

Coding Challenge SQL
Crime Management Schema DDL and DML

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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),
```

```
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

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')
```

```
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

```
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);
```

--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'

```
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'

```

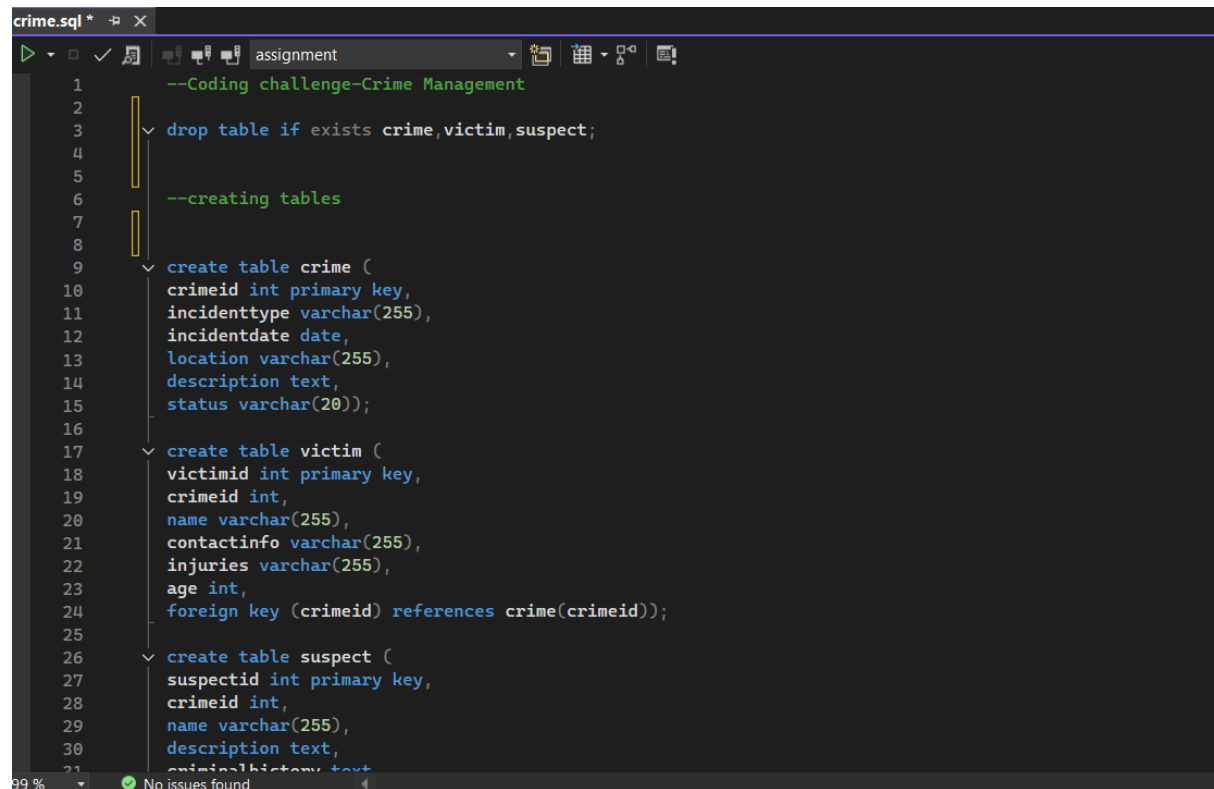
select s.name
from suspect s
join crime c on s.crimeid = c.crimeid
where c.incidenttype in ('robbery', 'assault');

```

	name
1	robber 1

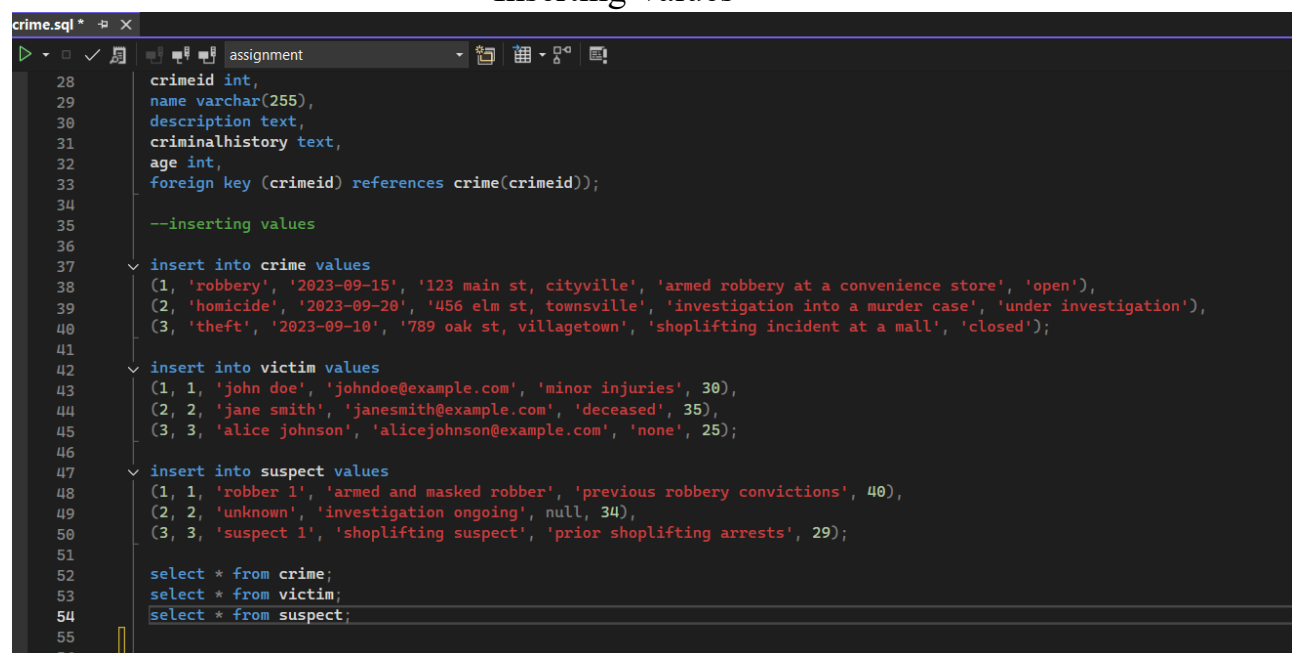
Screenshots:

Creating Tables



```
crime.sql *  assignment
1  --Coding challenge-Crime Management
2
3  drop table if exists crime,victim,suspect;
4
5
6  --creating tables
7
8
9  create table crime (
10     crimeid int primary key,
11     incidenttype varchar(255),
12     incidentdate date,
13     location varchar(255),
14     description text,
15     status varchar(20));
16
17  create table victim (
18     victimid int primary key,
19     crimeid int,
20     name varchar(255),
21     contactinfo varchar(255),
22     injuries varchar(255),
23     age int,
24     foreign key (crimeid) references crime(crimeid));
25
26  create table suspect (
27     suspectid int primary key,
28     crimeid int,
29     name varchar(255),
30     description text,
31     criminalhistory text
32  );
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
99 %  No issues found
```

Inserting Values



```
crime.sql *  assignment
28  crimeid int,
29  name varchar(255),
30  description text,
31  criminalhistory text,
32  age int,
33  foreign key (crimeid) references crime(crimeid));
34
35  --inserting values
36
37  insert into crime values
38  (1, 'robbery', '2023-09-15', '123 main st, cityville', 'armed robbery at a convenience store', 'open'),
39  (2, 'homicide', '2023-09-20', '456 elm st, townsville', 'investigation into a murder case', 'under investigation'),
40  (3, 'theft', '2023-09-10', '789 oak st, villagetown', 'shoplifting incident at a mall', 'closed');
41
42  insert into victim values
43  (1, 1, 'john doe', 'johndoe@example.com', 'minor injuries', 30),
44  (2, 2, 'jane smith', 'janesmith@example.com', 'deceased', 35),
45  (3, 3, 'alice johnson', 'alicejohnson@example.com', 'none', 25);
46
47  insert into suspect values
48  (1, 1, 'robber 1', 'armed and masked robber', 'previous robbery convictions', 40),
49  (2, 2, 'unknown', 'investigation ongoing', null, 34),
50  (3, 3, 'suspect 1', 'shoplifting suspect', 'prior shoplifting arrests', 29);
51
52  select * from crime;
53  select * from victim;
54  select * from suspect;
55
56
```

Created Tables

crime.sql * X

```
49 (2, 4, 'unknown', 'investigation ongoing', null, 34),
50 (3, 3, 'suspect 1', 'shoplifting suspect', 'prior shoplifting arrests', 29);
51
52 select * from crime;
53 select * from victim;
54 select * from suspect;
55
```

99 % No issues found

T-SQL Results Message

	crimeid	incidenttype	incidentdate	location	description	status
1	1	robbery	2023-09-15	123 main st. cityville	armed robbery at a convenience store	open
2	2	homicide	2023-09-20	456 elm st. townsv...	investigation into a murder case	und...
3	3	theft	2023-09-10	789 oak st. villaget...	shoplifting incident at a mall	clos...

	victimid	crimeid	name	contactinfo	injuries	age
1	1	1	john doe	johndoe@example.com	minor injuries	30
2	2	2	jane smith	janesmith@example.com	deceased	35
3	3	3	alice joh...	alicejohnson@example....	none	25

	suspectid	crimeid	name	description	criminalhistory	age
1	1	1	robber 1	armed and masked robber	previous robbery convictions	40
2	2	2	unknown	investigation ongoing	NULL	34
3	3	3	suspect...	shoplifting suspect	prior shoplifting arrests	29

Queries(1-5)

crime.sql * X

```
56
57 --Queries
58
59 --1.Select all open incidents
60 select * from crime where status = 'open';
61
62
63
64 --2.Find the total number of incidents
65 select count(*) as total_incidents from crime;
66
67
68
69 --3.List all unique incident types
70 select distinct incidenttype from crime;
71
72
73
74 --4. Retrieve incidents that occurred between '2023-09-01' and '2023-09-10'
75 select * from crime
76 where incidentdate between '2023-09-01' and '2023-09-10';
77
78
79 --5.List persons involved in incidents in descending order of age
80
81 select name,age from victim
82 union
83 select name,age from suspect
84 order by age desc;
85
86
```

	crimeid	incidenttype	incidentdate	location	description	status
1	1	robbery	2023-09-15	123 main st. cityville	armed robbery at a convenience store	open

	total_incidents
1	3

	incidenttype
1	homicide
2	robbery
3	theft

	crimeid	incidenttype	incidentdate	location	description	status
1	3	theft	2023-09-10	789 oak st. villagetown	shoplifting incident at a mall	closed

	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

Queries (6-9)

crime.sql * X

assignment

```

86  --6.Find the average age of persons involved in incidents
87
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');

```

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 * X

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 --12.List incident types with more than one open case
166
167 select incidenttype, count(*) as counts
168 from crime
169 where status = 'open'
170 group by incidenttype
171 having count(*) > 1; --(result-empty-crime table has only one open case)
172

```

incidenttypes

1	homicide
2	robbery

name

1	john doe
2	robber 1

incidenttype counts

Queries(13-16)

crime.sql * X

assignment

```

174 --13 List all incidents with suspects whose names also appear as victims in other incidents
175 select c.*
176 from crime c
177 join suspect s on c.crimeid = s.crimeid
178 where s.name in (select name from victim); --(result-empty-no such data in the given schema,victims and sus
179
180 --14.Retrieve all incidents along with victim and suspect details
181
182
183 select c.crimeid, c.incidenttype, c.status, v.name as victim_name, s.name as suspect_name
184 from crime c
185 left join victim v on c.crimeid = v.crimeid
186 left join suspect s on c.crimeid = s.crimeid;
187
188 --or (display by adding suspect and victim name to crime table)
189 select c.*, v.name as victim_name, s.name as suspect_name
190 from crime c
191 left join victim v on c.crimeid = v.crimeid
192 left join suspect s on c.crimeid = s.crimeid;
193
194 --15. Find incidents where the suspect is older than any victim
195
196 select c.*
197 from crime c
198 join suspect s on c.crimeid = s.crimeid
199 where s.age > all (select v.age
200 from victim v
201 where v.crimeid = c.crimeid);
202
203
204 --16. Find suspects involved in multiple incidents
205
206 select name, count(*) as incident_count
207 from suspect
208 group by name
209 having count(*) > 1; --(result-empty-only one incident in the given scheme)

```

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

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 john

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

name	incident_count

Queries(17-20)

crime.sql * X

assignment

```

210
211 --17.List incidents with no suspects involved
212
213 select * from crime
214 where crimeid not in (select distinct crimeid from suspect); --(result-empty-all incidents has a suspect)
215
216 --18.List all cases where at least one incident is of type 'Homicide' and all other incidents are of type 'Robbery'
217
218 select *
219 from crime
220 where
221 not exists (
222 select 1 from crime
223 where incidenttype not in ('robbery', 'homicide'))
224 and exists (
225 select 1 from crime
226 where incidenttype = 'homicide'); --(result-empty-has "theft" as a incident type)
227
228
229 --19.. Retrieve a list of all incidents and the associated suspects, showing suspects for each incident, or 'No Suspect'
230
231 select c.crimeid, c.incidenttype,
232 coalesce(s.name, 'no suspect') as suspect_name
233 from crime c
234 left join suspect s on c.crimeid = s.crimeid;
235
236 --20.List all suspects who have been involved in incidents with incident types 'Robbery' or 'Assault'
237
238 select s.name
239 from suspect s
240 join crime c on s.crimeid = c.crimeid
241 where c.incidenttype in ('robbery', 'assault');

```

crimeid	incidenttype	incidentdate	location	description	status
1	robbery				
2	homicide				
3	theft				

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

name
robber 1