Practical Test: Database Synchronization Using Python.

Overview:

You have been tasked to synchronize data between two databases using Python. The aim of this practical test is to assess your ability in designing and implementing a robust solution for database synchronization while ensuring data integrity and security.

Please try to complete the task as much as possible before the interview day.

Requirements:

Database Setup:

- You will be provided with two database instances.
- Both databases contain identical schemas but may have different data.
- Modifications in the database schema are allowed at your convenience.

Python Script:

- Develop a Python script to synchronize data between databases.
- Ensure the script handles database connections, data extraction, transformation, and loading efficiently.
- Implement error handling to manage database connectivity issues and data synchronization failures gracefully.

Synchronization Logic:

- Design synchronization logic to identify new, updated, and deleted records in both databases.
- Implement a strategy to apply these changes while preserving data integrity.

Testing:

- Test the synchronization process thoroughly with various scenarios, including large datasets and concurrent updates.
- Verify that data integrity is maintained throughout the synchronization process.

Deliverables:

- Python script for database synchronization.
- Present actions taken over the databases, demonstrate solution on the interview day.

Expected question:

SSH Tunnelling:

- Utilize SSH tunnelling for secure communication between the Python script and the databases.