

Basic SQL

SQL Murder Mystery

<https://mystery.knightlab.com>

SQL MURDER MYSTERY

SILVER

FIRST CLUE...



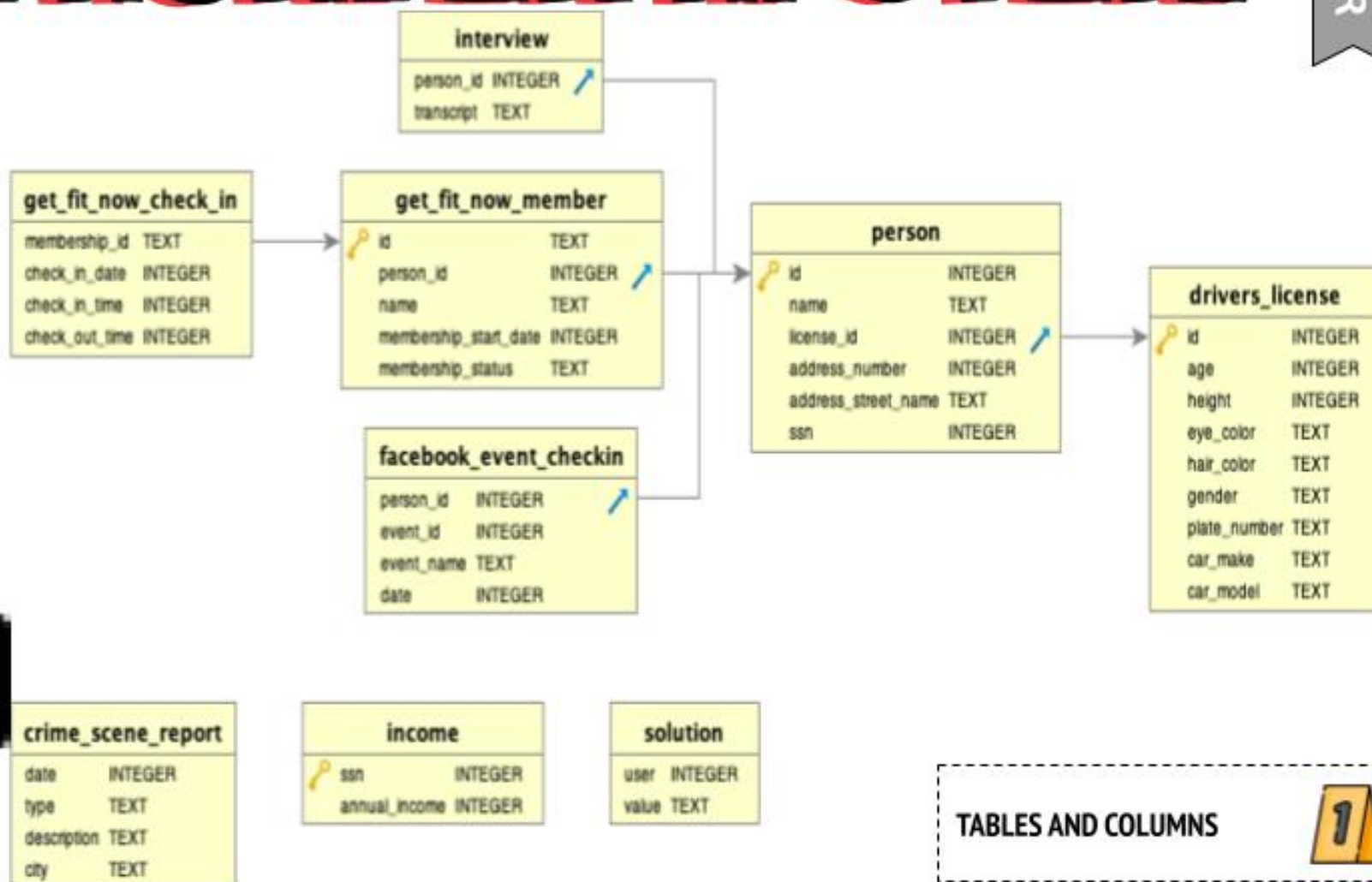
A crime has taken place and the detective needs your help. The detective gave you the crime scene report, but you somehow lost it. You vaguely remember that the crime was a **murder** that occurred sometime on **Jan.15, 2018** and that it took place in **SQL City**.

Start by retrieving the corresponding **crime scene report** from the police department's database.

All the clues to this mystery are buried in a huge database, and you need to use SQL to navigate through this vast network of information. Your first step to solving the mystery is to retrieve the corresponding crime scene report from the police department's database.

SQL MURDER MYSTERY

SILVER



TABLES AND COLUMNS



1. Table

2. Columns

3. Rows

First clue

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.

Table: crime_scene_report

Columns: all

Rows: all

```
select * from crime_scene_report
```

SELECT **columns** **FROM** **a table**

```
select date from crime_scene_report  
select date, type, description from crime_scene_report  
select * from crime_scene_report
```


SELECT columns **FROM** a table **WHERE** conditions
are true

Table: crime_scene_report

Columns: all

Rows: type = "murder"

```
select * from crime_scene_report where type = "murder"
```

Comparison operators

- `=`
- `!=`
- `>`
- `<=`
- ...

Logical operators

- NOT
- AND
- OR

Membership operators

- `IN`
- `NOT IN`

SELECT all non-murder cases

```
-- using !=  
select * from crime_scene_report where type != "murder"  
-- using not  
select * from crime_scene_report where not type = "murder"
```

Multiple matching criteria (and, or)

Table: crime_scene_report

Columns: all

Rows:

- type = "murder"
- date = 20180115
- city = "SQL City"

```
select *  
from crime_scene_report  
where type = "murder"  
and date = 20180115  
and city = "SQL City"
```

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".

Matching

Table: person

Columns: all

Rows: address_street_name = "Northwestern Dr"

```
select *  
from person  
where address_street_name = "Northwestern Dr"
```


Case-insensitive matching

```
select *  
from person  
where lower(address_street_name) = "northwestern dr"
```

ORDER BY address_number (descending order)

Table: person

Columns: all

Rows: address_street_name = "Northwestern Dr"

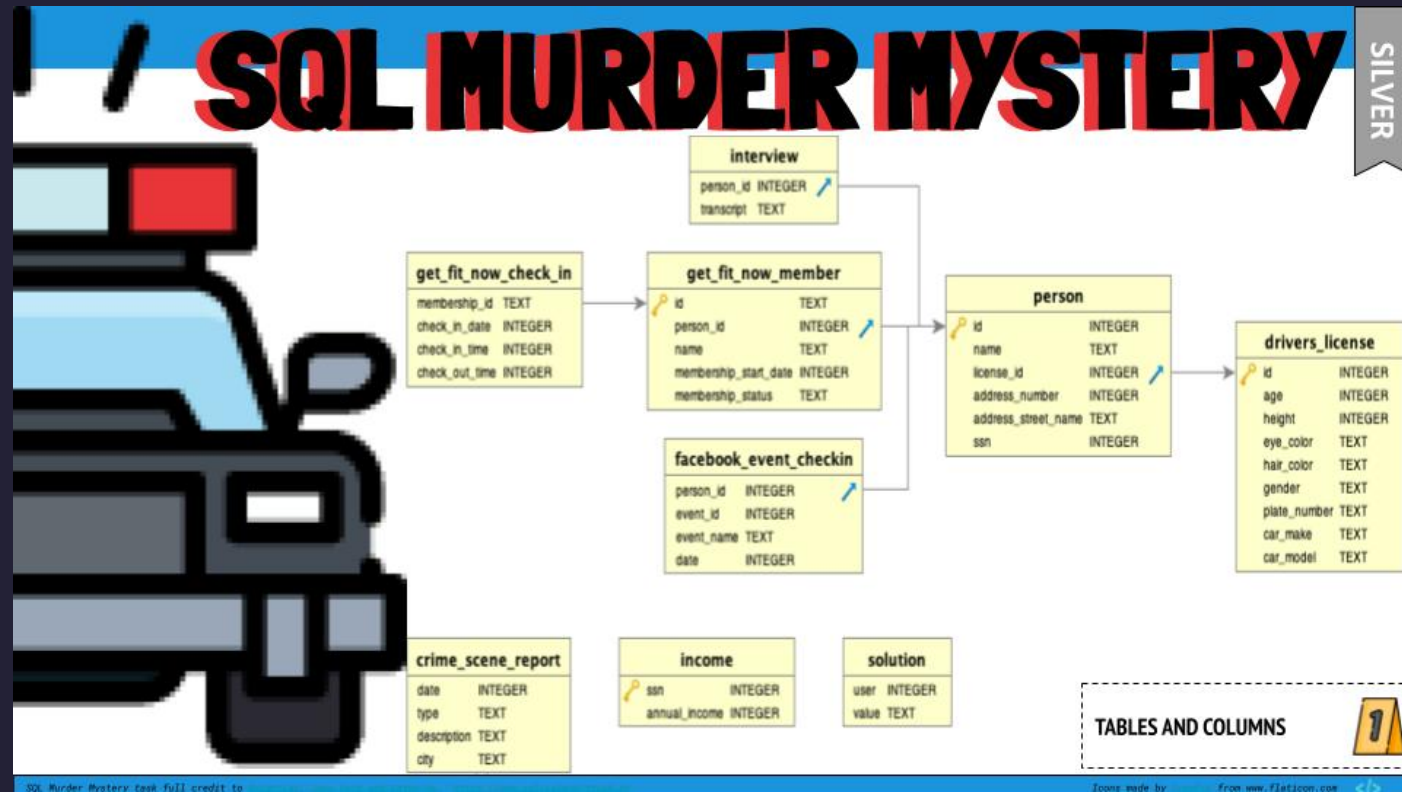
```
select *  
from person  
where address_street_name = "Northwestern Dr"  
order by address_number DESC
```

First witness

From `person` table

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

Relationship between tables through (foreign) key



person_id in interview -> id in person table

person_id in facebook_event_checkin -> id in person table

person_id in get_fit_now_member -> id in person table

Table: interview

Columns: all

Rows: person_id = 14887

```
select * from interview where person_id = 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".

Table: get_fit_now_member

Columns: all

Rows: id started with "48Z"

```
select * from get_fit_now_member where id = "48Z"
```

Pattern matching **LIKE**

- **%**: Any number of characters
- **_**: Only one character

Exact matching

```
-- exact matching  
select * from get_fit_now_member where id = "48Z"  
select * from get_fit_now_member where id like "48Z"
```


Pattern matching

Starts with:

```
-- followed by any number of characters  
select * from get_fit_now_member where id like "48Z%"  
-- followed by only one character  
select * from get_fit_now_member where id like "48Z_"
```

Ends with:

```
-- any number of preceding characters  
select * from get_fit_now_member where id like "%48Z"  
-- only one preceding character  
select * from get_fit_now_member where id like "_48Z"
```

Includes:

```
select * from get_fit_now_member where id like "%48Z%"
```

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".

Gold member whose id starts with "48Z"

```
select * from get_fit_now_member
where id like "48Z%"
and membership_status="gold"
```

id	person_id	name	membership_start_date	membership_status
48Z55	67318	Jeremy Bowers	20160101	gold
48Z7A	28819	Joe Germuska	20160305	gold

Driver whose license plate includes "H42W"

```
select * from drivers_license
where plate_number like "%H42W%"
```

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

`get_fit_now_member` <-> `drivers_license`

Logical operator (**AND**, **OR**, **NOT**)

```
select * from person where id = 67318 or id = 28819
```

Membership operator (**IN**, **NOT IN**)

```
select * from person where id in (67318, 28819)
```

Second witness

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".



What's the `person_id` of the second witness?

Table: interview

Columns: all

Rows: person_id = 16371

```
select * from interview where person_id = 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.



Figure out what time she was at the gym

Inequality matching (>, <=, ...)

```
select *  
from get_fit_now_check_in  
where check_in_date = 20180109  
and check_out_time >= 1600 and check_out_time <= 1700
```

Inequality matching (**BETWEEN**, **NOT BETWEEN**)

```
select *  
from get_fit_now_check_in  
where check_out_time between 1600 and 1700
```

```
select *  
from get_fit_now_check_in  
where check_out_time not between 1600 and 1700
```

Confession

```
select * from interview where person_id=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.