Murder mystery – The Murder of a Data Analyst

First created a repository for github pages where I will host my murder mystery game.

Then I cloned the example murder mystery repository onto my computer.

git clone https://github.com/NUKnightLab/sql-mysteries.git

I changed the remote (for pull and push) to my repository.

git remote set-url origin <https://github.com/evamayer/evamayer.github.io.git>

Did a git push after changing the remote.

My murder mystery can now be accessed at <https://evamayer.github.io/>

Started a local server to see changes to the page instantly on my computer:

python -m http.server 8000

I access it at <http://localhost:8000/>

Planning:

Create story

Source data – use AdventureWorks data from SSMS for company employees and maybe finance?

Create data model

Create database – I downloaded and will use an opensource tool for this called SQLite Studio https://sqlitestudio.pl/

Create data visualization (dashboard?) in Power BI for clue about the fraud

Insert it into the webpage as an image or as an interactive dashboard(?) – the clue should be identifiable by the user at a glance and they can investigate it via SQL

Create all the SQL queries to take the user through the mystery

Update webpage with my text etc. – I will use VS code to make changes to the frontend and the built in terminal to push my changes

Test

Worked a bit on updating the cloned webpage to reflect my taste (fonts, colours etc.).

After looking for suitable data and researching financial crime I created the structure of the story. Decided to use some data from the AdventureWorks2019 sample database in Microsoft SQL Server Management Studio.

Started to think more about the details of the story and what data I will need exactly. Also thinking about the tables and connections.

The story:

A murder has been committed. The victim is a woman who was a new employee at the finance department of a large company that has several offices. She was murdered in her own office while working a weekend shift. Her computer was locked and after being unlocked by the police they notice that she was looking into expense reports.

The investigator starts looking into the expenses of the company and discovers fake/inflated expenses. These were submitted by a number of people at the company.

The investigation is focusing on these people and identifies the ones who were in the office when the victim was murdered. (ca. 50? Suspects)

In the meantime witness statements are taken from all people in the office that day. A cleaner remembers seeing someone on the victim’s floor (where she should have been alone).

Vague description of the person is given, this helps narrowing down the number of suspects (maybe to 10?).

Evidence was also collected from the victim’s office, a personal item was found (maybe something branded), this helps to identify the killer. He is caught.

Looked into creating a database model using a free tool: <https://dbdiagram.io/home>.

Looked for business expense datasets – decided to generate one with mockaroo.

I will then create a dashboard of it in Power BI??? / Tableau to embed into the webpage.

Generated employee, expenses and other data with mockaroo. Lots of manual adjustments in Excel to fit the story.

Created new database in SQLite Studio, created some of the tables and imported the data.

Setting the main characters and details.

43 employees put through expenses in 2022. 6 of them were scammers.

18 expense claimers on the murder shift (2) and 5 of them are scammers.

Murder date: 2023.01.06. Fri

Place: Baltimore office

Victim:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10988 | Emily | | Justis | 435888938 | Female | | 6/6/1996 | |
| 10988 | 115 | Junior Data Analyst | | | | 11/21/2022 | |

Killer:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10921 | Jason | | Faichney | 870449884 | Male | | 9/11/1982 | |
| 10921 | 115 | Sales Representative | | | | 10/15/2021 | |

Scammers:

1. 10921 (Killer)
2. 10726
3. 10821
4. 10844
5. 10894 (not on murder shift)
6. 10923

Explense claimers on murder shift (inlcuding 5 scammers):

10103

10125

10269

10276

10281

10333

10342

10360

10363

10675

10679

10683

10921

10726

10821

10844

10923

Created the dashboard in Tableau.

Changing the story a bit.

From: “In the meantime witness statements are taken from all people in the office that day. A cleaner remembers seeing someone on the victim’s floor (where she should have been alone).

Vague description of the person is given, this helps narrowing down the number of suspects (maybe to 10?).”

To: A pin with the name of the company horse riding club was found at the scene so we know that the murderer is a member of the club. (no description and witness statement needed)

Changed the financial details and the attributes of the suspects according to the below table.

Suspect table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| id | Baltimore | shift 2 | male | club | top expenses |
| 10921 | x | x | x | x | x |
| 10726 | x | x | x | x |  |
| 10821 | x | x | x |  | x |
| 10844 | x | x |  | x | x |
| 10894 | x |  | x | x | x |
| 10923 |  | x | x | x | x |

Intro:

There’s been a murder!

A crime has taken place and Detective Taggart needs your help. He briefed you that the crime was a **​murder​** that occurred in the **evening hours on January 6, 2023.​** It took place in the **Baltimore​** office of Hyper Incorporated.

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

Description:

Victim: Emily Justis, Junior Data Analyst

Upon arrival, the scene was located in the private office of the victim within a large corporate building. Victim was found lying face down behind her desk, showing signs of blunt force trauma to the back of the head. The office's computer was active, and initial examination showed that financial records were open on the screen.

Notably, no security footage was available for the time of the incident and no witnesses have come forward. Additionally, no fingerprints were found at the scene, indicating the possibility that the perpetrator took measures to avoid leaving traces.

Preliminary Findings:

1. An unfinished audit report, including a dashboard were found open on the victim’s computer. She seems to have been investigating possible fraudulent activity by some of the employees.

2. The building’s entrance can only be operated by company issued access cards. No one, except for the employees on shift entered the building around the time of the murder. Employee logs indicate the names and positions of those who were present.

3. A blue company horse club pin was identified on the floor near the victim's chair. The blue horse club pin indicates a male member.

Final updates to database to make story check out and test queries.

Updating webpage – text, colors etc.

Further adjustments to data and dashboard to make it fit the story better.

Testing by me and others, feedback from others.