Backend Developer Take-Home Assignment: Django Project Management Application

Overview

As part of our evaluation process, we would like you to build a simple backend for a project management application using Django. The core functionality of this application will include creating, reading, updating, and deleting (CRUD) projects. Additionally, there will be a user role management feature to assign different levels of permissions to users within each project.

Core Features

- **User Authentication**: Implement a user authentication system where users can sign up, log in, and log out.

- **Project CRUD Operations**: Authenticated users should be able to create new projects, read/view a list of projects they have access to, update their projects, and delete them.

- **Role-Based Access Control (RBAC)**: Project owners can add users to their projects and assign them one of three roles:

    o **Owner**: Can perform CRUD operations on the project and manage user roles.

    o **Editor**: Can edit the project details but cannot delete the project or manage user roles.

    o **Reader**: Can only view the project details but cannot make any changes.

    o **No Role**: Can not see the project or access it in any way

- **Comment functionality:**

    o Owners and Editors can comment on a project. Plain text is fine, no formatting of text needed.

Technical Requirements

- Use Django's built-in ORM to interact with the database.

- You can use DRF or Django views for user input

- Utilize Django's authentication system for handling user accounts.

- Implement proper form validation of user input either with drf serializers or Django forms

- Create Admin pages for each model you create

- Optional: Basic Frontend implementation. (If no frontend, ensure your endpoints are working correctly)

Deliverables

- Source code pushed to a Git repository (e.g., GitHub, GitLab, Bitbucket).

- A readme file with:

  - Setup and installation instructions.

  - A brief explanation of how to use the application.

  - Any assumptions or design decisions you made while working on the assignment.

Evaluation Criteria

- Functionality: The application should meet all the core feature requirements.

- Code Quality: The code should be clean, well-organized, and maintainable.

- Security: The application should handle authentication and authorization securely.

- Testing: Include unit tests for critical components of your application.

- Documentation: The readme should clearly explain how to set up and run your application.