Task 1: Indexing and Performance

- **Objective**: Understand the impact of indexes.
- **Instructions**:
    1. Create a large table (e.g., `transactions` with 10,000+ rows) and insert random data.
    2. Write a query to filter by a column (e.g., transaction amount or date) and time how long it takes to execute.
    3. Create an index on that column and rerun the query. Compare the performance.

Task 2: Working with JSON Data

- **Objective**: Explore JSON support in PostgreSQL.
- **Instructions**:
    1. Create a table `products` with columns `id`, `name`, and `details` (JSONB).
    2. Insert data into `details` as JSON, containing information like `{"price": 10, "stock": 100, "tags": ["sale", "electronics"]}`.
    3. Write a query to return products that are tagged as "electronics."

Task 3: Transactions and Error Handling

- **Objective**: Practice using transactions.
- **Instructions**:
    1. Create a table `inventory` with columns `product_id`, `stock`, and `last_updated`.
    2. Start a transaction: update the stock for a product and then try to insert invalid data (e.g., a product with a duplicate `id`).
    3. Use `ROLLBACK` to undo the entire transaction if there's an error.

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⇨ Add all sql querys with response in word file and convert to pdf then upload it