Coding Challenge SQL
Crime Management Schema DDL and DML

Name : RISHATHA SHAHIN B

Superset ID : 5294964

Email : rishatha2004@gmail.com

Batch : C# Batch 4

--Coding challenge-Crime Management

drop table if exists crime,victim,suspect;

--creating 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),
```

```sql
contactinfo varchar(255),

injuries varchar(255),

age int,

foreign key (crimeid) references crime(crimeid));


create table suspect (

suspectid int primary key,

crimeid int,

name varchar(255),

description text,

criminalhistory text,

age int,

foreign key (crimeid) references crime(crimeid));
```

--inserting values

```sql
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');


insert into victim values

(1, 1, 'john doe', 'johndoe@example.com', 'minor injuries', 30),

(2, 2, 'jane smith', 'janesmith@example.com', 'deceased', 35),

(3, 3, 'alice johnson', 'alicejohnson@example.com', 'none', 25);
```

insert into suspect values

(1, 1, 'robber 1', 'armed and masked robber', 'previous robbery convictions', 40),

(2, 2, 'unknown', 'investigation ongoing', null, 34),

(3, 3, 'suspect 1', 'shoplifting suspect', 'prior shoplifting arrests', 29);

select * from crime;

select * from victim;

select * from suspect;

--Queries

--1.Select all open incidents

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

select count(*) as total_incidents from crime;

	total_incidents
1	3

--3.List all unique incident types

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'

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

select name,age from victim

union

select name,age from suspect

order by age desc;

	name	age
1	robber 1	40
2	jane smith	35
3	unknown	34
4	john doe	30
5	suspect 1	29
6	alice johnson	25

--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 all_persons;

	avg_age
1	32

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

select incidenttype, count(*) as incidentcounts

from crime

where status = 'open'

group by incidenttype;

	incidenttype	incidentcounts
1	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
1	john 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')

```sql
union
select s.name from suspect s
join crime c on s.crimeid = c.crimeid
where c.status in ('open', 'closed');


--or (using or operator)


select v.name from victim v
join crime c on v.crimeid=c.crimeid
where c.status='open' or c.status='closed'
union
select s.name from suspect s
join crime c on s.crimeid=c.crimeid
where c.status='open' or c.status='closed';
```

	name
1	alice johnson
2	john doe
3	robber 1
4	suspect 1

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

```sql
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
```

```sql
join suspect s on c.crimeid = s.crimeid
where s.age in (30, 35);


--or (using or operator)
select c.incidenttype as incidenttypes
from crime c
join victim v on v.crimeid=c.crimeid
where v.age = 30 or v.age=35
union
select c.incidenttype as incidenttypes
from crime c
join suspect s on s.crimeid=c.crimeid
where s.age = 30 or s.age=35
```

	incidenttype
1	homicide
2	robbery

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

```sql
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 c.crimeid=s.crimeid
where c.incidenttype='robbery';
```

	name
1	john doe
2	robber 1

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

select incidenttype, count(*) as counts

from crime

where status = 'open'

group by incidenttype

having count(*) > 1;

 --(result-empty-crime table has only one open case)

incidenttype	counts

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

select c.*

from crime c

join suspect s on c.crimeid = s.crimeid

where s.name in (select name from victim);

 /*(result-empty-no such data in the given schema,victims and suspect names are different)*/

crimeid	incidenttype	incidentdate	location	description	status

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

select c.crimeid, c.incidenttype, c.status, v.name as victim_name, s.name as suspect_name

from crime c

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

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

--or (display by adding suspect and victim name to crime table)

select c.*, v.name as victim_name, s.name as suspect_name

from crime c

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

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

	crimeid	incidenttype	status	victim_name	suspect_name
1	1	robbery	open	john doe	robber 1
2	2	homicide	under investigation	jane smith	unknown
3	3	theft	closed	alice johnson	suspect 1

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

select c.*

from crime c

join suspect s on c.crimeid = s.crimeid

where s.age > all (select v.age

                 from victim v

                 where v.crimeid = c.crimeid);

	crimeid	incidenttype	incidentdate	location	description	status
1	1	robbery	2023-09-15	123 main st, cityville	armed robbery at a convenience store	open
2	3	theft	2023-09-10	789 oak st, villagetown	shoplifting incident at a mall	closed

--16. Find suspects involved in multiple incidents

select name, count(*) as incident_count

from suspect

group by name

having count(*) > 1;

--(result-empty-only one incident in the given scheme)

name	incident_count

--17.List incidents with no suspects involved

select * from crime

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

--(result-empty-all incidents has a suspect)

crimeid	incidenttype	incidentdate	location	description	status

--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

not exists (

   select 1 from crime

```
    where incidenttype not in ('robbery', 'homicide'))
and exists (
    select 1 from crime
    where incidenttype = 'homicide');
--(result-empty-has "theft" as a incident type)
```

crimeid	incidenttype	incidentdate	location	description	status

--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	1	robbery	robber 1
2	2	homicide	unknown
3	3	theft	suspect 1

--20.List all suspects who have been involved in incidents with incident types 'Robbery' or 'Assault'
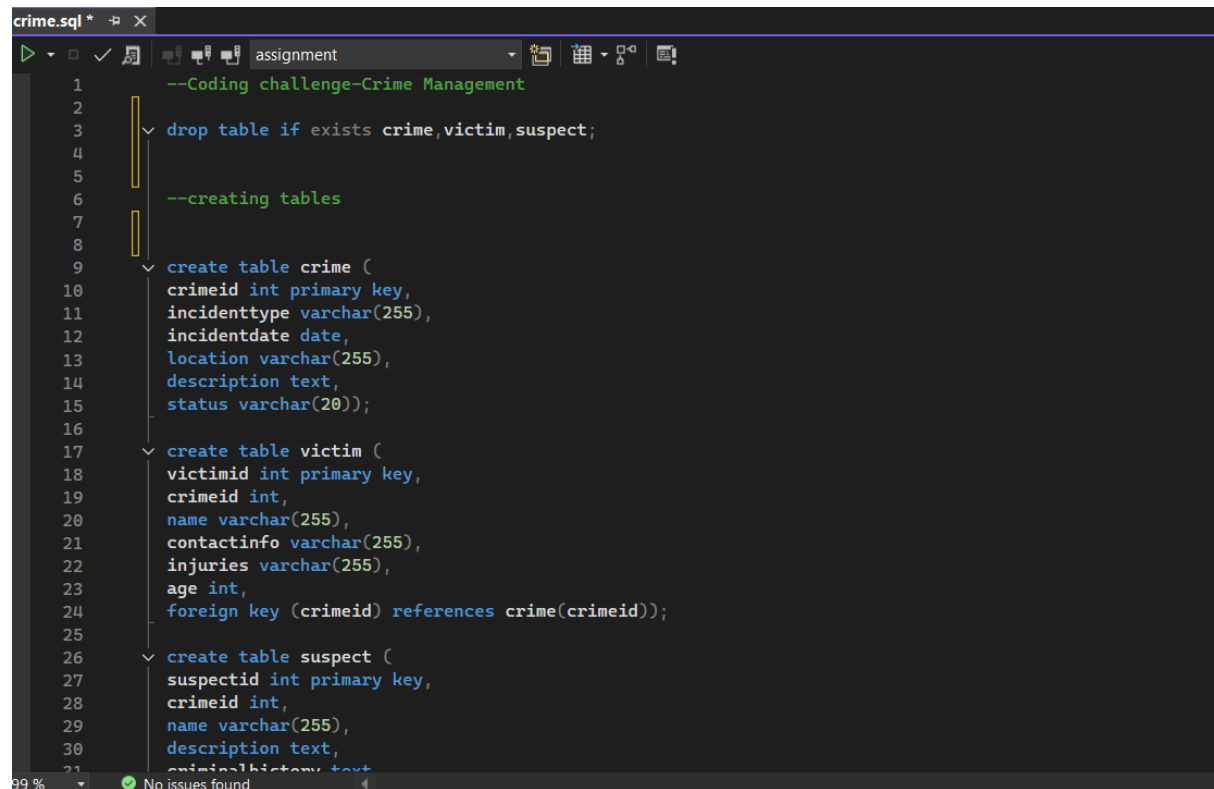
```
select s.name
from suspect s
join crime c on s.crimeid = c.crimeid
where c.incidenttype in ('robbery', 'assault');
```
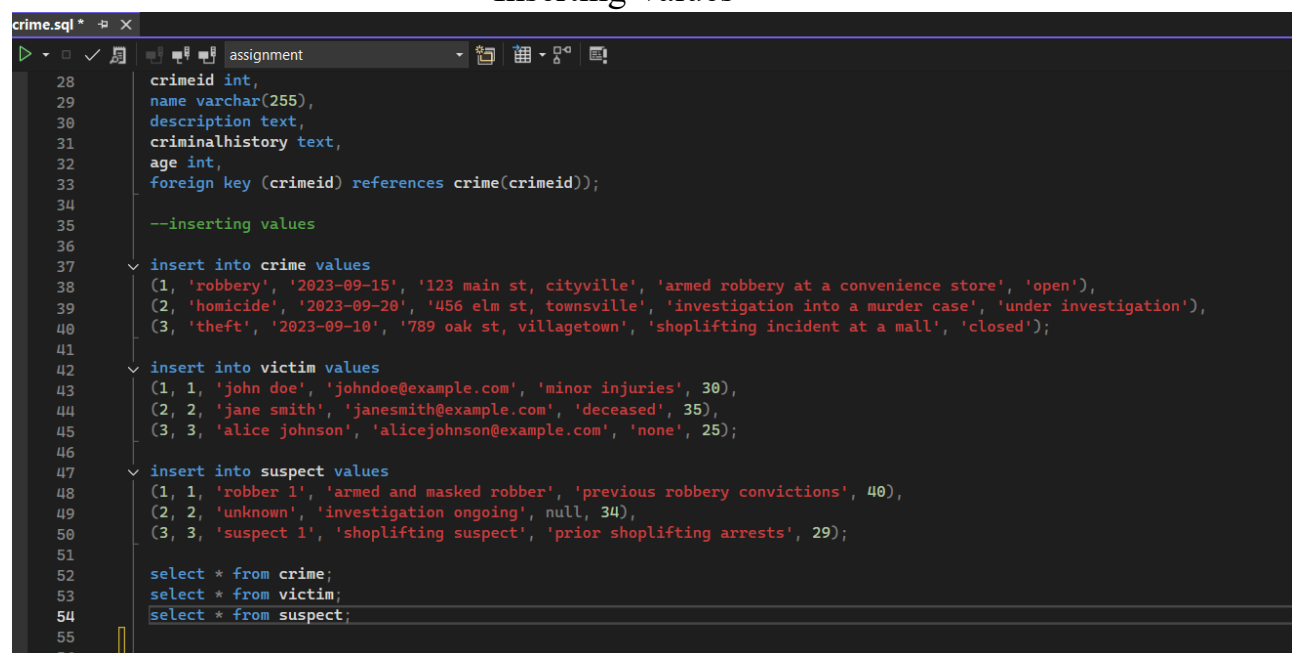
	name
1	robber 1

Screenshots:

Creating Tables


```sql
          --Coding challenge-Crime Management

 drop table if exists crime,victim,suspect;


   --creating 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),
   contactinfo varchar(255),
   injuries varchar(255),
   age int,
   foreign key (crimeid) references crime(crimeid));

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

Inserting Values


```sql
   crimeid int,
   name varchar(255),
   description text,
   criminalhistory text,
   age int,
   foreign key (crimeid) references crime(crimeid));

   --inserting values

 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');

 insert into victim values
   (1, 1, 'john doe', 'johndoe@example.com', 'minor injuries', 30),
   (2, 2, 'jane smith', 'janesmith@example.com', 'deceased', 35),
   (3, 3, 'alice johnson', 'alicejohnson@example.com', 'none', 25);

 insert into suspect values
   (1, 1, 'robber 1', 'armed and masked robber', 'previous robbery convictions', 40),
   (2, 2, 'unknown', 'investigation ongoing', null, 34),
   (3, 3, 'suspect 1', 'shoplifting suspect', 'prior shoplifting arrests', 29);

   select * from crime;
   select * from victim;
   select * from suspect;
```

Created Tables

Queries(1-5)

Queries (6-9)

```
crime.sql *

assignment

86
87    --6.Find the average age of persons involved in incidents
88
89    select avg(age) as avg_age
90    from
91    (select age from victim
92    union all
93    select age from suspect) as all_persons;
94
95
96    --7.List incident types and their counts, only for open cases
97
98    select incidenttype, count(*) as incidentcounts
99    from crime
100   where status = 'open'
101   group by incidenttype;
102
103   --8.Find persons with names containing 'Doe'
104   select name from victim
105   where name like '%doe%'
106   union
107   select name from suspect
108   where name like '%doe%';
109
110   --9.Retrieve the names of persons involved in open cases and closed cases
111
112   select v.name from victim v
113   join crime c on v.crimeid = c.crimeid
114   where c.status in ('open', 'closed')
115   union
116   select s.name from suspect s
117   join crime c on s.crimeid = c.crimeid
118   where c.status in ('open', 'closed');
```

Result tables:

	avg_age
1	32

	incidenttype	incidentcounts
1	robbery	1

	name
1	john doe

	name
1	alice johnson
2	john doe
3	robber 1
4	suspect 1

Queries(10-12)

```
crime.sql *

assignment

130   --10.List incident types where there are persons aged 30 or 35 involved
131
132   select distinct c.incidenttype
133   from crime c
134   join victim v on c.crimeid = v.crimeid
135   where v.age in (30, 35)
136   union
137   select distinct c.incidenttype
138   from crime c
139   join suspect s on c.crimeid = s.crimeid
140   where s.age in (30, 35);
141
142   --or (using or operator)
143   select c.incidenttype as incidenttypes
144   from crime c
145   join victim v on v.crimeid=c.crimeid
146   where v.age = 30 or v.age=35
147   union
148   select c.incidenttype as incidenttypes
149   from crime c
150   join suspect s on s.crimeid=c.crimeid
151   where s.age = 30 or s.age=35
152
153   --11.Find persons involved in incidents of the same type as 'Robbery'
154
155   select v.name
156   from victim v
157   join crime c on c.crimeid=v.crimeid
158   where c.incidenttype='robbery'
159   union
160   select s.name
161   from suspect s
162   join crime c on c.crimeid=s.crimeid
163   where c.incidenttype='robbery';
164
165
166   --12.List incident types with more than one open case
167
168   select incidenttype, count(*) as counts
169   from crime
170   where status = 'open'
171   group by incidenttype
172   having count(*) > 1;   --(result-empty-crime table has only one open case)
```

Result tables:

	incidenttypes
1	homicide
2	robbery

	name
1	john doe
2	robber 1

	incidenttype	counts

Queries(13-16)

```sql
--13.List all incidents with suspects whose names also appear as victims in other incidents
select c.*
from crime c
join suspect s on c.crimeid = s.crimeid
where s.name in (select name from victim);   --(result-empty-no such data in the given schema,victims and susp

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

select c.crimeid, c.incidenttype, c.status, v.name as victim_name, s.name as suspect_name
from crime c
left join victim v on c.crimeid = v.crimeid
left join suspect s on c.crimeid = s.crimeid;

--or (display by adding suspect and victim name to crime table)
select c.*, v.name as victim_name, s.name as suspect_name
from crime c
left join victim v on c.crimeid = v.crimeid
left join suspect s on c.crimeid = s.crimeid;

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

select c.*
from crime c
join suspect s on c.crimeid = s.crimeid
where s.age > all (select v.age
                   from victim v
                   where v.crimeid = c.crimeid);

--16. Find suspects involved in multiple incidents

select name, count(*) as incident_count
from suspect
group by name
having count(*) > 1;   --(result-empty-only one incident in the given scheme)
```

crimeid	incidenttype	incidentdate	location	description	status

	crimeid	incidenttype	status	victim_name	suspect_name
1	1	robbery	open	john doe	robber 1
2	2	homicide	under investigation	jane smith	unknown
3	3	theft	closed	alice johnson	suspect 1

	crimeid	incidenttype	incidentdate	location	description	status	victim_nar
1	1	robbery	2023-09-15	123 main st, cityville	armed robbery at a convenience store	open	john doe
2	2	homicide	2023-09-20	456 elm st, townsville	investigation into a murder case	under investigation	jane smith
3	3	theft	2023-09-10	789 oak st, villagetown	shoplifting incident at a mall	closed	alice john

	crimeid	incidenttype	incidentdate	location	description	status
1	1	robbery	2023-09-15	123 main st, cityville	armed robbery at a convenience store	open
2	3	theft	2023-09-10	789 oak st, villagetown	shoplifting incident at a mall	closed

name	incident_count

Queries(17-20)

```sql
--17.List incidents with no suspects involved

select * from crime
where crimeid not in (select distinct crimeid from suspect); --(result-empty-all incidents has a suspect)

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

select *
from crime
where
not exists (
    select 1 from crime
    where incidenttype not in ('robbery', 'homicide'))
and exists (
    select 1 from crime
    where incidenttype = 'homicide');  --(result-empty-has "theft" as a incident type)

--19.. Retrieve a list of all incidents and the associated suspects, showing suspects for each incident, or 'N

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;

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

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

crimeid	incidenttype	incidentdate	location	description	status

crimeid	incidenttype	incidentdate	location	description	status

	crimeid	incidenttype	suspect_name
1	1	robbery	robber 1
2	2	homicide	unknown
3	3	theft	suspect 1

	name
1	robber 1