

## Exercise 1.6: Connecting to Databases in Python

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

A database is a collection of organized data stored and accessed electronically. The advantage of using databases include improved data organization, easier data retrieval and manipulation, and efficient data storage and retrieval.

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

| Data type     | Definition  |
|---------------|---|
| Numeric       | These are used to store numeric values in a MySQL database. Examples include INT, BIGINT, FLOAT, DECIMAL, and NUMERIC.  |
| Character     | These are used to store character or string values in a MySQL database. Examples include CHAR, VARCHAR, and TEXT.       |
| Date and time | These are used to store date and time values in a MySQL database. Examples include DATE, TIME, DATETIME, and TIMESTAMP. |

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

1. Single-user systems: SQLite can be a good choice if your application requires a database but has only one user or a very limited number of concurrent users due to its simple architecture and low overhead.
2. Mobile applications: SQLite is widely used for mobile applications due to its simplicity and ease of integration with other technologies.
3. Prototyping: SQLite can be a good choice for prototyping and testing, as it is easy to use and does not require a separate server setup.

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

I love that Python has a simpler syntax than JavaScript, which can have a steeper learning curve for some. JavaScript is primarily used for front-end web development, while Python is used for a wider range of applications, including web development, scientific computing, data analysis, artificial intelligence, and more.

5. 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?

The fact that python runs and executes line by line makes it slow and in sectors where efficiency is key, this is the major limitation of python. Furthermore, access to databases through python is not user-friendly/ not straightforward and it's not used to make mobile and web applications despite its simplicity and versatility.