

Roland Greene Murder Investigation

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Tools Used: PostgreSQL

Unraveling the Murder of Roland Greene

- On June 1, 2025, Roland Greene, a prominent art collector, was shot dead at 20:00:00 in the Vault Room during an exclusive art auction attended by 30 elite guests.
- A mysterious phone call at 19:56:39 distracted Roland moments before the fatal shot.
- As an analyst, I used PostgreSQL to analyze large datasets; suspect profiles, access logs, call records, and forensic events to uncover the killer.
- This project showcases SQL proficiency and data synthesis as part of my portfolio.

Datasets: The Evidence

- **Purpose:** Structured datasets traced suspects' actions to pinpoint the killer.
- Datasets:
 - **Suspects:** IDs, names, roles, alibis (e.g., “Left early,” “At hospital”).
 - **Access Logs:** Room entries (e.g., Vault Room) with timestamps and success flags.
 - **Call Records:** Phone call timestamps, durations, and directions.
 - **Forensic Timeline:** Key events (e.g., gunshot at 20:00:00).
- Stored in PostgreSQL; analysis focused on 19:50:00–20:10:00 on June 1, 2025.

Database Setup: Building the Foundation

- **Purpose:** A robust PostgreSQL database ensured data integrity and fast querying.
- Setup:
 - Created tables: **suspects**, **access_logs**, **call_records**, **forensic_events**.
 - Used foreign keys for referential integrity.
 - Applied indexes (**idx_access_time**, **idx_suspect_id**, **idx_call_timestamp**) for performance.
 - Imported large CSV files with **COPY** command.

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```
CREATE TABLE suspects (  
    suspect_id INTEGER PRIMARY KEY,  
    name TEXT NOT NULL,  
    role TEXT,  
    alibi TEXT  
);  
  
CREATE TABLE access_logs (  
    access_id INTEGER PRIMARY KEY,  
    suspect_id INTEGER REFERENCES suspects(suspect_id),  
    access_time TIMESTAMP,  
    door_accessed TEXT,  
    success_flag BOOLEAN  
);  
  
CREATE TABLE call_records (  
    call_id INTEGER PRIMARY KEY,  
    suspect_id INTEGER REFERENCES suspects(suspect_id),  
    call_timestamp TIMESTAMP,  
    call_duration INTEGER,  
    call_direction TEXT  
);  
  
CREATE TABLE forensic_events (  
    event_id INTEGER PRIMARY KEY,  
    event_time TIMESTAMP,  
    event_description TEXT  
);
```

```
COPY suspects
FROM 'C:\Users\USER\Desktop\PORTFOLIO PROJECT\SQL\Forensic Analysis\datasets\suspects_large.csv'
WITH CSV HEADER;
COPY access_logs
FROM 'C:\Users\USER\Desktop\PORTFOLIO PROJECT\SQL\Forensic Analysis\datasets\access_logs_large.csv'
WITH CSV HEADER;
COPY call_records
FROM 'C:\Users\USER\Desktop\PORTFOLIO PROJECT\SQL\Forensic Analysis\datasets\call_records_large.csv'
WITH CSV HEADER;
COPY forensic_events
FROM 'C:\Users\USER\Desktop\PORTFOLIO PROJECT\SQL\Forensic Analysis\datasets\forensic_events_large.csv'
WITH CSV HEADER;
```

Crime Timeline: Key Moments

- **Purpose:** Establishes the sequence of critical events.
- **Timeline:**
 - 19:56:39: Mysterious phone call begins, distracting Roland.
 - 20:00:00: Gunshot in the Vault Room, marking the murder.
 - 20:02:39: Phone call ends, likely dropped by the victim.
 - 20:03:00: Security feed is cut, obscuring movements.
 - 20:05:45: Emergency call alerts authorities.
- Vault Room is the primary crime scene with strict entry/exit checks.

Query 1: Vault Room Access

- **Purpose:** Identifies suspects in the Vault Room at 20:00:00.
- SQL Query:

```
SELECT a.suspect_id, s.name, a.access_time
FROM access_logs a
JOIN suspects s ON a.suspect_id = s.suspect_id
WHERE a.door_accessed = 'Vault Room'
AND a.access_time BETWEEN '2025-06-01 19:50:00' AND '2025-06-01 20:10:00'
AND a.success_flag = 'True'
ORDER BY a.access_time;
```


Query 1: Results

Name	Access Time
Victor Shaw	2025-06-01 19:50:39
Samira Shaw	2025-06-01 19:52:00
Robin Ahmed	2025-06-01 19:56:35
Jamie Bennett	2025-06-01 20:00:55
Victor Shaw	2025-06-01 20:04:53
Evan Ahmed	2025-06-01 20:09:14

Query 1: Analysis

- **Robin Ahmed** entered at 19:56:35, remaining in the Vault Room at 20:00:00 with no recorded exit, strongly suggesting presence during the murder.
- **Samira Shaw** entered at 19:52:00 and stayed through 20:00:00, raising questions about her role as a potential witness or passive participant.
- **Victor Shaw** left at 19:52:36, absent during the murder, while Jamie Bennett and Evan Ahmed arrived post-incident, ruling them out.
- The proximity of **Robin**'s entry to the gunshot time, combined with **Samira**'s prolonged presence, focuses suspicion on these two.

Query 2: Suspect Movements

- **Purpose:** Tracks movements of Vault Room suspects using exit checks.
- SQL Query:

```
SELECT s.name, a.access_time, a.door_accessed, a.success_flag
FROM access_logs a
JOIN suspects s ON a.suspect_id = s.suspect_id
WHERE a.suspect_id IN (
    SELECT DISTINCT suspect_id
    FROM access_logs
    WHERE door_accessed = 'Vault Room'
    AND access_time BETWEEN '2025-06-01 19:50:00' AND '2025-06-01 20:10:00'
    AND success_flag = 'True'
)
AND a.access_time BETWEEN '2025-06-01 19:50:00' AND '2025-06-01 20:10:00'
ORDER BY a.access_time;
```

Query 2: Results (Part 1)

Name	Access Time	Door Accessed	Success Flag
Victor Shaw	2025-06-01 19:50:39	Vault Room	True
Samira Shaw	2025-06-01 19:52:00	Vault Room	True
Victor Shaw	2025-06-01 19:52:36	Kitchen	True
Robin Ahmed	2025-06-01 19:54:05	Office	True
Jamie Bennett	2025-06-01 19:54:40	Vault Room	False
Evan Ahmed	2025-06-01 19:55:17	Kitchen	True

Query 2: Results (Part 2)

Name	Access Time	Door Accessed	Success Flag
Robin Ahmed	2025-06-01 19:56:35	Vault Room	True
Evan Ahmed	2025-06-01 19:59:06	Office	False
Jamie Bennett	2025-06-01 20:00:09	Office	True
Evan Ahmed	2025-06-01 20:00:20	Library	True
Jamie Bennett	2025-06-01 20:00:55	Vault Room	True
Victor Shaw	2025-06-01 20:01:03	Master Bedroom	True

Query 2: Results (Part 3)

Name	Access Time	Door Accessed	Success Flag
Victor Shaw	2025-06-01 20:01:47	Library	False
Evan Ahmed	2025-06-01 20:02:58	Office	False
Robin Ahmed	2025-06-01 20:03:51	Master Bedroom	False
Victor Shaw	2025-06-01 20:04:53	Vault Room	True
Evan Ahmed	2025-06-01 20:09:14	Vault Room	True

Query 2: Analysis

- **Robin Ahmed** entered the Vault Room at 19:56:35 and had no successful exit until a failed attempt at 20:03:51, indicating presence during the murder.
- **Samira Shaw** remained in the Vault Room from 19:52:00 with no exit, suggesting she could have observed the crime or been involved.
- **Victor Shaw** exited to the Kitchen at 19:52:36 and returned later, ruling him out at 20:00:00; his failed Library access at 20:01:47 might hint at alibi-building.
- Jamie Bennett and Evan Ahmed's post-murder movements exclude them, with Jamie's failed entry at 19:54:40 showing limited access.


Query 3: Phone Calls

- **Purpose:** Examines calls to identify the distracting call at 19:56:39.
- SQL Query:

```
SELECT c.suspect_id, s.name, c.call_timestamp,  
       c.call_timestamp + (c.call_duration || ' seconds')::interval AS call_end,  
       c.call_duration  
FROM call_records c  
JOIN suspects s ON c.suspect_id = s.suspect_id  
WHERE c.call_timestamp BETWEEN '2025-06-01 19:50:00' AND '2025-06-01 20:10:00'  
ORDER BY c.call_timestamp;
```


Query 3: Results

Name	Call Timestamp	End Time	Duration
Emerson Smith	2025-06-01 19:53:33	2025-06-01 19:58:33	5 min
Victor Hale	2025-06-01 19:55:45	2025-06-01 19:56:45	1 min
Susan Knight	2025-06-01 19:56:39	2025-06-01 20:02:39	6 min

 Phone Call Timeline

Query 3: Analysis

- **Susan Knight**'s call from 19:56:39 to 20:02:39 overlapped the murder at 20:00:00, likely distracting Roland during the critical moment.
- The call started 4 seconds after **Robin Ahmed**'s Vault Room entry at 19:56:35, suggesting **Robin** may have exploited this timing, though he made no call.
- Emerson Smith's and Victor Hale's calls ended before 20:00:00, rendering them unrelated; **Susan**'s prolonged call post-murder raises suspicion of aiding the killer.

Query 4: False Alibis

- **Purpose:** Detects deceptive alibis contradicting access logs.
- SQL Query:

```
SELECT s.name, s.alibi, a.access_time, a.door_accessed
FROM suspects s
JOIN access_logs a ON s.suspect_id = a.suspect_id
WHERE a.access_time BETWEEN '2025-06-01 19:50:00' AND '2025-06-01 20:10:00'
AND (s.alibi = 'Left early' AND a.access_time >= '2025-06-01 19:50:00'
     OR s.alibi = 'At hospital' AND a.door_accessed = 'Vault Room')
AND a.success_flag = 'True'
ORDER BY s.name, a.access_time;
```

Query 4: Results

Name	Alibi	Access Time	Door Accessed
Morgan Bennett	At hospital	2025-06-01 19:56:35	Vault Room
Peter Nguyen	Left early	2025-06-01 19:52:00	Vault Room
Robin Ahmed	Left early	2025-06-01 19:56:35	Vault Room
Victor Shaw	At hospital	2025-06-01 19:50:39	Vault Room
Victor Shaw	At hospital	2025-06-01 20:04:53	Vault Room

Query 4: Analysis

- **Robin Ahmed**'s "Left early" alibi is false given his 19:56:35 Vault Room entry, indicating an attempt to mislead investigators.
- **Victor Shaw**'s "At hospital" alibi contradicts his 19:50:39 and 20:04:53 entries, suggesting deception but not presence at the murder.
- **Samira Shaw** offered no alibi, aligning with her recorded presence; Morgan Bennett and Peter Nguyen's false alibis lack murder-time relevance.
- **Robin**'s deception, tied to his Vault Room presence, marks him as the prime suspect.

Q1: Who Was the Killer?

Finding: Robin Ahmed is the most likely killer.

- **Evidence:**

- Present in the Vault Room at 20:00:00 (entered 19:56:35, no exit).
- False alibi (“Left early”) contradicts access logs, suggesting intent to mislead.
- Susan Knight’s call (19:56:39–20:02:39) began 4 seconds after Robin’s entry, likely used to distract Roland.

- **Eliminations:**

- Samira Shaw was present but showed no deception, making her less likely.
- Victor Shaw exited to the Kitchen at 19:52:36, absent during the murder.

Olajimi Adedokun Data Analyst Other suspects (Jamie, Evan) entered post-murder or were elsewhere.

Q2: Prime Suspects

Finding: The suspects are prioritized based on their presence and behavior.

- **Primary:** Robin Ahmed—in Vault Room, false alibi, linked to distraction call.
- **Secondary:** Samira Shaw—in Vault Room at 20:00:00, but no deceptive behavior.
- **Tertiary:** Victor Shaw—false “At hospital” alibi, but exited Vault Room before murder.
- Other suspects (e.g., Jamie, Evan, Morgan) were not in the Vault Room at 20:00:00.
- Robin’s presence and deception make them the strongest suspect.

Q3: Killer's Motive

Finding: The motive was likely a personal or financial grudge.

- The high-stakes auction involved valuable artworks, creating a competitive environment.
- Robin Ahmed's false alibi and strategic timing suggest a deliberate plan, possibly driven by betrayal or a disputed art deal.
- Samira Shaw and Victor Shaw lack clear motives, with no deceptive behavior (Samira) or presence (Victor).
- While no direct motive evidence exists, the auction's context and Robin's actions point to personal or financial gain.

Q4: Evasion Tactics

Finding: Robin Ahmed employed multiple tactics to avoid detection.

- **Tactics:**

- Provided a false “Left early” alibi to mislead investigators.
- Likely exploited Susan Knight’s call (19:56:39–20:02:39) to distract Roland during the murder.
- Blended into the auction’s chaotic guest movements, avoiding immediate suspicion.
- Benefited from the security feed cut at 20:03:00, obscuring post-murder actions.

- Attempted a strategic Master Bedroom access (20:03:51, failed), possibly to establish a false location.

Q5: Was There an Accomplice?

Finding: Susan Knight is a possible accomplice, but Robin likely acted alone.

- **Evidence:**
 - Susan's call (19:56:39–20:02:39) coincided with the murder, distracting Roland and aiding the killer.
 - The call's timing (4 seconds after Robin's entry) is suspicious but lacks direct coordination evidence.
- Samira Shaw was present in the Vault Room but likely a bystander, with no deceptive actions.
- No conclusive evidence confirms an accomplice, suggesting Robin executed the murder independently.

Skills Highlighted

Purpose: This project demonstrates a robust skill set in data analysis and forensic investigation.

- **PostgreSQL Expertise:** Designed relational tables, implemented indexes, and crafted complex queries to extract actionable insights.
- **Data Analysis:** Synthesized timelines, cross-referenced access logs with alibis, and conducted exit checks to pinpoint suspects.
- **Problem-Solving:** Resolved data discrepancies (e.g., false alibis).
- **Communication:** Presented a compelling narrative, translating complex data into an accessible murder investigation story.
- This project showcases my ability to tackle real-world data challenges.

Project Impact

Purpose: The investigation highlights the power of data-driven forensics and its value for professional growth.

- Analyzed large, complex datasets to uncover critical evidence.
- Optimized query performance using indexes, ensuring efficient analysis.
- Solved a high-profile murder case through rigorous data synthesis.
- Demonstrates proficiency in PostgreSQL and data analysis.
- Future enhancements could include clustering, NLP, or interactive dashboards.
- This project is a compelling addition to my portfolio, showcasing my readiness for data-driven roles.

Conclusion

- **Robin Ahmed** is the primary suspect, present in the Vault Room at 20:00:00, with a false “Left early” alibi and likely used **Susan**’s call to distract the victim.
- **Samira Shaw** was present but showed no deception, likely a bystander.
- **Victor Shaw** provided a false “At hospital” alibi but was absent from the Vault Room during the murder.
- **Susan Knight**’s call timing suggests a possible accomplice role, though no direct evidence confirms this, but evidence suggests **Robin** acted alone
- As a Analyst, this investigation leveraged PostgreSQL to deliver a solid conclusion, showcasing my problem-solving to derive solutions for data analytics roles.