**Data Analytics Week 5**

**Week 5:  
  
Tasks & Resources :-**

“Welcome to the Week 5 of PrepInsta’s Data Analytics Internship program.  This task not only assesses your SQL skills but also challenges you to become a detective and use web scraping as a tool for data collection. “

**Project 5:- SQL Detective Challenge:**

**Objective:**

Step into the shoes of a detective and solve a murder mystery using SQL. Additionally, embark on a web scraping adventure to collect your dataset, setting the stage for subsequent tasks in data analysis.

**SQL Detective Challenge:**

* **Introduction to the Case:**

Familiarise yourself with the murder mystery case provided. Understand the structure of the crime data, including tables and relationships.

* **Database Setup:**

Set up an SQL database, either locally or using an online platform like SQLite or MySQL.

Create tables that align with the information provided in the murder mystery case.

* **SQL Queries:**

Develop SQL queries to extract relevant information from the database.

Use SELECT statements, JOIN operations, and WHERE clauses to uncover clues and solve the murder mystery.

* **Analysis and Conclusion:**

Analyze the results of your SQL queries to piece together the sequence of events and identify potential suspects.

Conclude the detective challenge by summarising your findings and presenting a compelling case.

**Web Scraping Adventure:**

* **Choose a Target Website:**

Select a website from which you want to collect data. Ensure it aligns with your interests or industry preferences.

* **Understand the Structure:**

Analyze the structure of the chosen website, identifying key elements and the location of the data you want to scrape.

* **Web Scraping Implementation:**

Utilize Python libraries like BeautifulSoup and Requests to perform web scraping.

Extract relevant data from the website and store it in a suitable format for analysis.

* **Dataset Documentation:**

Document the process of web scraping, including the source website, data extraction methods, and any challenges faced during the process.

Clearly outline the ethical considerations and respect the terms of use for the chosen website.

**Pre-requisites**

* Basic understanding of SQL and relational databases.
* Proficiency in using a SQL database management system (DBMS) such as SQLite or MySQL.
* Familiarity with Python programming for web scraping (libraries like BeautifulSoup and Requests).

Note:- In case you want to revise the pre-reqs, just head over to the resources section for a quick brush up.

**What you need to do?**

**Good Practices:**

* Ensure your SQL queries are efficient and well-optimized for data extraction.
* Experiment with different web scraping techniques and handle potential challenges, such as dynamic content.
* Consider the ethical implications of web scraping and ensure compliance with the website’s terms of use.
* Document your detective work and web scraping adventure thoroughly for future reference.