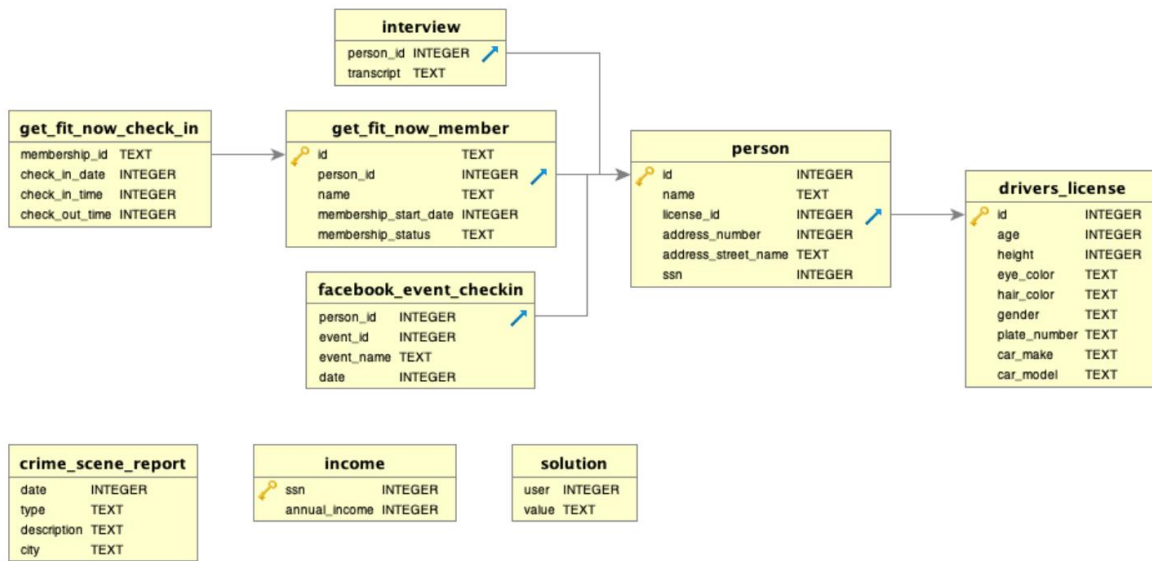


SQL Murder Mystery: <http://mystery.knightlab.com/>

A crime has taken place and the detective needs your help. The detective gave you the crime scene report, but you somehow lost it. You vaguely remember that the crime was a **murder** that occurred sometime on **Jan.15, 2018** and that it took place in **SQL City**. Start by retrieving the corresponding crime scene report from the police department's database.



1. Get the crime scene report of the murder on the 15th of January 2018 in SQL City:

```
SELECT *
FROM crime_scene_report
WHERE type = "murder"
AND city = "SQL City"
AND date = 20180115
```

date	type	description	city
20180115	murder	Security footage shows that there were 2 witnesses. The first witness lives at the last house on "Northwestern Dr". The second witness, named Annabel, lives somewhere on "Franklin Ave".	SQL City

2. The crime scene report describes 2 witnesses. Witnesses: get all people whose address_street_name contains "Northwestern Dr" or "Franklin Ave":

```
SELECT *
FROM person
```

```
WHERE INSTR(address_street_name, "Northwestern")  
OR INSTR(address_street_name, "Franklin")
```

Let's narrow it down. The 1st witness lives at the last (max address_number) house on Northwestern:

```
SELECT *  
FROM person  
WHERE INSTR(address_street_name, "Northwestern")  
AND address_number = (  
    SELECT max(address_number)  
    FROM person  
    WHERE INSTR(address_street_name, "Northwestern")  
)
```

id	name	license_id	address_number	address_street_name	ssn
14887	Morty Schapiro	118009	4919	Northwestern Dr	111564949

The 2nd witness Annabel lives on Franklin:

```
SELECT *  
FROM person  
WHERE INSTR(address_street_name, "Franklin")  
AND INSTR(name, "Annabel")
```

id	name	license_id	address_number	address_street_name	ssn
16371	Annabel Miller	490173	103	Franklin Ave	318771143

Let's union the two witnesses into one table:

```
SELECT *
```

```

FROM person
WHERE INSTR(address_street_name, "Northwestern")
AND address_number = (
    SELECT max(address_number)
    FROM person
    WHERE INSTR(address_street_name, "Northwestern")
)

```

UNION

```

SELECT *
FROM person
WHERE INSTR(address_street_name, "Franklin")
AND INSTR(name, "Annabel")

```

id	name	license_id	address_number	address_street_name	ssn
14887	Morty Schapiro	118009	4919	Northwestern Dr	111564949
16371	Annabel Miller	490173	103	Franklin Ave	318771143

- Now that we have the two witnesses, let's take a look at their interviews to see if we can get any more information about the murderer:

```

SELECT *
FROM interview
WHERE person_id IN (
    SELECT id
    FROM person
    WHERE INSTR(address_street_name, "Northwestern")
    AND address_number = (
        SELECT max(address_number)

```

```

FROM person
WHERE INSTR(address_street_name, "Northwestern")
)

```

UNION

```

SELECT id
FROM person
WHERE INSTR(address_street_name, "Franklin")
AND INSTR(name, "Annabel")
)

```

person_id	transcript
14887	I heard a gunshot and then saw a man run out. He had a "Get Fit Now Gym" bag. The membership number on the bag started with "48Z". Only gold members have those bags. The man got into a car with a plate that included "H42W".
16371	I saw the murder happen, and I recognized the killer from my gym when I was working out last week on January the 9th.

- From the witness interviews, the killer works out at the "Get Fit Now Gym". The killer's membership number starts with 48Z. They are a gold member.

```

SELECT *
FROM get_fit_now_member
JOIN person ON person.id = get_fit_now_member.person_id
WHERE membership_status = "gold"
AND INSTR(get_fit_now_member.id, "48Z")

```

id	person_id	name	membership_start_date	membership_status	id	name	license_id	address_num1
48Z7A	28819	Joe Germuska	20160305	gold	28819	Joe Germuska	173289	111
48Z55	67318	Jeremy Bowers	20160101	gold	67318	Jeremy Bowers	423327	530

5. This leaves us with 2 possible people from the gym's data who could be the killer. The killer's license plate includes H42W.

```
SELECT *
FROM get_fit_now_member
JOIN person ON person.id = get_fit_now_member.person_id
JOIN drivers_license ON drivers_license.id = person.license_id
WHERE membership_status = "gold"
AND INSTR(get_fit_now_member.id, "48Z")
AND INSTR(plate_number, "H42W")
```

id	person_id	name	membership_start_date	membership_status	id	name	license_id	address_number
48Z55	67318	Jeremy Bowers	20160101	gold	67318	Jeremy Bowers	423327	530

6. From this we can see that the only possible suspect with all these details is the person by the name of Jeremy Bowers (person_id # 67318). Let's check the solution...

```
INSERT INTO solution VALUES (1, 'Jeremy Bowers');
SELECT value FROM solution;
```

value
Congrats, you found the murderer! But wait, there's more... If you think you're up for a challenge, try querying the interview transcript of the murderer to find the real villain behind this crime. If you feel especially confident in your SQL skills, try to complete this final step with no more than 2 queries. Use this same INSERT statement with your new suspect to check your answer.

7. Turns out there's more to this story... let's get Jeremy Bowers' interview transcript.

```
SELECT *
FROM interview
WHERE person_id = 67318
```

person_id	transcript
67318	I was hired by a woman with a lot of money. I don't know her name but I know she's around 5'5" (65") or 5'7" (67"). She has red hair and she drives a Tesla Model S. I know that she attended the SQL Symphony Concert 3 times in December 2017.

8. Jeremy was only the hit man! The payer is a woman with a large income, is between 65" and 67" in height, has red hair, drives a Tesla Model S. She attended the SQL Symphony Concert 3 times in December 2017. Let's first get people who match the physical description:

```
SELECT *  
FROM person  
JOIN drivers_license ON drivers_license.id = person.license_id  
WHERE hair_color = "red"  
AND car_make = "Tesla"  
AND car_model = "Model S"  
AND height < 67  
AND height > 65  
AND gender = "female"
```

id	name	license_id	address_number	address_street_name	ssn	id	age	height	eye_color	hair_color
90700	Regina George	291182	332	Maple Ave	337169072	291182	65	66	blue	red
99716	Miranda Priestly	202298	1883	Golden Ave	987756388	202298	68	66	green	red

9. Let's see if one of them has a large income

```
SELECT *  
FROM person  
JOIN drivers_license ON drivers_license.id = person.license_id  
JOIN income ON income.ssn = person.ssn  
WHERE hair_color = "red"  
AND car_make = "Tesla"  
AND car_model = "Model S"  
AND height < 67  
AND height > 65  
AND gender = "female"  
ORDER BY annual_income DESC
```

id	name	license_id	address_number	address_street_name	ssn	id	age	height	eye_color	hair_
99716	Miranda Priestly	202298	1883	Golden Ave	987756388	202298	68	66	green	red

10. We only have data for the income of one of the 2 suspects who match the physical description. Miranda Priestly has a relatively large annual income of \$310k. However, let's not rule out the other suspect. Let's first check if either of the two has been to the SQL Symphony concert 3 times in December 2017:

```
SELECT *
FROM facebook_event_checkin
WHERE INSTR(CAST (date AS text), "201712")
AND event_name = "SQL Symphony Concert"
AND person_id IN (
    SELECT person.id
    FROM person
    JOIN drivers_license ON drivers_license.id = person.license_id
    WHERE hair_color = "red"
    AND car_make = "Tesla"
    AND car_model = "Model S"
    AND height < 67
    AND height > 65
    AND gender = "female"
)
```

person_id	event_id	event_name	date
99716	1143	SQL Symphony Concert	20171206
99716	1143	SQL Symphony Concert	20171212
99716	1143	SQL Symphony Concert	20171229

11. The only person who went to the concert 3 times in December 2017 is the person by the ID of 99716, who again has the name of Miranda Priestly. We solved it!

```
INSERT INTO solution VALUES (1, 'Miranda Priestly');
```

```
SELECT value FROM solution;
```

value
Congrats, you found the brains behind the murder! Everyone in SQL City hails you as the greatest SQL detective of all time. Time to break out the champagne!