

Reflection Journal – Achievement 1: Finalizing Your Python Program

What is an Object-Relational Mapper (ORM), and what are the advantages of using one?

An **Object Relational Mapper (ORM)** is a tool that allows developers to interact with a relational database using object-oriented programming concepts. Instead of writing raw SQL queries, you can work with classes and objects to perform database operations. In this project, I used **SQLAlchemy** as the ORM to connect Python with a MySQL database.

Advantages of using an ORM:

- Simplifies database operations by allowing use of Python objects and methods.
- Improves code readability and maintainability.
- Reduces the chance of SQL injection.
- Enables easy migration between different database systems (e.g., MySQL to PostgreSQL).
- Encourages cleaner separation between business logic and database logic.

How did building the Recipe App go?

It went really well overall. I was able to:

- Create a MySQL database and connect it to my Python program.
- Use SQLAlchemy to create models, perform CRUD operations, and manage sessions.
- Handle user input cleanly in the command-line interface.
- Automatically calculate recipe difficulty based on the number of ingredients and cooking time.

What I did well:

- I implemented good input validation to ensure data integrity.
- I used Python methods effectively to encapsulate logic (like difficulty calculation).

- The command-line interface was intuitive and easy to follow.

What I would change or improve:

- I would modularize the code into separate files (e.g., models.py, db.py, main.py) to make it more scalable.
- I would add better error handling for database transactions (e.g., the deadlock error I encountered).
- I would add more test recipes and possibly allow import/export functionality using CSV or JSON.

Job Interview Response Sample

"In one of my projects, I built a command-line Recipe Manager app using Python, MySQL, and SQLAlchemy. I designed a data model for recipes and connected it to a MySQL database using an ORM. The app allows users to create, read, update, and delete recipes. It also includes a smart difficulty calculator based on ingredients and cooking time. Through this project, I gained hands-on experience with object-oriented programming, database relationships, and user input validation, which really strengthened my backend development skills."

Overall Reflection on Achievement 1

What went well:

I gained confidence working with SQLAlchemy and MySQL. I also felt good about managing a working project from start to finish.

Something I'm proud of:

Successfully implementing a fully functional app that interacts with a database and provides real-time feedback to the user.

Most challenging aspect:

Understanding how sessions and transactions work in SQLAlchemy and handling deadlock errors.



Did it meet my expectations?

Yes! It gave me a solid introduction to backend development in Python. I now feel much more confident using Python to build database-driven applications.



What I want to remember for Achievement 2:

- Break complex tasks into small, manageable functions.
- Handle errors and edge cases early.
- Document my code and testing process clearly.