

Report on SQL Murder Mystery

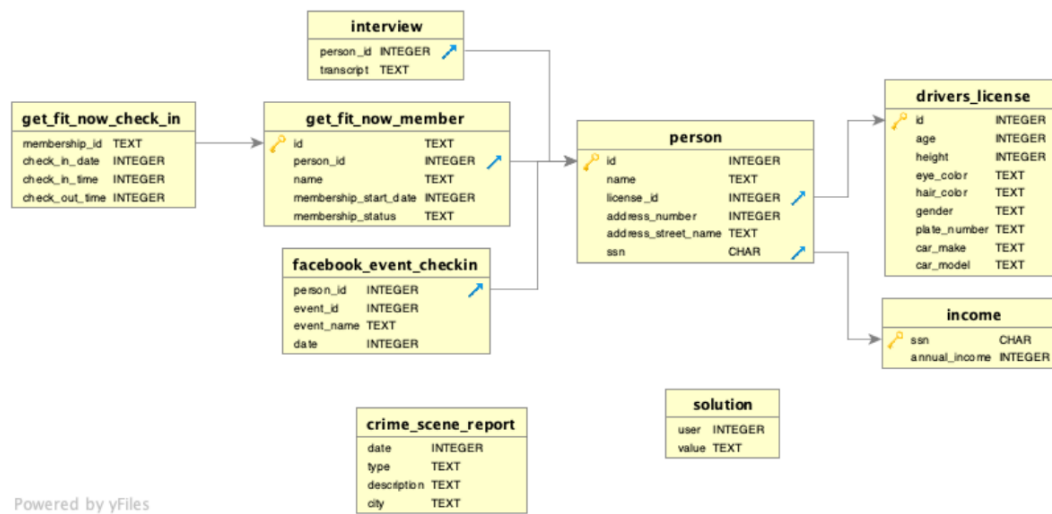
PrepInsta Winter Internship on Data Analytics - Week 5 Project

Link to Website: <https://mystery.knightlab.com/>

Problem Statement:

A crime has taken place and the detective needs our help. The detective has given the crime scene report, but it's now lost. We have information that the crime occurred sometime on January 15, 2018, and took place in SQL City.

Here is the schema diagram to show us the available tables and their relationships within the database:



Approach:

- I filtered the database, extracting specifics—crime type, city, and date—to efficiently grasp the crime scene's scope. This focused approach aimed to streamline the investigation's relevant data retrieval.

Query:

```
# Murder occurred on 15th Jan 2018 in SQL City
USE murder_mystery;
SELECT *
FROM crime_scene_report
WHERE date = "20180115"
AND type = "murder"
AND city = "SQL City";
```

Output:

Date:	20180115
Type:	murder
Description:	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".
City:	SQL City

- To locate the first witness, I narrowed down residences on "Northwestern Dr" by querying the street name and using DESC to identify the highest house number among the listings.

Query:

```
# 2 witnesses
-- 1st witness
SELECT *
FROM person
WHERE address_street_name = "Northwestern Dr"
ORDER BY address_number DESC
LIMIT 1;
```

Output:

Id:	14887
Name:	Morty Schapiro
License_id:	118009
Address_number:	4919
Address_street_name:	Northwestern Dr
Ssn:	111564949

- To retrieve details about the second witness, Annabel, I executed a query on the "person" table specifically targeting Annabel's information.

Query:

```
-- 2nd witness
SELECT *
FROM person
WHERE address_street_name = "Franklin Ave"
AND name LIKE '%Ann%';
```

Output:

Id:	16371
Name:	Annabel Miller
License_id:	490173
Address_number:	103
Address_street_name:	Franklin Ave
Ssn:	318771143

- With narrowed information on the two witnesses, I proceeded to delve deeper by querying the "interview" table using their respective IDs for a more comprehensive understanding.

Query:

```
# Finding the two witness' interview transcript
SELECT *
FROM interview
WHERE person_id IN (14887, 16371);
```

Output:

Person_id:	14887
Transcript:	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".

- Utilizing an INNER JOIN operation across three tables, I discerned the murderer as a Get Fit Now Gym gold member, their membership initiating with "48Z," and owning a vehicle plate containing "H42W." This meticulous correlation unveiled the perpetrator's identity.

Query:

```
# "Get Fit Now Gym" membership started with "48Z" Gold member
# Car Plate includes "H42W"
# Murderer was in gym on 9th Jan
SELECT p.*
FROM drivers_license AS dl
INNER JOIN person AS p ON dl.id = p.license_id
INNER JOIN get_fit_now_member AS member ON p.id = member.person_id
INNER JOIN get_fit_now_check_in AS ci ON member.id = ci.membership_id
WHERE plate_number LIKE '%H42W%'
AND check_in_date = "20180109";
```

Output:

Id:	67318
Name:	Jeremy Bowers
License_id:	423327
Address_number:	530
Address_street_name:	Washington Pl, Apt 3A
Ssn:	871539279

- Verifying the outcome, I cross-checked the suspect's name by inserting "Jeremy Bowers" into the query below, confirming his identification as the perpetrator.

Query:

Check your solution

Did you find the killer?

```
1 INSERT INTO solution VALUES (1, 'Jeremy Bowers');
2
3 SELECT value FROM solution;
```

Output:

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.

- To uncover the mastermind, I sought Jeremy's interview by referencing his ID, aiming to extract further details and potentially reveal the orchestrator behind the murderer's actions.

Query:

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

Output:

Person_id:	67318
Transcript:	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.

- To pinpoint the mastermind, I constructed a complex query utilizing multiple criteria based on Jeremy's information: a woman, height between 65" to 67", red hair, owner of a Tesla Model S, and attended the SQL Symphony Concert thrice in December 2017. This intricate query aims to narrow down the search and reveal the individual behind the murder.

Query:

```
# Rich woman, height 5'5" (65") or 5'7" (67"), red hair, Tesla Model S car, attended SQL Symphony Concert 3 times in Dec 2017
WITH CTE AS (
  SELECT person_id,
  COUNT(*) AS visits
  FROM facebook_event_checkin
  WHERE date BETWEEN 20171201 AND 20171231
  AND event_name = "SQL Symphony Concert"
  GROUP BY person_id
  HAVING COUNT(*) = 3
)

SELECT p.*, fb.*
FROM drivers_license AS dl
INNER JOIN person AS p ON dl.id = p.license_id
INNER JOIN CTE AS fb ON p.id = fb.person_id
WHERE height BETWEEN 65 AND 67
AND hair_color = "red"
AND car_make = "Tesla"
AND car_model = "Model S"
AND gender = "female";
```

Output:

Id:	99716
Name:	Miranda Priestly
License_id:	202298
Address_number:	1883
Address_street_name:	Golden Ave
Ssn:	987756388
Person_id:	99716
Visits:	3

- Now, let's verify the outcome.

Query:

Check your solution

Did you find the killer?

```
1 INSERT INTO solution VALUES (1, 'Miranda Priestly');  
2  
3 SELECT value FROM solution;
```

Output:

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!

The culprit behind the crime was Miranda Priestly, who had employed Jeremy for the nefarious act.

-By Sakshi Choudhary.