IS 601 Final Project

Learning throughout this course

This course proved to be an invaluable addition to my toolkit, transforming many theoretical concepts into concrete, hands-on skills. Prior to starting, I had only a surface-level understanding of version control; now I'm confident using Git for everyday development tasks. I mastered branching strategies, pull requests, and GitHub Actions workflows—enabling automated testing and continuous integration. Raising and tracking issues on GitHub taught me the importance of clear, concise issue descriptions and collaborative problem-solving. I also gained practical experience in QA methodologies: writing test cases, running automated test suites, and interpreting test results to drive fixes. Working with an unfamiliar codebase challenged me to quickly read documentation, navigate project structure, and identify key modules. This process sharpened my debugging skills and reinforced best practices for code readability and maintainability. Overall, I can now approach new projects with a clear, structured workflow—from cloning the repo and setting up my environment to contributing code, creating issues, and reviewing pull requests.

Experience working on this epic project

Collaborating on this "epic" event-management system was a defining highlight of the course. From day one, I immersed myself in the FastAPI framework, implementing CRUD endpoints and integrating OAuth2 for secure authentication. Configuring SQLAlchemy (with asynchronous database calls) taught me how to balance performance with reliability in real-world applications.

Key highlights:
• API Development: Designed and documented RESTful endpoints for user creation, retrieval, update, and deletion. Learned how to use Pydantic models for request validation and response serialization.
• Authentication & Security: Implemented token-based authentication via OAuth2PasswordBearer, ensuring protected routes for authenticated users and role-based access controls.
• Testing & CI/CD: Wrote pytest fixtures for database setup and teardown, covering edge cases and error handling. Integrated tests into a GitHub Actions pipeline, ensuring every change was automatically validated.
• Issue Management & Team Workflow: Regularly triaged and labeled issues, assigned tasks across branches, and performed code reviews. This collaborative environment mirrored real industry practices and taught me how to write constructive review comments.

Throughout the project, I tackled challenges such as asynchronous database migrations, modeling relationships between users and roles, and handling serialization errors. Each obstacle became an opportunity to deepen my understanding of backend engineering and quality assurance. By the end, not only did I deliver a fully functional event-management service, but I also developed confidence in owning features end-to-end—from design through deployment.

Links
New Features
I selected user profile management feature to implement (feature 9).
The code for that can be seen at https://github.com/DHJariwala/is601_user_management/blob/main/app/routers/user_routes.py

The code marked with "New feature" is the new code to implement this new feature.

Corresponding tests are at https://github.com/DHJariwala/is601_user_management/blob/main/tests/test_api/test_user_profile_management.py

Tests
All the new tests written can be seen at https://github.com/DHJariwala/is601_user_management/blob/main/tests/test_api/test_user_profile_management.py

This file contains 10 new tests for new feature.

All the new tests that were not covered originally are https://github.com/DHJariwala/is601_user_management/blob/main/tests/test_routes/test_user_routes.py

These tests increases the coverage from 91% to 94%.

NOTE: All of the new test cases pass.

QA
1. https://github.com/DHJariwala/is601_user_management/issues/1
2. https://github.com/DHJariwala/is601_user_management/issues/2
3. https://github.com/DHJariwala/is601_user_management/issues/3
4. https://github.com/DHJariwala/is601_user_management/issues/4
5. https://github.com/DHJariwala/is601_user_management/issues/5

Dockerhub Link
Dockerhub repository link
https://hub.docker.com/repository/docker/dhjariwala/final_project/general