**DevOps Final Project Proposal Document**

Course: DevOps (Beginner Level)

Student Name(s): Jiten Rai, Deepak Kumar Das, Suraj Sah

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🔹 Project Title

Django Study Room Web App with CI/CD Pipeline

🔹 Abstract

This project focuses on implementing core DevOps practices through the development and deployment of a web-based Study Room application. The application enables users to create, manage, and join virtual study rooms for collaborative learning, with features such as room creation, task tracking, and user authentication. Built using Django with HTML templating for the frontend and SQLite3 for data storage.

The project emphasizes version control, containerization, and automated CI/CD pipelines. The application is containerized using Docker and orchestrated with Docker Compose to manage the web server and database services. The source code is hosted on a GitHub repository, with Jenkins automating the build, test, and deployment processes triggered by Git events.

🔹 Objectives

* Develop a functional Study Room web application using Django and SQLite3.
* Implement user authentication and room management features.
* Utilize Git and GitHub for version control and collaborative development.
* Containerize the application using Docker and orchestrate services with Docker Compose.
* Establish a CI/CD pipeline using Jenkins to automate testing and deployment.
* Demonstrate a working deployment of the application on a local or test server.

🔹 Technology Stack

Frontend: HTML/CSS/JavaScript (Django templating)

Backend: Django (Python)

Database: SQLite3

DevOps Tools:

* Git & GitHub
* Docker & Docker Compose
* Jenkins (CI/CD pipeline)

🔹 DevOps Workflow Overview

* Developers push source code changes to the GitHub repository.
* Any event in GitHub triggers Jenkins upon new commits.
* Jenkins pulls the latest code, builds a Docker image, and executes unit tests for the Django application.
* On successful test completion, Jenkins deploys the updated container to a local or test server using Docker Compose.
* The pipeline includes automated linting, testing and reporting to ensure code quality.

🔹 Intended Deliverables

* Dockerfile and Docker Compose configuration for the Django application and SQLite3 database.
* GitHub repository with complete version history and documentation.
* Fully functional CI/CD pipeline implemented via Jenkins.
* A live demo of the Study Room application with a presentation and walkthrough.

🔹 Timeline

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| Task | Deadline |
| App base functionality (Django setup, room creation, user auth) | Already Completed! |
| Dockerfile + Docker Compose setup | July 8, 2025 |
| GitHub repository setup with initial code | July 13, 2025 |
| Jenkins CI/CD pipeline integration | July 14, 2025 |
| Final review & testing | July 18, 2025 |