Neighborhood Marketplace

Objective:

Develop a "Neighborhood Marketplace" platform using Django, Django REST Framework, and PostgreSQL. This application will serve as a digital platform for community members to buy, sell, and trade goods and services locally. 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. User and Listing Models:
   - Define models for users and listings.
   - Each listing should be linked to a user and include fields like title, description, price, category, condition, and an image URL.
2. Listing API:
   - Create RESTful API endpoints to list, create, update, and delete listings.
   - Ensure these endpoints require authentication.
3. User Profile API:
   - Implement API endpoints to view and edit user profiles.
   - Profiles should include the user's name, contact information, and a list of their listings.
4. Transaction Model and API:
   - Define a model for transactions, including fields like transaction date, status, listing (linked to a listing), and buyer details.
   - Create API endpoints to list, create, update, and delete transactions.
   - 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 to register through an API endpoint, creating a new user 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 listings and transactions.
3. Allow users to edit their own profiles and manage their listings only.

Database Design:

1. Design the database schema with PostgreSQL, ensuring relationships between users, listings, and transactions 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 "Neighborhood Marketplace".
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)