SQL MURDER MYSTERY

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**QUERIES:**

STEP 1: We try to find out the details of all the tables listed in the database named sqlite\_master so that we can further look into the particular table details which will help us find the solution.

1. SELECT \*

FROM sqlite\_master

*OUTPUT:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **type** | **name** | **tbl\_name** | **rootpage** | | **Sql** |
| table | crime\_scene\_report | crime\_scene\_report | 2 | CREATE TABLE crime\_scene\_report ( date integer, type text, description text, city text ) | |
| table | drivers\_license | drivers\_license | 3 | CREATE TABLE drivers\_license ( id integer PRIMARY KEY, age integer, height integer, eye\_color text, hair\_color text, gender text, plate\_number text, car\_make text, car\_model text ) | |
| table | facebook\_event\_checkin | facebook\_event\_checkin | 5 | CREATE TABLE facebook\_event\_checkin ( person\_id integer, event\_id integer, event\_name text,  date integer, FOREIGN KEY (person\_id) REFERENCES person(id) ) | |
| table | interview | interview | 6 | CREATE TABLE interview ( person\_id integer, transcript text, FOREIGN KEY (person\_id)  REFERENCES person(id) ) | |
| table | get\_fit\_now\_member | get\_fit\_now\_member | 7 | CREATE TABLE get\_fit\_now\_member ( id text PRIMARY KEY, person\_id integer, name text,  membership\_start\_date integer, membership\_status text, FOREIGN KEY (person\_id) REFERENCES person(id) ) | |
| index | sqlite\_autoindex\_get\_  fit\_now\_member\_1 | get\_fit\_now\_member | 8 | null | |
| table | get\_fit\_now\_check\_in | get\_fit\_now\_check\_in | 9 | CREATE TABLE get\_fit\_now\_check\_in ( membership\_id text, check\_in\_date integer, check\_in\_time integer,  check\_out\_time integer, FOREIGN KEY (membership\_id) REFERENCES get\_fit\_now\_member(id) ) | |
| table | solution | solution | 11 | CREATE TABLE solution ( user integer, value text ) | |
| trigger | check\_solution | solution | 0 | CREATE TRIGGER check\_solution AFTER INSERT ON solution WHEN new.user==1 BEGIN DELETE FROM  solution; INSERT INTO solution VALUES (0, CASE WHEN hex(new.value)=='4A6572656D7920426F77657273' THEN "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." WHEN  hex(new.value)=='4D6972616E6461205072696573746C79' THEN "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!" ELSE "That's not the right person. Try again!" END ); END | |
| table | income | income | 10 | CREATE TABLE income (ssn CHAR PRIMARY KEY, annual\_income integer) | |
| index | sqlite\_autoindex\_income\_1 | income | 683 | null | |
| table | person | person | 4 | CREATE TABLE person (id integer PRIMARY KEY, name text, license\_id integer, address\_number integer, address\_street\_name text, ssn CHAR REFERENCES income (ssn), FOREIGN KEY (license\_id) REFERENCES  drivers\_license (id)) | |

STEP 2: We look into the hints given in the mystery game; i.e, “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​****.” So we try looking into the table crime\_scene\_report to find out what are the attribute names that can be matched with the city and date given.

1. SELECT \*

FROM crime\_scene\_report

*OUTPUT:*

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

STEP 3: As we find the attribute names, we specify the particular city and date we need to look into.

1. SELECT \*

FROM crime\_scene\_report

WHERE city=="SQL City" and date=="20180115"

*OUTPUT:*

|  |  |  |  |
| --- | --- | --- | --- |
| date | type | description | city |
| 20180115 | assault | Hamilton: Lee, do you yield? Burr: You shot him in the side! Yes he yields! | SQL City |
| 20180115 | assault | Report Not Found | SQL 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 |

STEP 4: Now since it is given that the crime that took place on 15th Jan 2018 was a crime, we find only one row specifying murder as the crime type. Hence the next step is to look into its details.It can be seen that the first witness lives at the last house on Northwestern Dr, i.e, the address no. of that particular house will be the maximum.

1. SELECT \*

FROM person

WHERE address\_street\_name=="Northwestern Dr"

ORDER BY address\_number desc

*OUTPUT:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **id** | **name** | **license\_id** | **address\_number** | **address\_street\_name** | **ssn** |
| 14887 | Morty Schapiro | 118009 | 4919 | Northwestern Dr | 111564949 |
| 17729 | Lasonya Wildey | 439686 | 3824 | Northwestern Dr | 917817122 |
| 53890 | Sophie Tiberio | 957671 | 3755 | Northwestern Dr | 442830147 |
| 73368 | Torie Thalmann | 773862 | 3697 | Northwestern Dr | 341559436 |
| 96595 | Coretta Cubie | 303645 | 3631 | Northwestern Dr | 378403829 |
| 19420 | Cody Schiel | 890431 | 3524 | Northwestern Dr | 947110049 |
| 93509 | Emmitt Aceuedo | 916706 | 3491 | Northwestern Dr | 979073160 |
| 87456 | Leonora Wolfsberger | 215868 | 3483 | Northwestern Dr | 565203106 |
| 36378 | Freddie Ellzey | 267882 | 3449 | Northwestern Dr | 474117596 |
| 53076 | Boris Bijou | 664914 | 3327 | Northwestern Dr | 401191868 |
| 28360 | Rashad Cascone | 924517 | 3212 | Northwestern Dr | 838907424 |
| 23044 | Val Portlock | 924989 | 3143 | Northwestern Dr | 100593316 |
| 51114 | Christena Saffell | 814284 | 3055 | Northwestern Dr | 247657547 |
| 68690 | Yer Modest | 852404 | 3046 | Northwestern Dr | 419238039 |
| 44004 | Alison Eska | 327797 | 2951 | Northwestern Dr | 306417867 |
| 98593 | Jonah Toner | 578982 | 2947 | Northwestern Dr | 745853548 |
| 59307 | Cyril Yongue | 753524 | 2903 | Northwestern Dr | 866057839 |
| 34155 | Allyson Lazenson | 814209 | 2840 | Northwestern Dr | 991150469 |
| 90397 | Dionna Kranwinkle | 797260 | 2678 | Northwestern Dr | 278964807 |
| 54564 | Sammie Sengun | 217286 | 2590 | Northwestern Dr | 848854310 |
| 53699 | Christian Pagano | 628433 | 2585 | Northwestern Dr | 644772304 |
| 34352 | Vincenza Burkhardt | 436470 | 2512 | Northwestern Dr | 197913046 |
| 80921 | Donovan Yackley | 222395 | 2386 | Northwestern Dr | 515049359 |
| 96178 | Galina Khuu | 450248 | 2183 | Northwestern Dr | 398518185 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 81885 | Kurtis Masuda | 934201 | 2108 | Northwestern Dr | 201272595 |
| 88423 | Teri Ehrich | 510876 | 1879 | Northwestern Dr | 248637345 |
| 51552 | Bonita Knie | 764124 | 1726 | Northwestern Dr | 597137908 |
| 72076 | Courtney Bordeaux | 324614 | 1707 | Northwestern Dr | 347966356 |
| 81052 | Calvin  Czelusniak | 471483 | 1516 | Northwestern Dr | 657531837 |
| 71924 | Laurie Scronce | 774116 | 1418 | Northwestern Dr | 254883636 |
| 23960 | Kristopher Lagerberg | 658777 | 1392 | Northwestern Dr | 492912529 |
| 70485 | Andera Kostelecky | 354822 | 1252 | Northwestern Dr | 787423012 |
| 22239 | Dusty Sigafus | 710517 | 1125 | Northwestern Dr | 724386723 |
| 18376 | Josh Shi | 653712 | 1091 | Northwestern Dr | 193899001 |
| 29608 | Willetta Lurvey | 800568 | 1028 | Northwestern Dr | 843751378 |
| 33415 | Homer Simpson | 108392 | 981 | Northwestern Dr | 871392019 |
| 55130 | Shiloh Huntoon | 472118 | 951 | Northwestern Dr | 826647644 |
| 44542 | Ivory Mcgrevey | 873842 | 897 | Northwestern Dr | 988557407 |
| 99826 | Ivy Kazarian | 994470 | 892 | Northwestern Dr | 208359813 |
| 25615 | Olevia Morena | 388477 | 812 | Northwestern Dr | 962831331 |
| 40760 | Renata Faver | 976650 | 745 | Northwestern Dr | 547572040 |
| 10010 | Muoi Cary | 385336 | 741 | Northwestern Dr | 828638512 |
| 39688 | Abe Roeker | 537445 | 689 | Northwestern Dr | 438969447 |
| 26758 | Angelena Billman | 942074 | 629 | Northwestern Dr | 341854756 |
| 75484 | Del Tacderen | 447887 | 607 | Northwestern Dr | 243821337 |
| 12711 | Norman Apolito | 667757 | 599 | Northwestern Dr | 778264744 |
| 85280 | Donn Duin | 569122 | 540 | Northwestern Dr | 613873810 |
| 40336 | Fredia Billeter | 251082 | 404 | Northwestern Dr | 108056488 |
| 15171 | Weldon Penso | 336999 | 311 | Northwestern Dr | 131379495 |
| 89906 | Kinsey Erickson | 510019 | 309 | Northwestern Dr | 635287661 |

\*From the output we can conclude that our first witness of the murder is Morty Schapiro whose id number is 14887

STEP 5: Now we look into the details of the second witness about whom only the first name is specified, i.e, Annabel. There can be many people with the same name however the address may not be same. So we check all people with the name Annabel and luckily we find only one result.

1. SELECT \*

FROM person

WHERE name LIKE 'Annabel %'

*OUTPUT:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| id | name | license\_id | address\_number | address\_street\_name | ssn |
| 16371 | Annabel Miller | 490173 | 103 | Franklin Ave | 318771143 |

\*From the output we can conclude that our second witness of the murder is Annabel Miller whose id number is 16371.

# STEP 6: Now once we have found these witnesses we investigate them and look into what they have had to say about the murder taking place. The only way we can do this is by matching their id numbers with the ids in the interview table.

# SELECT \*

FROM person P

LEFT JOIN interview I ON P.id=I.person\_id

WHERE id=="14887" or id=="16371"

*OUTPUT:*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| id | name | license\_id | address\_number | address\_street\_name | ssn | person\_id | transcript |
| 14887 | Morty Schapiro | 118009 | 4919 | Northwestern Dr | 111564949 | 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 | Annabel Miller | 490173 | 103 | Franklin Ave | 318771143 | 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. |

STEP 7: Next step is to look into the details of the interview of both the witnesses and search for the details in the respective tables available.

1. SELECT \*

FROM get\_fit\_now\_member M

LEFT JOIN get\_fit\_now\_check\_in C ON M.id=C.membership\_id

WHERE C.check\_in\_date=="20180109" AND C.membership\_id LIKE '48Z%' AND M.membership\_status==’gold’

*OUTPUT:*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **id** | **person\_id** | **name** | **membership\_start\_date** | **membership\_status** | **membership\_id** | **check\_in\_date** | **check** |
| 48Z7A | 28819 | Joe Germuska | 20160305 | gold | 48Z7A | 20180109 | 1600 |
| 48Z55 | 67318 | Jeremy Bowers | 20160101 | gold | 48Z55 | 20180109 | 1530 |

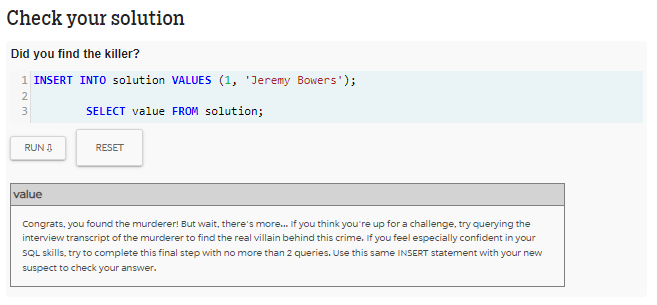
# STEP 8: We get two suspects from which we can be only sure of one by comparing their license plate number with that of what the witnesses have observed.

1. SELECT \*

FROM person P

LEFT JOIN drivers\_license D ON P.license\_id= D.id

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id | name | license\_id | address\_number | address\_street\_name | ssn | id | age | height | eye\_color | hair\_co |
| 51739 | Tushar Chandra | 664760 | 312 | Phi St | 137882671 | 664760 | 21 | 71 | black | black |
| 67318 | Jeremy Bowers | 423327 | 530 | Washington Pl, Apt 3A | 871539279 | 423327 | 30 | 70 | brown | brown |
| 78193 | Maxine Whitely | 183779 | 110 | Fisk Rd | 137882671 | 183779 | 21 | 65 | blue | blonde |

 WHERE plate\_number LIKE '%H42W%'

However, when we enter the name into the solution checker, we see that he is not the real murderer.

\*On comparing the above two tables of suspects we find a common name “Jeremy Bowers” with id number 67318

*OUTPUT:*

STEP 9: So, now we look into what Jeremy Bowers with id number 67318 has to say about the murder when he was being held the prime suspect.

1. SELECT \*

FROM interview

WHERE person\_id=='67318'

*OUTPUT:*

| **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. |

STEP 10: With the details given by the prime suspect we now try finding the actual murderer.

1. SELECT \*

FROM facebook\_event\_checkin F

LEFT JOIN person P

ON P.id=F.person\_id

LEFT join drivers\_license D

ON P.license\_id=D.id

WHERE D.hair\_color=='red' AND D.car\_make=='Tesla' AND F.event\_name=='SQL Symphony Concert'

*OUTPUT:*

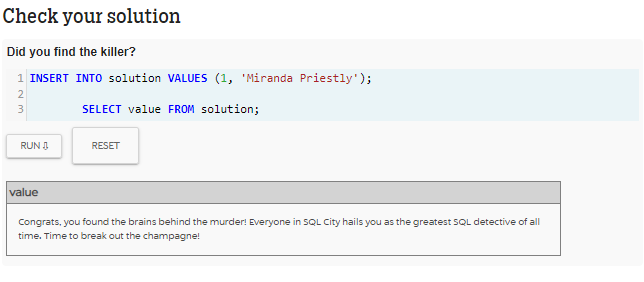
person\_id event\_id event\_name date id name license\_id address\_number address\_street\_name ssn id age height eye\_color hair\_color gender plate\_number car\_make car\_model

99716 1143 SQL Symphony Concert 20171206 99716 Miranda Priestly 202298 1883 Golden Ave 987756388 202298 68 66 green red female 500123 Tesla Model S

99716 1143 SQL Symphony Concert 20171212 99716 Miranda Priestly 202298 1883 Golden Ave 987756388 202298 68 66 green red female 500123 Tesla Model S

99716 1143 SQL Symphony Concert 20171229 99716 Miranda Priestly 202298 1883 Golden Ave 987756388 202298 68 66 green red female 500123 Tesla Model S

Now with all the given hints, we finally sort it down to one person “Miranda Priestly” and check if she is the real murderer.



WE, HENCE HAVE FINALLY SOLVED THE MURDER MYSTERY!!!