Throughout this Web Systems Development course, I have gained extensive knowledge and practical experience in building and deploying web applications. The final project we worked on was both challenging and rewarding, providing a comprehensive understanding of web systems development, from writing and testing new features to deploying applications on DockerHub.

1. Understanding Web Systems Architecture:

This course provided a solid foundation in understanding the architecture of web systems. I learned how different components interact within a web application, including back-end services and databases. The focus on backend services and databases was crucial in designing scalable and maintainable systems. Additionally, understanding middleware, authentication mechanisms, and routing added more depth to my knowledge of web systems.

2.API Development and Integration:

I gained hands-on experience in developing RESTful APIs using FastAPI. Understanding how to structure endpoints, handle HTTP methods, and integrate with databases was a significant part of the learning process. Additionally, the project required integrating third-party services such as email providers and payment gateways, which enhanced my skills in API consumption and data handling. This experience emphasized the importance of secure and efficient API design

3. Testing and Quality Assurance:

Writing tests and ensuring code quality was a key focus throughout the semester. I created new tests and resolved existing QA issues to ensure the robustness of the application. This included writing unit tests, integration tests, and using tools like pytest for automated testing. The importance of continuous integration (CI) and continuous deployment (CD) pipelines was also emphasized. Implementing CI/CD pipelines ensured that our code was continuously tested and deployed, reducing the chances of introducing bugs into the production environment.

4.Deployment and Docker:

Deploying the application using Docker was a crucial part of the project. I learned how to containerize the application, manage dependencies, and push the Docker image to DockerHub. This experience highlighted the significance of containerization in modern web development and the benefits it brings in terms of scalability and consistency across different environments.

Project Contributions

-Closed Issues:

- [Closed Issues](https://github.com/ajb426/user\_management/issues?q=is%3Aissue+is%3Aclosed)

- New Tests:

- [New Tests](https://github.com/ajb426/user\_management/commit/efc5bef12dc6d4dafb8bfdd46744332c29b43d86)

- New Feature:

- [Feature Link 1](https://github.com/ajb426/user\_management/commit/be6873aa5878f92bedb25614bea70ae0bbfde68a#diff-3f00ec2c24998d185e23313c030b5256c01c3b3e611ffb10c3c9437d4fa9cf77)

- [Feature Link 2](https://github.com/ajb426/user\_management/commit/faca5fb64c3b7e68ae7783393e1095296018e99a)

- [Feature Link 3](https://github.com/ajb426/user\_management/commit/219b9cac005552332c4a511222d0cf09959b2a3b)

Deployment to DockerHub

The final application was successfully deployed to DockerHub. Here is the link to the Docker repository: [DockerHub Repository](https://hub.docker.com/repository/docker/ajb426/user\_mangement/general)

Conclusion

This course has significantly enhanced my skills in web systems development. The project-based approach allowed me to apply theoretical knowledge in a practical setting, reinforcing my understanding and giving me the confidence to tackle real-world web development challenges. I look forward to leveraging these skills in future projects and continuing to grow as a developer.

The hands-on experience with tools and technologies such as FastAPI, Docker, and CI/CD pipelines has prepared me well for a career in web development. I am now more adept at designing robust web systems, writing clean and maintainable code, and deploying applications in a production environment. This course has been instrumental in shaping my understanding of modern web development practices, and I am excited to apply these learnings to future projects.