SQLite Murder Mystery

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Intro:

The database for this exercise was found on Kaggle, however it is originally sourced from here https://mystery.knightlab.com (https://mystery.knightlab.com).

The exercise presents a database schema full of information, and a tiny lead in which to solve a murder. I am given the starting point of locating the crime scene report for a *murder* that occurred on *Jan.15, 2018* in *SQL City*.

These next query is suggested as the starting point from the website.

The queries are executed in SQLite Studio, this document is just to save the queries as well as the thought process behind them for documentation purposes.

```
In [ ]: SELECT name
          FROM sqlite_master
         where type = 'table'
```

RESULTS

crime_scene_report

drivers_license

person

facebook_event_checkin

interview

get_fit_now_member

get_fit_now_check_in

income

solution

==

I see the table 'crime_scene_report' and am certainly drawn to start there to find the report I need.

However I'd also like to note that the check in tables are interesting and I'm curious to find how those play into this puzzle.

In [ ]:

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

RESULTS

"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"."

==

There was only 1 crime that matches the description given. It seems we have 2 witnesses that we can get info from. I think I'll start by trying to find their names via the person table, as it has a column for address street name. Then I will see if we have an interview with the witnesses.

In [ ]:

```
SELECT *
  FROM person
 WHERE address_street_name == "Franklin Ave" AND
       name LIKE "Annabel%";
```

RESULTS

16371 Annabel Miller 490173 103 Franklin Ave 318771143

==

1 down lets find the other witness

In [ ]:

```
SELECT *
  FROM person
 WHERE address_street_name == "Northwestern Dr"
 ORDER BY address_number DESC;
```

RESULTS

14887 Morty Schapiro 118009 4919 Northwestern Dr 111564949

17729 Lasonya Wildey 439686 3824 Northwestern Dr 917817122

....

==

Looks like Mr. Morty Schapiro is our witness here, he's the last house on the street.

Lets see if we have interviews with these witnesses

In [ ]:

```
--Schapiro
SELECT *
  FROM interview
 WHERE person_id == 14887;

--Miller
SELECT *
  FROM interview
 WHERE person_id == 16371;
```

RESULTS

SCHAPIRO: "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"."

MILLER: "I saw the murder happen, and I recognized the killer from my gym when I was working out last week on January the 9th."

==

Now things are getting juicy! A few key notes from these interviews: The suspect is a member of "Get Fit Now" with at least a gold member status and a membership number including "48Z". I can get all that info from the get_fit_now_member table. I can then cross reference that with the get_fit_now_check_in table to check if the person was also there on jan 9th. After I find a suspect I can check the drivers_lisence table to confirm the car.

Lets see if things go so simply.

In [ ]:

```
SELECT *
  FROM get_fit_now_member
 WHERE membership_status == "gold" AND
       id LIKE "%48Z%";
```

RESULTS

48Z7A 28819 Joe Germuska 20160305 gold

48Z55 67318 Jeremy Bowers 20160101 gold

===

Looks like we got more than one matching member, lets try and narrow it down based on who was at the gym on the 9th.

```
In [ ]: SELECT *
          FROM get_fit_now_check_in
         WHERE check_in_date == 20180109 AND
               membership_id LIKE "%48Z%";
```

RESULTS

48Z7A 20180109 1600 1730

48Z55 20180109 1530 1700

===

Darn they were both there on the 9th. Hopefully the plate can get us the info we need.

```
In [ ]: SELECT *
          FROM drivers_license
         WHERE plate_number LIKE "%H42W%";
```

RESULTS

183779 21 65 blue blonde female H42W0X Toyota Prius

423327 30 70 brown brown male 0H42W2 Chevrolet Spark LS

664760 21 71 black black male 4H42WR Nissan Altima

===

Theres a few with "H42W" in their plates, lets check with the person table to see if either of our gym members are owners of one of these cars.

In [ ]:

```
SELECT *
  FROM person
 WHERE license_id == 183779 OR
       license_id == 423327 OR
       license_id == 664760;
```

RESULTS

51739 Tushar Chandra 664760 312 Phi St 137882671

67318 Jeremy Bowers 423327 530 Washington Pl, Apt 3A 871539279

78193 Maxine Whitely 183779 110 Fisk Rd 137882671

==

I believe we have our guy with this. Mr. Jeremy Bowers is a gold member of Get Fit Now Gym, with a membership id containing '48Z'. He was at said gym on both the date of the crime Jan.18th and Jan.9th. And he owns a Chevy Spark which has the 'H4W' plate that was seen by Mr. Schapiro.

Lets see if the solution is correct!

In [ ]:

```
--this query template was given on the website

INSERT INTO solution VALUES (1, 'Jeremy Bowers');

        SELECT value FROM solution;
```

RESULTS

"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."

==

I did it!! That was a lot of fun and I am absolutely going for this challenge they talk about!

In [ ]:

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

RESULTS

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. "

==

I don't suspect this should be tough to find with all these details, lets start with the drivers_license table since it has car, height, and hair info.

```
In [ ]: SELECT *
          FROM drivers_license
         WHERE hair_color == "red" AND
               (64 < height < 68) AND
               car_make == "Tesla" AND
               car_model == "Model S";
```

RESULTS

202298 68 66 green red female 500123 Tesla Model S

291182 65 66 blue red female 08CM64 Tesla Model S

736081 79 69 brown red male GCAQ6Y Tesla Model S

918773 48 65 black red female 917UU3 Tesla Model S

==

Alright we got a few hits on this one, lets see who among them attended that Symphony 3 times in 2017 though.

First we have to transfer the license_id to a person_id

```
In [ ]: SELECT *
          FROM person
         WHERE license_id == 202298 OR
               license_id == 291182 OR
               license_id == 736081 OR
               license_id == 918773;
```

RESULTS

57410 Cletus Zoeller 736081 2987 Kingham Way 924648898

78881 Red Korb 918773 107 Camerata Dr 961388910

90700 Regina George 291182 332 Maple Ave 337169072

99716 Miranda Priestly 202298 1883 Golden Ave 987756388

===

Quickly plug those person_ids into the facebook check ins.

In [ ]:

```
SELECT *
  FROM facebook_event_checkin
 WHERE event_name == "SQL Symphony Concert" AND
       date LIKE "201712%" AND
       person_id == 57410 OR
       person_id == 78881 OR
       person_id == 90700 OR
       person_id == 99716;
```

RESULTS

99716 1143 SQL Symphony Concert 20171206

99716 1143 SQL Symphony Concert 20171212

99716 1143 SQL Symphony Concert 20171229

===

And it looks like person 99716 or Ms. Miranda Priestly is our woman. Lets confirm with a solution check.

In [ ]:

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

        SELECT value FROM solution;
```

RESULTS

"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!"

===

Yeehaw! Man that was a lot of fun!