Murder Mystery

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Overview

There's been a Murder in SQL City! The SQL Murder Mystery is designed to be both a self-directed lesson to learn SQL concepts and commands and a fun game for experienced SQL users to solve an intriguing crime.

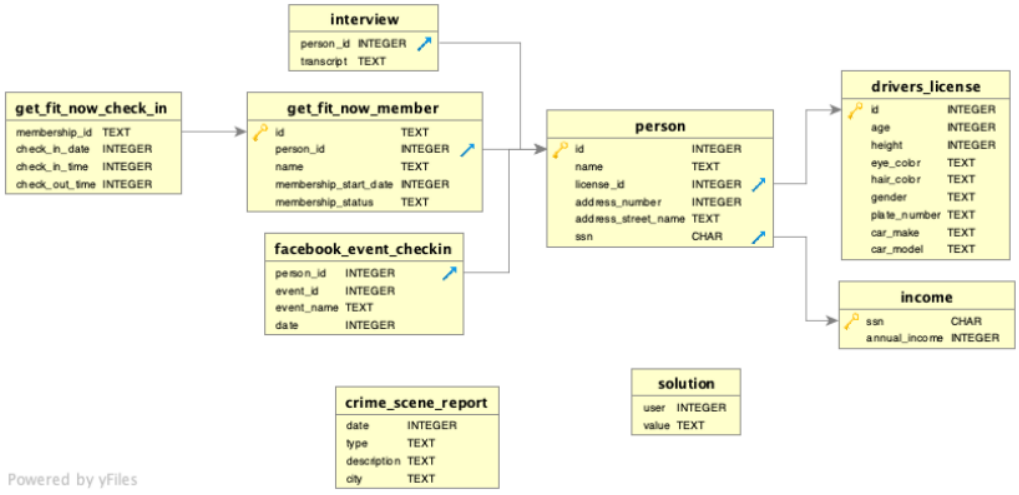
A crime has taken place and the detective needs your help. The detective gave you the crime scene report, but you somehow lost it. You vaguely remember that the crime was a murder that occurred sometime on Jan.15, 2018 and that it took place in SQL City. Start by retrieving the corresponding crime scene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

Goals

1. To find the murderer
2. And the mastermind behind murderer.

Clues

Schema


interview
person_id INTEGER
transcript TEXT
get_fit_now_check_in
membership_id TEXT
check_in_date INTEGER
check_in_time INTEGER
check_out_time INTEGER
get_fit_now_member
id TEXT
person_id INTEGER
name TEXT
membership_start_date INTEGER
membership_status TEXT
facebook_event_checkin
person_id INTEGER
event_id INTEGER
event_name TEXT
date INTEGER
person
id INTEGER
name TEXT
license_id INTEGER
address_number INTEGER
address_street_name TEXT
ssn CHAR
drivers_license
id INTEGER
age INTEGER
height INTEGER
eye_color TEXT
hair_color TEXT
gender TEXT
plate_number TEXT
car_make TEXT
car_model TEXT
income
ssn CHAR
annual_income INTEGER
crime_scene_report
date INTEGER
type TEXT
description TEXT
city TEXT
solution
user INTEGER
value TEXT
Powered by yFiles

1. To finding the murderer

```
I will be using python's sqlite3 library to solve the mystery
```

```
importing libraries
```

```
import pandas as pd
import sqlite3 as sql
```

```
#setting up a connection to the database
con =
```

```
sql.connect('../input/sql-murder-mystery-database/sql-murder-mystery
.db')
```

```
query_1 = '''
SELECT *
FROM crime_scene_report
WHERE city = "SQL City"
ORDER BY date;
'''
```

```
#seting the dataframe width to max
```

```
pd.set_option('display.max_colwidth', None)
```

```
#running our query
pd.read_sql_query(query_1, con)
```

[21]:

	date	type	description	city
0	20170712	theft	A lone hunter stalks the night, firing arrows into the Darkness.\n There is no hiding, no escape. In the distance, the beast\n falters, tethered to the void. The killing blow comes without\n hesitation, without mercy.	SQL City
1	20170820	arson	Wield the Hammer of Sol with honor, Titan, it is a thing of\n legend, both past and future.	SQL City
2	20171110	robbery	The Gjallarhorn shoulder-mounted rocket system was forged from\n the armor of Guardians who fell at the Twilight Gap. Gifted\n to the survivors of that terrible battle, the Gjallarhorn\n is seen as a symbol of honor and survival.	SQL City
3	20180103	bribery	Apparently, Cayde thought it necessary to expose this extremely\n rare vegetable to a Hive summoning ritual.	SQL City
4	20180115	assault	Hamilton: Lee, do you yield? Burr: You shot him in the side! Yes he yields!	SQL City
5	20180115	assault	Report Not Found	SQL City
6	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
7	20180215	murder	REDACTED REDACTED REDACTED	SQL City
8	20180215	murder	Someone killed the guard! He took an arrow to the knee!	SQL

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"

Got our crime scene report, as per the report there are 2 witnesses. Let's look for them.

```
#checking personal details of both the witnesses
query_2 = '''
SELECT *
FROM person
WHERE address_street_name = "Northwestern Dr"
ORDER BY address_number desc;
'''
pd.read_sql_query(query_2, con)[:1]
```

[23]:

	id	name	license_id	address_number	address_street_name	ssn
0	14887	Morty Schapiro	118009	4919	Northwestern Dr	111564949

```
query_3 = '''
SELECT *
FROM person
WHERE name like '%Annabel%' AND address_street_name = "Franklin
Ave";
'''
pd.read_sql_query(query_3, con)
```

[25]:

	id	name	license_id	address_number	address_street_name	ssn
0	16371	Annabel Miller	490173	103	Franklin Ave	318771143

```
#lets view the interview of both the witnesses taken after the murder.
query_4 = '''
SELECT *
FROM interview
WHERE person_id = 14887 OR person_id = 16371;
'''
pd.read_sql_query(query_4, con)
```

[26]:

	person_id	transcript
0	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".
1	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.

So, we got 2 clues-

- Killer is a man and a member of the gym with a status of gold and having a membership no. starting with 48Z and left in a car with a no. plate of H42W
- He was working out in the gym on 9th of Jan

```
#Checking the gym database with above details
query_5 = '''
SELECT *
FROM get_fit_now_check_in
```

```
WHERE membership_id like "%48Z%" AND check_in_date = 20180109
order by check_in_date;
'''
pd.read_sql_query(query_5, con)
```

[27]:

	membership_id	check_in_date	check_in_time	check_out_time
0	48Z7A	20180109	1600	1730
1	48Z55	20180109	1530	1700

Two member's found and their membership id

```
#now, let's check the car details by the above details
query_6 = '''
SELECT *
FROM drivers_license
WHERE plate_number like "%H42W%";
'''
pd.read_sql_query(query_6, con)
```

[28]:

	id	age	height	eye_color	hair_color	gender	plate_number	car_make	car_model
0	183779	21	65	blue	blonde	female	H42W0X	Toyota	Prius
1	423327	30	70	brown	brown	male	0H42W2	Chevrolet	Spark LS
2	664760	21	71	black	black	male	4H42WR	Nissan	Altima

Two male with a plate no. containing H42W

```
#checking personal details of both the males from the above query
query_7 = '''
SELECT *
FROM person
WHERE license_id = "423327" OR license_id = "664760";
'''
pd.read_sql_query(query_7, con)
```

[29]:

	id	name	license_id	address_number	address_street_name	ssn
0	51739	Tushar Chandra	664760	312	Phi St	137882671
1	67318	Jeremy Bowers	423327	530	Washington Pl, Apt 3A	871539279

```
#lets check which of this two are a member of the gym?
query_8 = '''
SELECT *
FROM get_fit_now_member
WHERE person_id = "51739" OR person_id = "67318";
'''
pd.read_sql_query(query_8, con)
```

[30]:

	id	person_id	name	membership_start_date	membership_status
0	48Z55	67318	Jeremy Bowers	20160101	gold

Yeah Finally, found the murderer - ***Jeremy Bowers***. Both the membership id and status also match as per the information we found earlier.

But wait, there's more... If I think I'm up for a challenge, then there would be blunder , I have to find the real villain behind the murder .

2. The mastermind behind murder

```
#There's more to this, reading the transcript of the murderer
query_9 = '''
SELECT *
FROM interview
WHERE person_id = 67318;
'''
pd.read_sql_query(query_9, con)
```

[31]:

	person_id	transcript
0	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.\n

So, the real villain is a woman with a Tesla car and red hair. Using the above clues let find out who's the mastermind behind this murder.

```
query_10 = '''
SELECT *
FROM drivers_license
WHERE car_make = "Tesla" AND car_model = "Model S" AND
gender = "female" AND hair_color = "red";
'''
pd.read_sql_query(query_10, con)
```

[32]:

	id	age	height	eye_color	hair_color	gender	plate_number	car_make	car_model
0	202298	68	66	green	red	female	500123	Tesla	Model S
1	291182	65	66	blue	red	female	08CM64	Tesla	Model S
2	918773	48	65	black	red	female	917UU3	Tesla	Model S

Three woman with Tesla Model S and red hair color

```
#personal details of the above three woman are:
query_11 = '''
```

```
SELECT *
FROM person
WHERE license_id = "202298" OR license_id = "291182" OR license_id =
"918773";
'''
pd.read_sql_query(query_11, con)
```

[33]:

	id	name	license_id	address_number	address_street_name	ssn
0	78881	Red Korb	918773	107	Camerata Dr	961388910
1	90700	Regina George	291182	332	Maple Ave	337169072
2	99716	Miranda Priestly	202298	1883	Golden Ave	987756388

```
#checking the event SQL symphony concert
query_12 = '''
SELECT person_id, count(*), event_name
FROM facebook_event_checkin
GROUP BY person_id
having count(*) = 3 AND event_name = "SQL Symphony Concert" AND date
like "%201712%";
'''
pd.read_sql_query(query_12, con)
```

[34]:

	person_id	count(*)	event_name
0	24556	3	SQL Symphony Concert
1	99716	3	SQL Symphony Concert

Finally, found the mastermind/real villain of this whole mystery - ***Miranda Priestly***

Result

This project make me delve to learn

Utilized Python Language for SQL Queries

Employed Python programming language to interact with databases using SQL commands.

Leveraged Pandas and SQLite3 Libraries

Utilized Pandas for data manipulation and SQLite3 for database connectivity to execute SQL queries within Python.

Practiced SQL Commands

Engaged in practicing SQL commands to enhance proficiency and understanding in database operations.

Credits :I am giving full credit to John for providing me with a murder mystery database. Here is his link: [John's Murder Mystery Walkthrough](https://www.kaggle.com/code/johnp47/sql-murder-mystery-my-walkthrough).