📝 Exercise 1.6: Connecting to Databases in Python

🎯 Learning Goals

- Create a MySQL database for your Recipe app.

💡 Reflection Questions

1. What are databases and what are the advantages of using them?

Databases are structured systems for storing, organizing, and retrieving data. They allow for efficient data management, querying, and long-term data persistence.

Advantages of using databases:

- Data is structured and easily accessible.
- Supports data integrity and consistency.
- Enables multiple users to access and manipulate data concurrently.
- Provides powerful querying capabilities using SQL.
- Makes it easy to perform data backups and restoration.

2. List 3 data types that can be used in MySQL and describe them briefly:

Data Type	Definition
`VARCHAR(n)`	A variable-length string of up to n characters. Ideal for storing names, titles, etc.
`INT`	A whole number (integer), used for storing numeric values like IDs or counts.
`DATETIME`	Stores both date and time values in the format `YYYY-MM-DD HH:MM:SS`. Useful for timestamps.

3. In what situations would SQLite be a better choice than MySQL?

SQLite is a better choice when:

- You need a lightweight database with **no server setup**.

- The application is **single-user** or used **locally**, such as in mobile or desktop apps.
- You want to **embed the database directly** into the application.
- You prioritize **simplicity and quick deployment** over scalability and multi-user support.

4. What do you think about the differences between JavaScript and Python as programming languages?

Aspect	JavaScript	Python
Syntax	Curly-brace { } based syntax	Indentation-based syntax; generally more readable
Use Case	Web development (frontend & backend with Node.js)	General-purpose; strong in backend, data science, automation
Learning Curve	Slightly steeper due to async logic and browser quirks	Easier for beginners due to simple and readable syntax
Typing	Dynamically typed	Also dynamically typed

5. What would you say are the limitations of Python as a programming language?

- Slower performance compared to compiled languages like C++ or Java.
- Limited support for **native mobile development**.
- **Multithreading** is constrained due to the Global Interpreter Lock (GIL).
- **Runtime errors** are more common due to its dynamic typing system.
- May rely heavily on **third-party libraries** for certain functionalities