Exercise 1.6: Connecting to Databases in Python

Learning Goals

- Create a MySQL database for your Recipe app

CREATE DATABASE IF NOT EXISTS task_database

Reflection Questions

- What are databases and what are the advantages of using them?

A database is an organized collection of data that allows for easy storage, retrieval, and management of information. The advantages of using databases include:

- Databases enable quick access, modification, and organization of large amounts of data.
- They help maintain accuracy and consistency of data through constraints and validation.
- Databases provide robust security features to protect data from unauthorized access.
- They can handle growing amounts of data and users effectively.
- Multiple users can access and work on the same data simultaneously, promoting collaboration.

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

INT: Represents whole numbers without decimals. It's used for storing integer values, such as counts, IDs, or any numeric data that doesn't require fractions. For example, INT can store values like 10, 0, or -5.

VARCHAR: Used to store variable-length strings of text, such as names, email addresses, or descriptions. The length of the string can be specified up to a maximum of 65,535 characters.

DATE: Stores dates in the format YYYY-MM-DD. It's used for representing calendar dates, such as birthdates, event dates, or deadlines.

Data type Definition

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

SQLite is better than MySQL when you need a lightweight, serverless database for small-scale applications, local development, or embedded systems with minimal setup and overhead.

- Think back to what you learned in the Immersion course. What do you think about the differences between JavaScript and Python as programming languages?

Use Cases: JavaScript is primarily used for web development, especially for client-side scripting. Python is versatile, used in web development, data science, automation, and more.

Syntax: JavaScript has a C-like syntax with curly braces and semicolons. Python has a simpler, more readable syntax that uses indentation to define code blocks.

Execution: JavaScript runs in the browser, while Python is typically executed on the server or as a standalone application.

Type System: JavaScript is loosely typed, meaning variable types are dynamic and can change. Python is strongly typed, where types are enforced more strictly.

- Now that you're nearly at the end of Achievement 1, consider what you know about Python so far. What would you say are the limitations of Python as a programming language?

Performance: Python is generally slower than compiled languages like C++ or Java due to its interpreted nature.

Mobile Development: Python is less common in mobile app development, with fewer libraries and frameworks compared to languages like Java or Swift.

Memory Consumption: Python can be more memory-intensive, which may be an issue for applications where memory efficiency is crucial.

Global Interpreter Lock (GIL): The GIL can be a limitation for multi-threaded programs, as it prevents multiple native threads from executing Python bytecodes at once.

Weak in Browser: Python is not natively supported in web browsers, limiting its use in client-side web development.