status = 'open'
188
         group by incidenttype;
189
                                          Export: Wrap Cell Content: TA
incidenttype opencases
  robbery
              2
  assault
             1
  vandalism
```

8. Find persons with names containing 'Doe'.

select Name from Victim where Name like '%Doe%' union

select Name from Suspect where Name like '%Doe%';

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

```
select v.name from victim v

join crime c on v.crimeid = c.crimeid

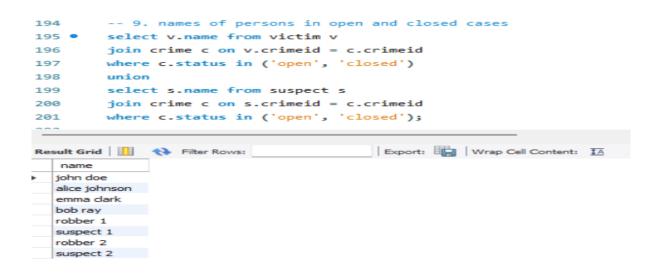
where c.status in ('open', 'closed')

union

select s.name from suspect s

join crime c on s.crimeid = c.crimeid

where c.status in ('open', 'closed');
```



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

select distinct c.incidenttype from crime c left join victim v on c.crimeid = v.crimeid left join suspect s on c.crimeid = s.crimeid where v.age in (30, 35) or s.age in (30, 35);

```
203
        -- 10. incident types with persons aged 30 or 35
       select distinct c.incidenttype
204
        from crime c
205
        left join victim v on c.crimeid = v.crimeid
        left join suspect s on c.crimeid = s.crimeid
207
       where v.age in (30, 35) or s.age in (30, 35);
208
Export: Wrap Cell Content: IA
  incidenttype
  robbery
  assault
```

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

```
select v.name, 'victim' as role
from victim v join crime c on v.crimeid = c.crimeid
where c.incidenttype = 'robbery'
union
select s.name, 'suspect'
from suspect s join crime c on s.crimeid = c.crimeid
where c.incidenttype = 'robbery';
    210
             -- 11. persons involved in same incident type as 'robbery'
             select v.name, 'victim' as role
    211 •
    212
             from victim v join crime c on v.crimeid = c.crimeid
             where c.incidenttype = 'robbery'
    213
    214
             union
             select s.name, 'suspect'
    215
            from suspect s join crime c on s.crimeid = c.crimeid
    216
            where c.incidenttype = 'robbery';
    217
    Export: Wrap Cell Content: IA
       name
              role
      john doe
                 victim
```

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

emma clark victim robber 1 suspect robber 2 suspect

```
select incidenttype, count(*) as casecount
from crime
where status = 'open'
group by incidenttype
having count(*) > 1;
218
219
        -- 12. incident types with more than one open case
        select incidenttype, count(*) as casecount
220 •
        from crime
221
        where status = 'open'
222
        group by incidenttype
223
224
        having count(*) > 1;
                                       Export: Wrap Cell Content: IA
incidenttype casecount
 robbery
             2
```

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

description

investigation into a murder case

status

under investigation

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

select c.*, v.name as victimname, s.name as suspectname

2023-09-20 456 elm st, townsville

from crime c

left join victim v on c.crimeid = v.crimeid

crimeid incidenttype incidentdate location

homicide

left join suspect s on c.crimeid = s.crimeid;



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
where s.age > all (
    select age from victim where crimeid = c.crimeid
);
```

```
-- 15. incidents where suspect is older than any victim
240
         select distinct c.*
241 •
         from crime c
242
         join suspect s on c.crimeid = s.crimeid
243
244
      where s.age > all (
              select age from victim where crimeid = c.crimeid
245
246
         );
Export: Wrap Cell Content: IA
   crimeid
           incidenttype
                        incidentdate
                                    location
                                                        description
                                                                                         status
           robberv
                       2023-09-15
                                    123 main st, cityville
                                                        armed robbery at a convenience store
  1
                                                                                         open
  2
           homicide
                       2023-09-20
                                    456 elm st, townsville
                                                       investigation into a murder case
                                                                                         under investigation
  4
          robbery
                       2023-09-21
                                    987 pine st, cityville
                                                       bank robbery reported
                                                                                         open
```

16. Find suspects involved in multiple incidents:

```
select name, count(*) as incidentcount
from suspect
group by name
having count(*) > 1;
248
        -- 16. suspects involved in multiple incidents
        select name, count(*) as incidentcount
249
        from suspect
        group by name
251
252
        having count(*) > 1;
Export: Wrap Cell Content: TA
   name
           incidentcount
 robber 1
```

17. List incidents with no suspects involved.

6

vandalism

2023-09-25

```
select * from crime
      where crimeid not in (select crimeid from suspect);
         -- 17. incidents with no suspects involved
254
         select * from crime
255 •
         where crimeid not in (select crimeid from suspect);
256
                                             Edit: 🚰 🖶 Export/Import: 📳 📸 Wrap Cell Content: 🖽
Result Grid
              Filter Rows:
   crimeid
           incidenttype
                       incidentdate
                                   location
                                                             description
                                                                                   status
```

graffiti on public property

open

999 broken wall st, ghosttown

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 exists (
      select 1 from crime where incidenttype = 'homicide'
   )
    and not exists (
      select 1 from crime where incidenttype not in ('homicide', 'robbery')
   );
258
        -- 18. at least one 'homicide' and all others 'robbery'
        select * from crime
259 •
     261
            select 1 from crime where incidenttype = 'homicide'
      (
262

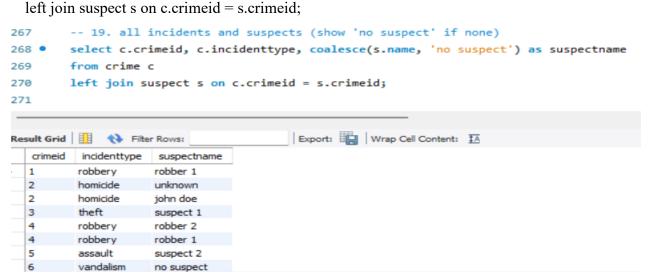
    and not exists (
263
264
            select 1 from crime where incidenttype not in ('homicide', 'robbery')
      );
265
266
                                        Edit: 🚄 📆 🖺 Export/Import: 📳 🐻 | Wrap Cell Content: 🏗
crimeid incidenttype incidentdate location
                                       description status
  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.

spect' if there are none.

select c.crimeid, c.incidenttype, coalesce(s.name, 'no suspect') as suspectname

from crime c



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

select s.* from suspect s

join crime c on s.crimeid = c.crimeid

where c.incidenttype in ('robbery', 'assault');

```
-- 20. suspects in incidents of type 'robbery' or 'assault'
273 •
        select s.*
274
        from suspect s
275
        join crime c on s.crimeid = c.crimeid
        where c.incidenttype in ('robbery', 'assault');
Export: Wrap Cell Content: IA
                         age description
  suspectid crimeid name
                                           criminalhistory
                 robber 1
                         45
                               armed and masked robber
                                                      previous robbery convictions
                robber 2 30 armed with knife prior robbery and assault cases
          4
  4
                 robber 1
                          45
                               duplicate entry in another case
                                                      repeat offender
                 suspect 2 35 club brawl suspect
          5
```