Final Project Requirements: Dockerized Web Application with Database

Objective

The objective of this final project is to design and implement a web application using Docker that includes a web server container and a database container. you will gain hands-on experience in containerization, communication between containers using Docker Compose, and web development.

Project Description

1. Team Formation:
   - Form teams of five students.
   - Assign a team name and designate a team leader.
   - Submit team information here.

2. Web Application:
   - Students are required to create a simple website using a web server like Nginx, Apache, or Flask.
   - The website should have a user-friendly interface and be visually appealing.
   - Students are encouraged to use suitable web technologies like HTML, CSS, and JavaScript or any preferred technology to create the website.
   - Create a Dockerfile to define the specifications and dependencies of the web server container.
   - The Dockerfile should include all the necessary instructions to build the container.
   - Ensure that the web server container runs the website successfully.

3. Database:
   - Students are required to design and implement a database to store student data.
   - The database schema should include fields for name, age, CGPA, ID, and any additional data they choose.
   - Encourage students to choose a suitable database technology like MySQL, PostgreSQL, or SQLite.
   - Students should create the necessary tables and define appropriate data types for each field.

4. Docker Compose:
   - Students need to use Docker Compose to orchestrate the communication between the web server container and the database container.
   - Create a docker-compose.yml file that includes the specifications for both containers.
   - Configure the necessary environment variables, ports, and volumes in the docker-compose.yml file.
   - Make sure the web server container can communicate with the database container.

5. Team Data:
   - The displayed data on the website **should** represent the team's information with actual student data.
   - Each team member's name, age, CGPA, ID, and any additional data should be stored in the database.

6. GitHub Repository:
   - Each team should create a public GitHub repository for their project.
   - Upload the docker-compose.yml file, Dockerfiles, website files, and the database schema to the repository.
   - Ensure that the repository is accessible and organized.

Submission
   - The team leader is responsible for submitting the project.
   - The team leader should fill out the submission form provided [here](#).
   - The submission should include the team leader's name, team number, and the link to the team's GitHub repository.

Grading Criteria
   - Successful implementation of the web application using Docker containers.
   - Proper configuration of the web server container and communication with the database container using Docker Compose.
   - Accuracy and functionality of the database schema for storing team data.
   - Overall design, usability, and functionality of the website.
   - Proper organization and submission of project files to the GitHub repository.