ONLINE PET ADOPTION PLATFORM-

1. Introduction

The Online Pet Adoption Platform is designed to create a seamless experience for shelters, adopters, and administrators involved in the pet adoption process. The platform allows shelters to list pets available for adoption, adopters to browse and apply for pets, and administrators to manage the overall system, including user management, pet listings, and system settings

2. Project Summary

The core goal of this project is to develop a platform that bridges the gap between animal shelters and adopters. Through this platform, shelters can manage adoption applications, communicate with potential adopters, and keep the listings updated. Adopters can search, apply for pets, and track the application process. The administrator oversees the entire system, ensuring smooth functionality for both shelters and adopters.

3. User Types and Roles

The platform involves three main user types, each with specific roles and functionalities:

- **Admin**: The administrator manages users, listings, and system-wide settings.
- **Shelter**: Shelters can list pets, manage applications, and communicate with adopters.
- **Adopter**: Adopters browse pet listings, apply for adoption, and manage their application status.

4. Functionalities Overview

Each user type has a set of dedicated functionalities:

- **Admin:**
    1. User Management: Handling user details like name, email, and roles.
    2. Pet Listing Management: Approving or rejecting pet listings submitted by shelters.
    3. System Settings: Managing platform configurations and settings.
- **Shelter:**
    4. Pet Listings: Inputting pet details and publishing them for adoption.
    5. Adoption Application Management: Reviewing and updating the status of adoption applications.
    6. Communication with Adopters: Interacting with adopters through message-based systems.
- **Adopter:**
    7. Pet Browsing: Searching available pets by criteria such as breed or location.
    8. Adoption Application: Submitting applications for pets.
    9. Application Status Tracking: Monitoring the status of submitted applications.
    10. Profile Management: Updating personal details like contact information.

5. Admin Dashboard Features

- **User Management**: Displays user accounts and roles.
- **Pet Listings**: A panel to approve or reject pet listings.
- **System Settings**: Provides control over system-wide configurations.
- **Platform Analytics**: Offers insights into platform activities, including user engagement and adoption statistics.

6. Shelter Dashboard Features

- **Pet Listings**: Shelters can list pets for adoption with details like photos, description, and adoption status.
- **Adoption Application Management**: Shelters manage and review adoption requests.
- **Communication with Adopters**: Enables direct communication between shelters and potential adopters.

7. Adopter Dashboard Features

- **Pet Browsing**: Interface for searching available pets based on criteria such as type, breed, or location.
- **Application Management**: Allows adopters to view and manage their adoption applications.
- **Profile Management**: A tool for updating personal details and viewing the history of past adoption requests.

8. Technical Stack

The development of the **Online Pet Adoption Platform** requires a robust technical stack to handle backend processing, front-end interaction, and data management efficiently. The stack can be as follows:

- **Backend (Java)**:
    - **Java (Spring Boot Framework)**:
        - Spring Boot provides a streamlined framework to build and deploy the application's backend quickly. It is ideal for building RESTful APIs to manage user roles (Admin, Shelter, Adopter), adoption requests, and listing processes.
        - **Spring Security** can be used for managing user authentication and authorisation based on their roles (admin, shelter, or adopter).
        - **Hibernate (ORM)**: Hibernate, as an ORM tool, will help map Java objects to relational database tables, which is essential for storing user profiles, pet listings, and adoption records.
- **Frontend**:
    - **HTML/CSS/JavaScript**:
        - Basic web technologies for creating the user interface.
        - **React.js** or **Angular.js** (optional): If a dynamic, single-page application (SPA) is preferred, React or Angular can be used to enhance the user experience for adopters and shelter users. It will allow quick page reloads when browsing pets or managing applications.
- **Database**:
    - **MySQL** or **PostgreSQL**:
        - These relational databases are excellent for managing structured data, such as user information, pet details, and adoption records.
        - The platform can use **JPA (Java Persistence API)** for database operations.
- **APIs and Microservices**:
    - **RESTful API**: Designed using **Spring Boot**, REST APIs will be responsible for communication between the client-side (frontend) and server-side (backend), handling requests like pet listings, adoption status updates, and user profile management.
- **Hosting/Cloud Platform**:
    - **Amazon Web Services (AWS)** or **Google Cloud Platform (GCP)**:
        - For hosting and deploying the application, along with **S3** for storing images of pets.
        - **Heroku** (for quick deployment) could also be used for small-scale hosting.
- **Version Control**:
    - **Git** and **GitHub**: Version control is crucial for collaborative development and tracking project progress.
- **Testing**:
    - **JUnit**: For unit testing Java components.
    - **Selenium**: For end-to-end testing of the web interface to ensure all functionalities (pet listing, communication, application) work as intended.

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