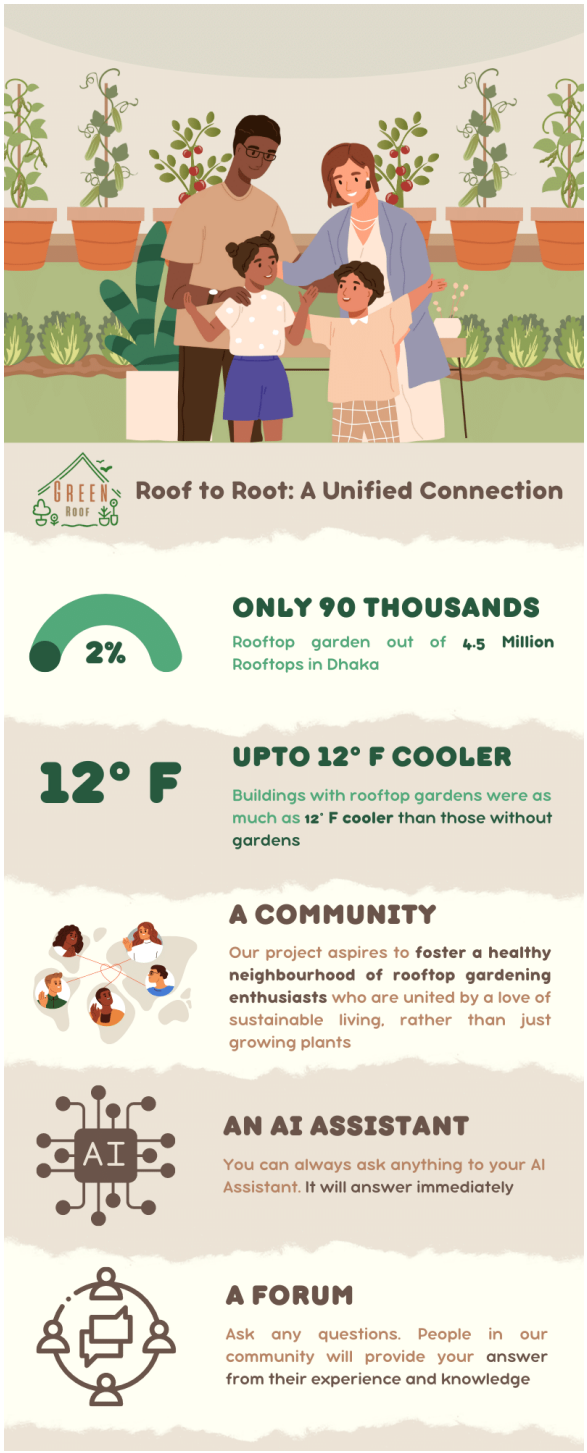
Green Roof

Roof to Root: A Unified Connection

Introduction:

Rooftop gardens are proving to be essential 21st-century solutions to problems like global warming, poor air quality, and food contamination. These elevated green spaces reduce urban heat islands, offset the loss of natural ecosystems, and improve air quality. Rooftop gardens address worries about contaminated food while promoting sustainable, locally sourced nutrition by growing organic produce under regulated conditions. A growing number of people in Bangladesh have adopted rooftop gardening as a result of realising the necessity for them, benefiting from the nutritious food that they produce as well as having a good environmental impact. But beginners frequently struggle with rooftop cultivation's initial periods.

We are happy to propose a pioneering solution - **a dedicated platform created especially for Rooftop Gardeners**. This will be a ground-breaking platform where enthusiasts can easily *interact*, *share priceless insights*, and *tap into their combined knowledge*. Newcomers can now receive guidance and counsel from experienced gardeners, paving the way for a more confident and smooth entry into the world of rooftop gardening. All the users will have their personal profiles. Members of our platform can follow the development of fellow gardeners through colourful photographs and timely updates. Moreover, a user can comment on the contents of any user. On the website, users can access an AI



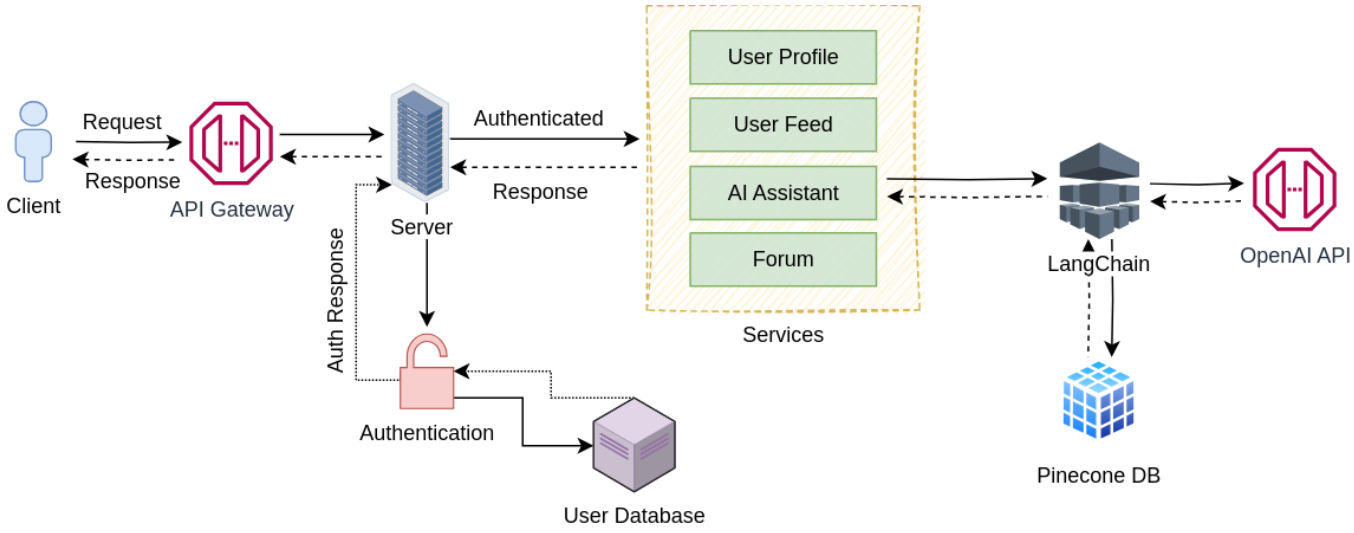
assistant who can answer their questions. If the user is not satisfied with the assistant's answer, there will be a forum section where users can ask questions.

In short, *our project aspires to foster a healthy neighbourhood of rooftop gardening enthusiasts who are united by a love of sustainable living, rather than just growing plants*.

Scope:

Our rooftop community service includes both those who already have indoor gardens and those who are just interested in gardening. Although urban areas are the major focus, its impact extends beyond those constraints. The platform's reach includes suburbs and caters to people who are keen to grow their food. It cultivates a network of urban and suburban gardeners with the intention of unifying and empowering them, sowing the seeds of self-sufficiency and nurturing a greener, more resilient future.

Overview of the System:



Users and their Roles

- **Admin:**
  - Validate and designate users as experts. An admin can ban a user for violating community standards and then unban them if they appeal. Delete or prioritize portal contents, forum answers or queries if it's been reported and doesn't go with community standards.

- **User:**
    - ***Regular:*** They are the members of the community who have registered. They can share and access content on the portal, ask questions, read other users' responses, and answer queries on the forum. They can also rate other users' responses on the forum.
    - ***Specialist:*** Users who have attained a certain level of proficiency in rooftop gardening based on user ratings. They have the same access as other users, but they will have a Specialist Badge on their profile and their contents and responses will be prioritized over regular users'.
    - ***Expert:*** The same as a specialized user, but chosen by the administrator based on certification or profession.
- **Anonymous User:**
    - They can view personal profiles, chat with the AI Assistant and read the forum responses.

Use Cases of the System:

1. **Account Creation:**
   The actors in this use case are *an anonymous user* and *the system*. The system will create an account of the requested type after receiving the necessary information.
2. **Personal Profile:**
   The actors in this use case are *a registered user*, *an anonymous user*, and *the system*. Anyone can view other users' profiles with their respective profile links and the content they share. However, only registered users can respond to the content. The system will maintain and render the profile contents as well as the response data.
3. **Searching Registered Users:**
   A registered user and *the system* are the actors in this use case. A registered user's profile can be searched by another registered user. The system will render the user's information and contents from the database.
4. **User's Feed:**
   A registered user and *the system* are the actors in this use case. The system will present relevant feed contents for the user to view.
5. **Followers/Following:**

A registered user and *the system* are the actors in this use case. Any registered user can follow other registered users from their user profile.

6. **Forum:**

    a. **Feed:**
    A registered user, *an anonymous user*, and *the system* are the actors in this use case. The system will show the recently asked questions and answers to the feed.

    b. **Searching:**
    In this use case, the actors are *a registered user*, *an anonymous user*, and *the system*. The user can search for a specific query, and the system will analyze the query and provide the user with relevant content.

    c. **Asking Questions:**
    A registered user and *the system* are the actors in this use case. A registered user can ask a question to the forum. The system will provide the necessary facilities to the user and store the data in the database.

    d. **Answering Questions:**
    A registered user and *the system* are the actors in this use case. User can add their answer to questions in the forum. The system will provide the necessary facilities to the user and store the data in the database.

    e. **Upvote/Downvote:**
    A registered user and *the system* are the actors in this use case. A registered user can upvote/downvote the answers to a question. The system will provide the necessary facilities to the user and store the data in the database.

7. **AI Assistant:**
    In this use case, the actors are *a registered user*, *an anonymous user*, and *the system*. The user can ask the AI assistant questions, and the system will analyze the questions and provide relevant responses.

Tech Stack:

Frontend: React, Tailwind CSS
Backend: Spring Framework, LangChain
Database: PostgreSQL, Pinecone
API: OpenAI API, OpenWeatherMap API
Build Tools: Maven