**Reflection on Learnings and Project Experience**

Over the duration of this course, I have gained significant hands-on experience in designing, building, testing, and deploying real-world software applications. Through lectures, assignments, and this final project, I have deepened my understanding of full-cycle development practices including backend development with FastAPI, database interaction with SQLAlchemy, authentication and authorization using JWTs, and advanced testing methodologies with Pytest and HTTPX.

Working on the final project was both challenging and rewarding. I faced several technical hurdles such as resolving circular imports in modular Python applications, configuring asynchronous database interactions, and ensuring the CI/CD pipeline was stable. Each challenge became an opportunity to dive deeper into debugging, reading documentation, and improving my problem-solving skills.

I also learned the importance of containerization with Docker and the value of using automated pipelines (GitHub Actions) to catch bugs early and maintain code quality. Deploying the application to DockerHub taught me the significance of proper authentication, tagging images correctly, and making sure the application builds in different environments consistently.

Finally, I understood the importance of issue tracking, branching strategies, commit discipline, and QA testing as part of a professional development workflow — vital skills for any software engineer.

**Links to Project Work**

**5 QA Issues (Closed):**

[[QA Issue #1]](https://github.com/mb2362/user_management_by_monil-baxi/tree/6-bug-refactor-authentication-and-minio-client-integration) : https://github.com/mb2362/user\_management\_by\_monil-baxi/tree/6-bug-refactor-authentication-and-minio-client-integration

[[QA Issue #2]](https://github.com/mb2362/user_management_by_monil-baxi/tree/8-fix-typeerror-username-is-an-invalid-keyword-argument-for-user-in-test_user_profile_picpy) : https://github.com/mb2362/user\_management\_by\_monil-baxi/tree/8-fix-typeerror-username-is-an-invalid-keyword-argument-for-user-in-test\_user\_profile\_picpy

[[QA Issue #3]](https://github.com/mb2362/user_management_by_monil-baxi/tree/10-fix-jwt-token-creation-and-decoding-issue) : https://github.com/mb2362/user\_management\_by\_monil-baxi/tree/10-fix-jwt-token-creation-and-decoding-issue

[[QA Issue #4]](https://github.com/mb2362/user_management_by_monil-baxi/tree/12-fix-user-role-assignment-during-user-creation) : https://github.com/mb2362/user\_management\_by\_monil-baxi/tree/12-fix-user-role-assignment-during-user-creation

[[QA Issue #5]](https://github.com/mb2362/user_management_by_monil-baxi/tree/14-fix-error-handling-and-file-upload-for-profile-picture---minio-integration) : https://github.com/mb2362/user\_management\_by\_monil-baxi/tree/14-fix-error-handling-and-file-upload-for-profile-picture---minio-integration

[[QA Issue #6]](https://github.com/mb2362/user_management_by_monil-baxi/tree/16-bug-missing-service-configuration-and-networking-issues) : https://github.com/mb2362/user\_management\_by\_monil-baxi/tree/16-bug-missing-service-configuration-and-networking-issues

[**10 New Test Cases**](https://github.com/mb2362/user_management_by_monil-baxi/blob/main/tests/test_services/test_user_profile_pic.py) **:** https://github.com/mb2362/user\_management\_by\_monil-baxi/blob/main/tests/test\_services/test\_user\_profile\_pic.py

**Feature Implementation:**

[**Feature branch**](Feature%20branch) **:** https://github.com/mb2362/user\_management\_by\_monil-baxi/tree/feature

**DockerHub Deployment**

[DockerHub Repository Link](https://hub.docker.com/layers/monilbaxi/final-term/latest/images/sha256:fae0492b00f830eec18a7c17494289e11c5ed62a8569a0bd9bff73c12977d940?tab=layers):

https://hub.docker.com/layers/monilbaxi/final-term/latest/images/sha256:fae0492b00f830eec18a7c17494289e11c5ed62a8569a0bd9bff73c12977d940?tab=layers

The project has been successfully containerized and pushed to DockerHub. The latest stable image is publicly available and ready to deploy in any containerized environment.

✨ **Author :**

Developed by [mb2362](https://github.com/mb2362/user_management_by_monil-baxi)