In this class, I was able to learn about building scalable, secure, and well-tested software systems. I learned how to effectively integrate the core backend technologies, namely FastAPI, with the use of modern tools and frameworks that include SQLAlchemy in handling databases and Pytest in effecting robust testing of systems. This course helped me understand the importance of writing clean, modular, and maintainable code while adhering to industry best practices.

The User Management System project was a great learning experience. I improved my ability to design and implement RESTful APIs, handle user authentication and authorization using OAuth2, and ensure data integrity through comprehensive validation. One of the most rewarding aspects was implementing advanced features like email notifications, role-based access control, and professional status upgrades while maintaining secure and efficient database operations.

Additionally, I enhanced my debugging and testing skills through the writing of 10+ test cases to cover edge cases and ensure high test coverage. Managing merge conflicts, fixing pipeline failures, and deploying the project to DockerHub further reinforced my knowledge of how CI/CD pipelines work and the software development lifecycle in general.

This project challenged me to think critically, collaborate effectively, and apply theoretical knowledge to practical scenarios. It has prepared me to approach complex software engineering tasks with confidence and professionalism.

Links:

[Issue 1](https://github.com/HariniV02/user_management/tree/1-email_verification?tab=readme-ov-file)

[Issue 2](https://github.com/HariniV02/user_management/tree/2-profile-update?tab=readme-ov-file)

[Issue 3](https://github.com/HariniV02/user_management/tree/3-password-validation?tab=readme-ov-file)

[Issue 4](https://github.com/HariniV02/user_management/tree/4-default-role?tab=readme-ov-file)

[Issue 5](https://github.com/HariniV02/user_management/tree/4-default-role?tab=readme-ov-file)

[Tests](https://github.com/HariniV02/user_management/tree/tests?tab=readme-ov-file) – Note: Not all tests are in this branch, I updated it according to each branch after a while since I forgot to switch in between branches.

[Feature](https://github.com/HariniV02/user_management/tree/features?tab=readme-ov-file)