Pet Adoption Platform

Objective:

Develop a "Pet Adoption Platform" using Django, Django REST Framework, and PostgreSQL. This application will serve as a digital platform for animal shelters and pet enthusiasts to share, adopt, and find homes for pets. The core of this task is to evaluate your proficiency in backend development with Django, understanding of RESTful API design, and implementation of Token-based authentication.

Requirements:

Project Setup and Structure:

1. Initialize a new Django project and configure it to use PostgreSQL as the database.
2. Use Django REST Framework for creating API endpoints.
3. Organize the project in a clean and modular architecture, separating concerns appropriately (e.g., models, serializers, views).

Core Features:

1. Shelter and Pet Models:
    - Define models for shelters and pets.
    - Each pet should be linked to a shelter and include fields like name, age, breed, description, adoption status, and an image URL.
2. Pet API:
    - Create RESTful API endpoints to list, create, update, and delete pet listings.
    - Ensure these endpoints require authentication.
3. Shelter Profile API:
    - Implement API endpoints to view and edit shelter profiles.
    - Profiles should include the shelter's name, bio, contact information, and a list of their pets.
4. Adoption Requests Model and API:
    - Define a model for adoption requests, including fields like request date, status, pet (linked to a pet), and applicant details.
    - Create API endpoints to list, create, update, and delete adoption requests.
    - Ensure these endpoints require authentication.
5. User Authentication:
    - Implement a custom user model and use Django REST Framework to create a login API.
    - Authentication should be based on tokens, returning an access token and a refresh token upon successful login.
6. Registration API:
    - Allow new users (shelter staff) to register through an API endpoint, creating a new user and shelter profile.

Authentication and Permissions:

1. Utilize Token for managing user sessions and securing API endpoints.
2. Ensure that only authenticated users can create, update, or delete pet listings and adoption requests.
3. Allow shelters to edit their own profiles and manage their pets only.

Database Design:

1. Design the database schema with PostgreSQL, ensuring relationships between shelters, pets, and adoption requests are efficiently modeled.
2. Implement migrations for your database models.

Coding Practices and Documentation:

1. Write clean, modular, and reusable code.
2. Use Django best practices for models, views, serializers, and URL routing.
3. Document your API endpoints and provide a README file with instructions on how to set up and run your project, including database setup and any initial configuration steps.

Prohibited Use of AI Services:

The use of external AI services or assistance for code generation or problem-solving in this task is strictly prohibited. Your submission will be reviewed for originality and compliance with this rule.

Deliverables:

1. A GitHub repository containing the source code for the "Pet Adoption Platform".
2. Documentation covering setup instructions, API endpoint details, and a brief explanation of your project structure and design choices.
3. Unit test cases for your models and API endpoints. (Optional)