Task 1 Documentation: Laravel Application Setup using Docker

Objective

The objective of this task is to containerize and deploy a Laravel application using Docker and Docker Compose with Nginx as the web server and MySQL as the database, ensuring a reproducible and scalable development environment.

Project Overview

This project follows the standard Laravel directory structure and includes Docker-related configurations to run the application inside containers. Docker Compose is used to orchestrate multiple services such as the Laravel PHP application, Nginx web server, and MySQL database.

Project Structure

1. app, routes, resources, config – Core Laravel application logic and configuration
2. database – Database migrations and seeders
3. nginx – Nginx server configuration files
4. Dockerfile – Defines the PHP runtime environment
5. docker-compose.yml – Orchestrates Laravel, Nginx, and MySQL services
6. .env – Application environment configuration

Docker Setup

Docker Compose is used to manage multiple containers. The PHP container runs the Laravel application, Nginx acts as a reverse proxy web server, and MySQL provides the database service. Volumes are configured to sync application code, and ports are exposed to access the application locally.

Implementation Steps

1. Built and started the containers using docker-compose up -d.
2. Accessed the application container using docker compose exec app bash.
3. Configured storage and cache permissions for Laravel.
4. Executed database migrations using php artisan migrate.
5. Cleared configuration, application, and view cache using artisan commands.

Verification

The successful setup was verified by accessing the Laravel welcome page via http://localhost:8000. This confirms that Nginx, PHP, and MySQL services are running correctly within Docker containers.

Conclusion

The Laravel application was successfully deployed using Docker and Docker Compose with Nginx and MySQL. This setup ensures environment consistency, simplifies deployment, and aligns with DevOps best practices.