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1 Introduction

The Scope of the Project is to make **research** of different existing APIs, **compare** and **evaluate** while also **identifying any potential security issues** and **build a** "Know-Your-Neighborhood" **website application** with **API**.

1 Introduction
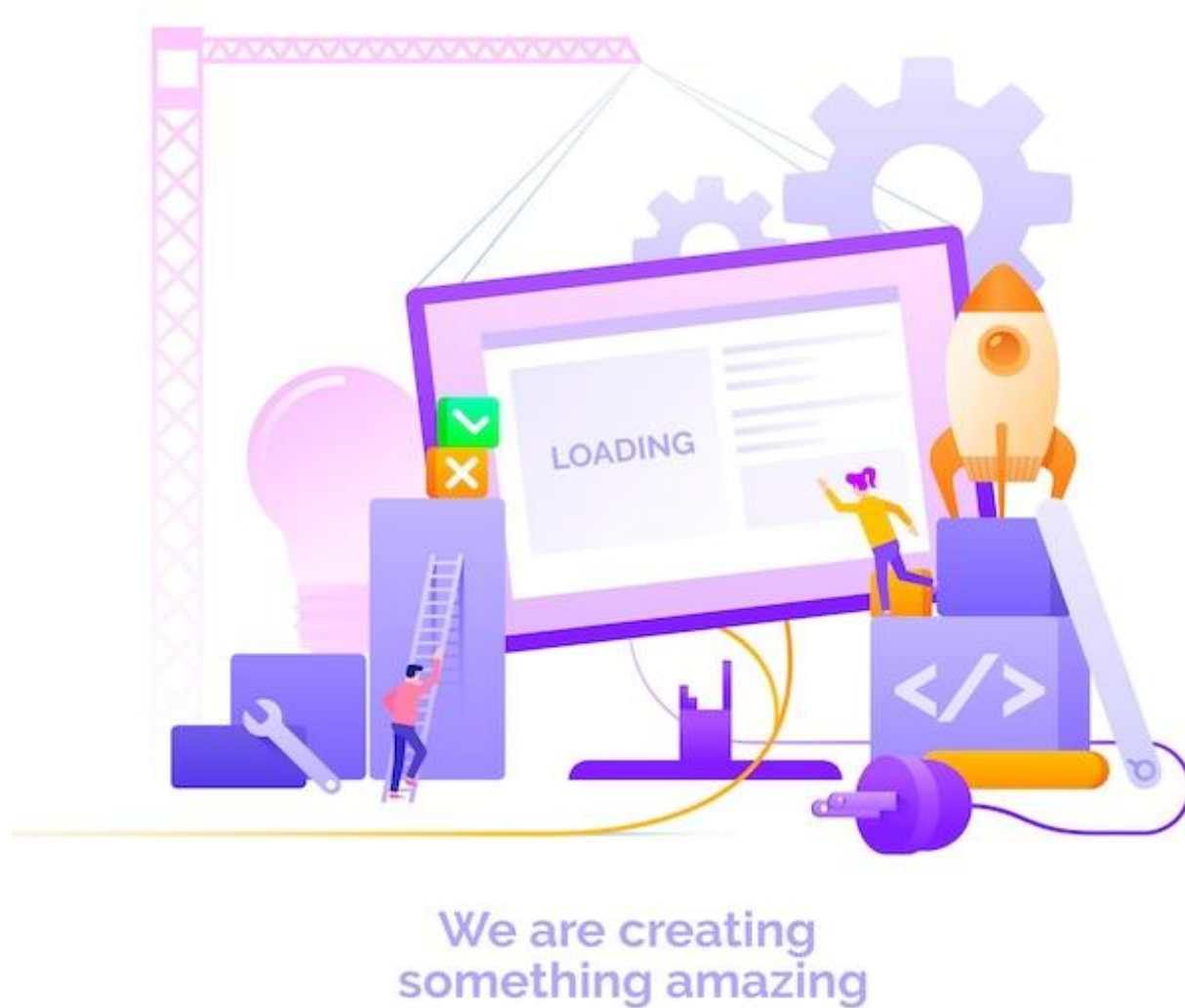
- Visual Studio Code (Frontend) - HTML, CSS, JavaScript

- Node v22.16.0, Npm v11.1.0, React v 19.1.0

- Spring STS v4.30.0 (Backend) - Spring Boot Java

- XAMPP PhpMyAdmin

- Postman

We are creating
something amazing

1 Project Objective

The website are required to consists of:

1. Home Page

2. Registration Page

3. Login Page with API link

4. Contact us Page

5. About us Page

6. Terms and Conditions Page

Customers can login using the existing API and fetch

basic information such as name, email from API.

3 API Concepts and Types

- Enable diverse systems to work together without exposing internal workings

- Provide Innovation Opportunity to Other Developers

- Company Monetization to generate revenue by providing access to their APIs

Public APIs, available for developers to build applications such as **OpenWeatherMap API**

Private APIs, used to connect internal systems such as **Database**, **HR** and **payroll systems**

Partner APIs, shared with buisness partners for integrations such as **Paypal** and **Stripe**

4 API Review and Reflection

API Selected	Strength	Weakness
Google OAuth 2.0	Multiple language Integration	Redirect URI must be exact
Facebook SDK	Simple login integration	Low trust in Facebook Privacy
Geocoding API	Integrates well with other Google API	Strict Terms of Service (Google Display)
Geolocation API	Can Get location with WIFI info	Less accurate than GPS
Weather API	Has Huge Weather Info	Poor Documentation
Gemini API	Strong Security, AI Model integration	Rate-Limit Access

5 Developed API

Login with Google (Google OAuth 2.0) / Facebook (Facebook SDK)

1. After login, it will await response of backend /api/auth/google. Backend will accept the credential and verify again for better security implementation.

2. If data was not found, it will add the name, email, profile picture from Facebook or Google API and get the created user_id.

3. Else If found, it will get the user_id from the database.

4. Lastly, it will return to frontend with generated JWT token from user_id.

G Sign in with Google

f Log in with Facebook
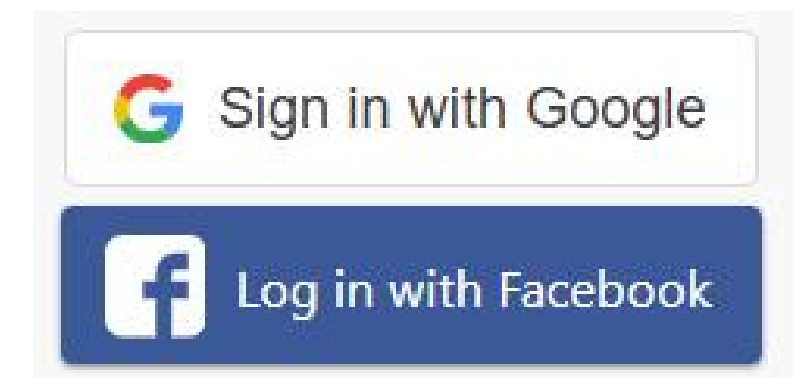
5 Developed API

Weather API , Geocoding API, Geolocation API

Weather API is implement Weather of user current location and

Weather of the condo. User Current Location is get from

Geolocation API in the condition of user permissions, then

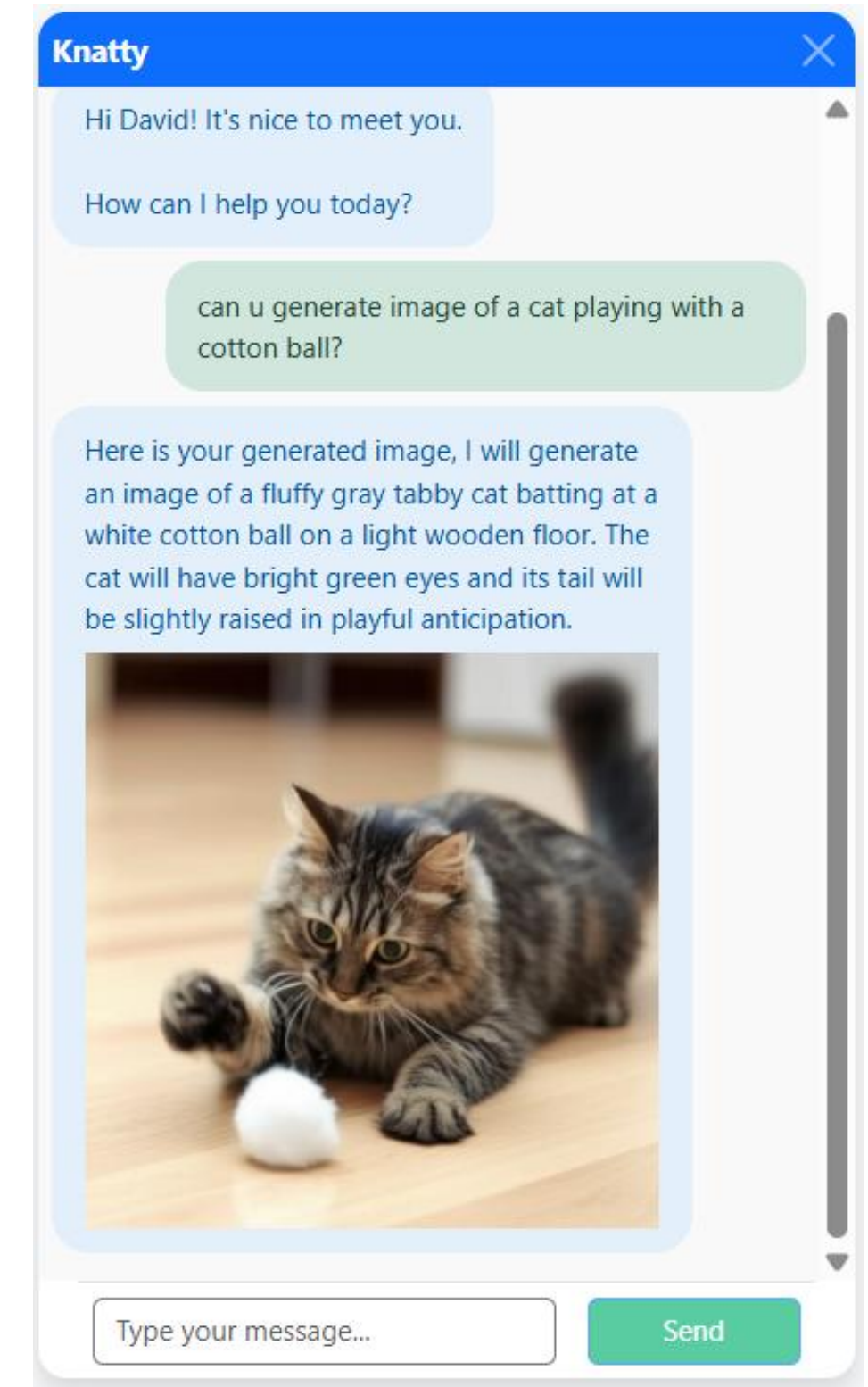convert to address using geocoding to display in the weather

 card
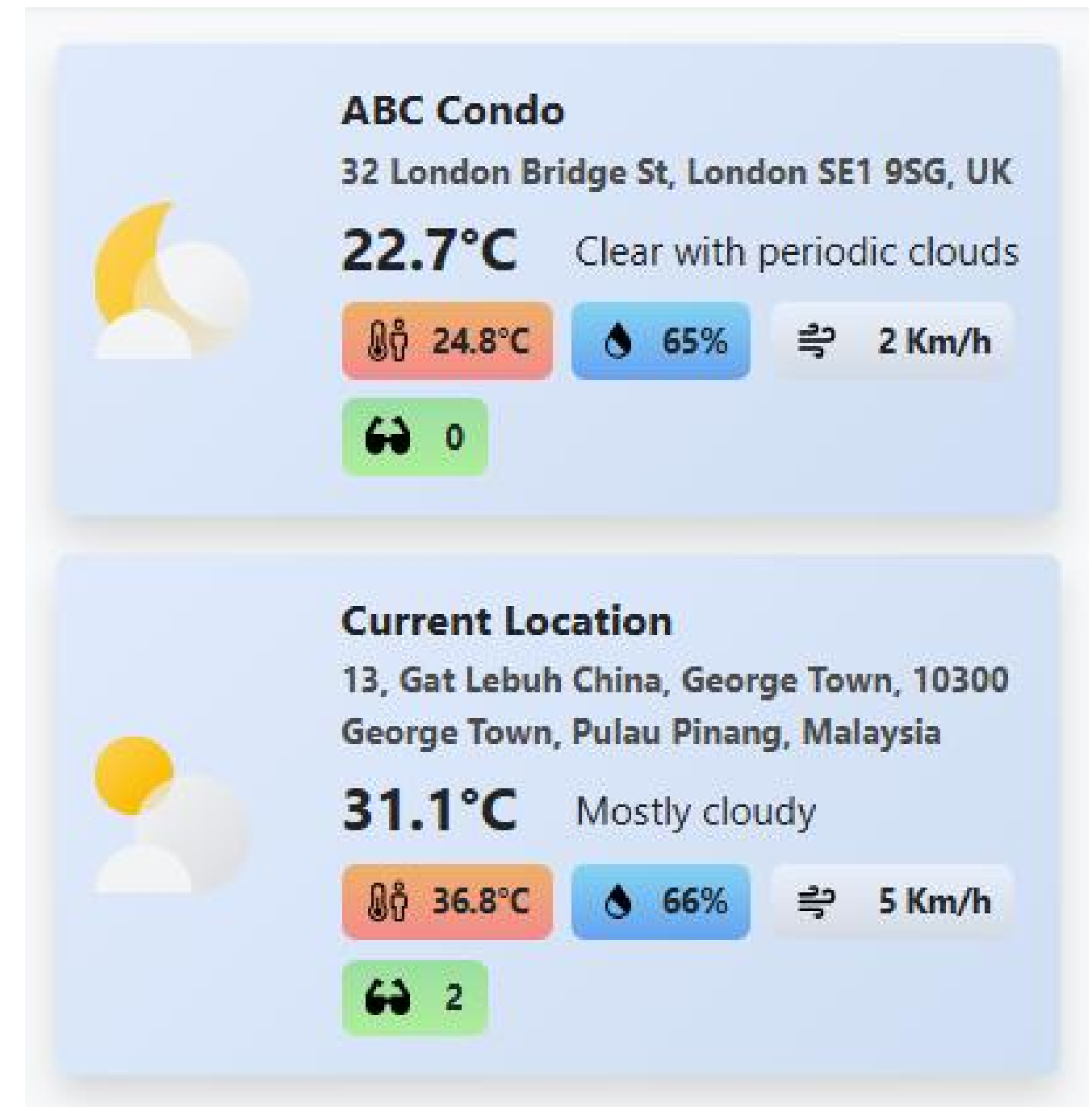
5 Developed API

Gemini API

Chatbot was developed with Gemini API with react library @google/genai
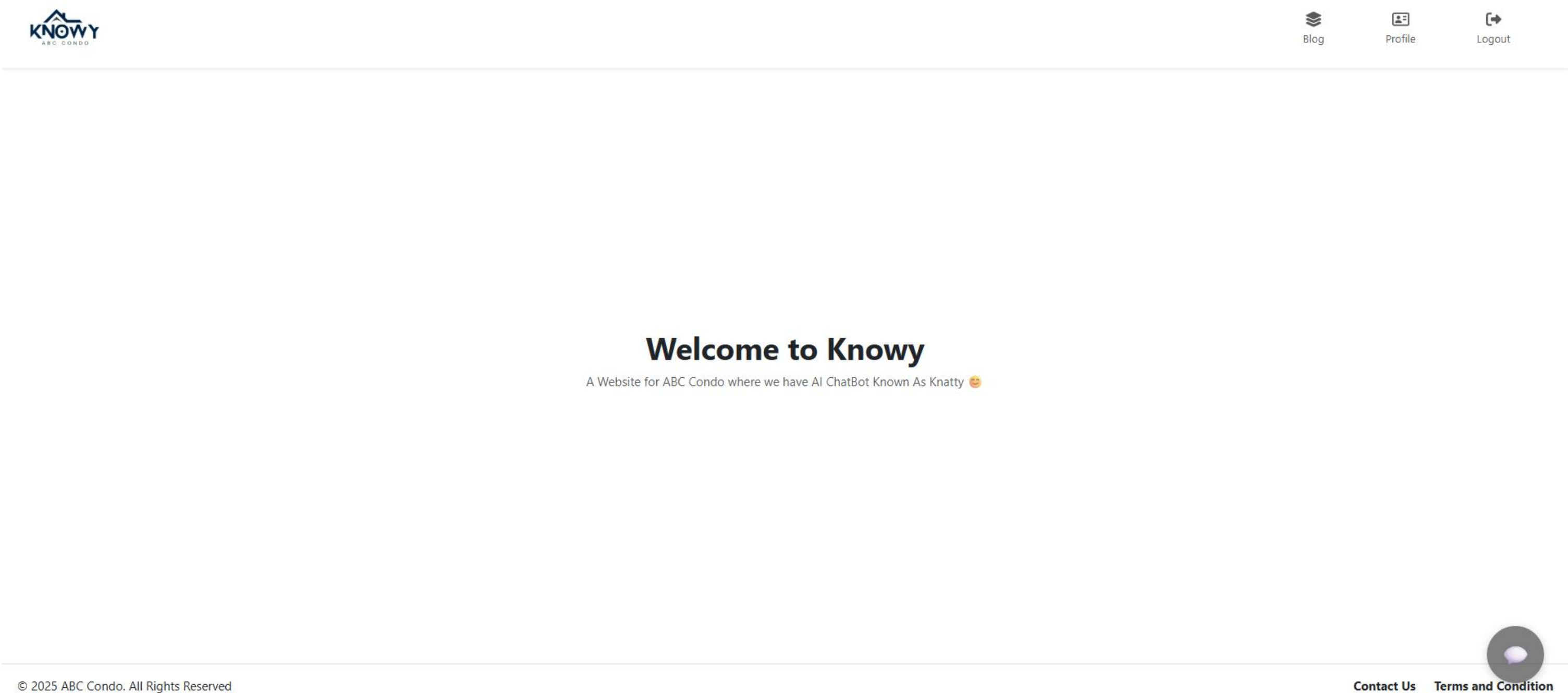
with the help of tutorial in Official Gemini API documentation.

Image Generation uses the model of **Gemini 2.0 flash preview image**

generation at the precondition of setting config of **Modality.Image** and

Modality.Text

Text Generation uses the model of **Gemini 2.5 flash**, purpose is used to

help generate post content for blog posting with ease.

6 Application Pages

Home Page

KNOWY
ABC CONDO

Blog   Profile   Logout

Welcome to Knowy

A Website for ABC Condo where we have AI ChatBot Known As Knatty 😊

© 2025 ABC Condo. All Rights Reserved

Contact Us   **Terms and Condition**

6 Application Pages

Contact Us

KNOWY
ABC CONDO

Blog   Profile   Logout

Contact Us

Your Name

Enter your name

Email address

Enter your email

Subject

Subject

Message

Type your message here

Send Message

ABC Condo Management

Address: 123 ABC Condo Ave, CityName, Country
Email: support@abccondo.com
Phone: +1 (555) 123-4567

Our team is here to assist you with any questions or concerns about the ABC Condo community. Please allow up to 2 business days for a response.

6 Application Pages

Terms & Regulations

Terms and Regulations

1. Introduction

Welcome to the "Know Your Neighbourhood" website for ABC Condo. By accessing or using this site, you agree to abide by these terms and regulations. Please read them carefully before participating in our community.

2. Community Guidelines

- Respect all members, their privacy, and their opinions.
- Do not post offensive, discriminatory, or illegal content.
- Do not share members' personal information without consent.
- Use the platform to foster a welcoming and helpful environment.

3. Account Responsibilities

- Keep your login credentials confidential and secure.
- You are responsible for all activities that occur under your account.
- Promptly report any unauthorized use or suspected breach of security.

4. Content Policy

- All posts, comments, and recommendations must be relevant to the ABC Condo community.
- The management team reserves the right to remove content that violates these terms or is deemed inappropriate.

5. Privacy

Your personal information is collected and used in accordance with our Privacy Policy. We do not share your information with third parties except as required by law.

6. Disclaimer

The information shared on this platform is for community purposes only. ABC Condo is not responsible for the accuracy of user-generated content.

7. Amendments

These terms and regulations may be updated at any time. Continued use of the platform constitutes acceptance of the latest version.

8. Contact

For questions or concerns about these terms, please contact us at support@abccondo.com.

Last updated: June 30, 2025

6 Application Pages

Login Page

6 Application Pages

Register Page

6 Application Pages

Blog Page
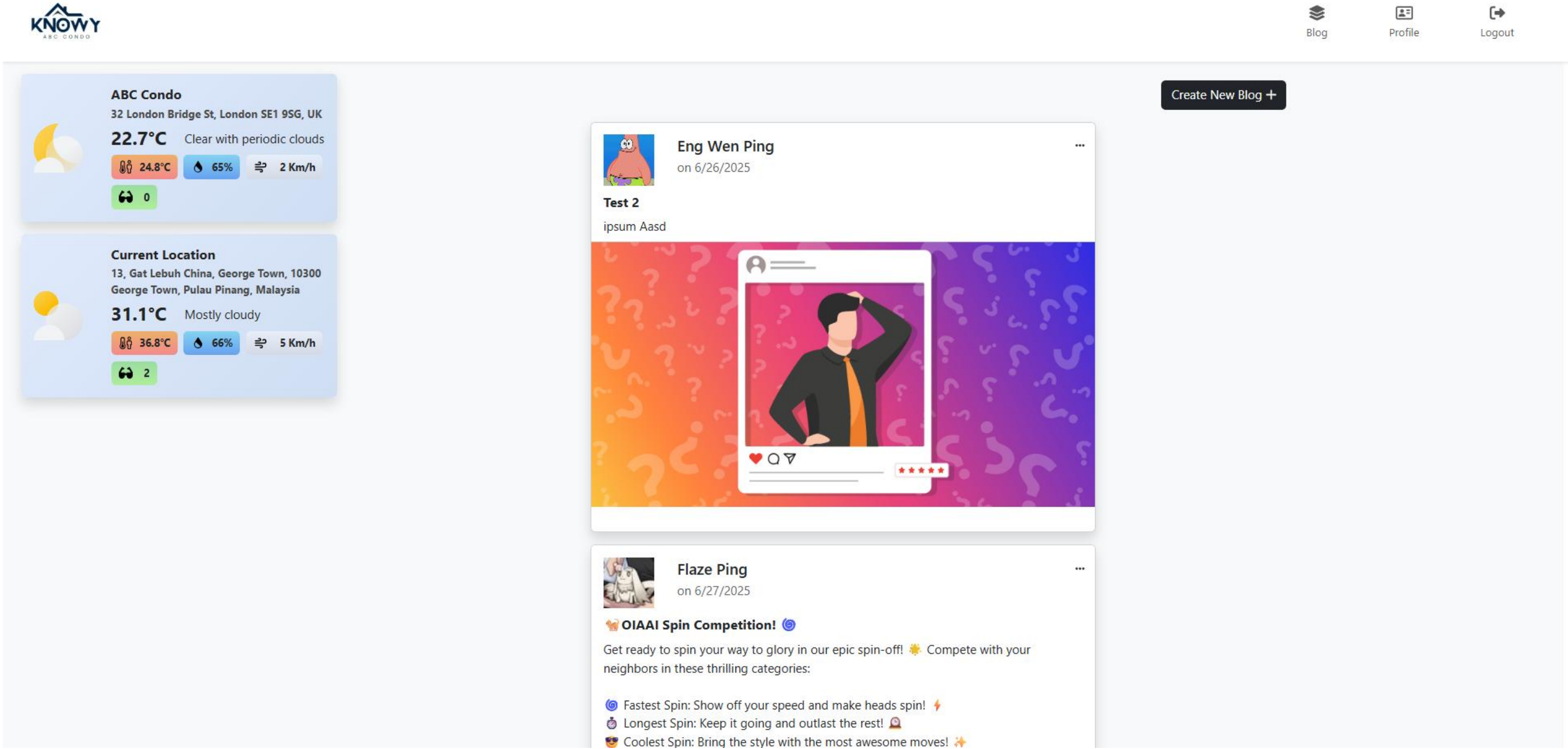
6 Application Pages

Profile Page

7 Future Enhancements

1. **Custom Validators** : Add Frontend and bavkend validation for all of the forms

2. **Rate Limiting** : Rate Limiting the request for sensitive endpoints to prevent dos attack (denial of service)

3. **Input Sanitization** : Add a filter to sanitize inputs at forms and prevent XSS attacks.

4. **Form Submission Navigation** : Ensure redirects return to relevant sections.

5. **Chatbot History Reference :** Request previous user and chatbot message response when requesting another request so that AI can use that as reference for better response

8 Key Learning

1. **API Implementation and Evaluation,** learnt to implement various API used to create a more user experience application and understand the importance of informed decision-making.

2. **Reasearch and Documentation,** learnt how to research in be it with website, AI or documentation

3. **AI Chatbot Implementation,** learnt to create AI Chatbot with Gemini API in generating text and images while also improve the logic handling and prompt engineering.

4. **Debugging and Testing,** learnt how to debug/problem-solving when error occurs and test applications to validate functionalities in application

5. **Security Considerations,** learnt to consider security like implement JWT Authentication

6. **Full Stack Development,** learnt skills applicable to real-world software engineering roles.

9 Reflections

The "Know-Your-Neighborhood" project enhanced my skills in **API integration**, **secure authentication**, and **full-stack development**. I learned to select APIs (e.g., **Google OAuth, Gemini**) based on security and scalability, design **three-tier architectures** using **React ,Spring Boot** and **APIs**, and manage **secure configurations**. Implementing **JWT-based authentication** and **AI-driven features** like chatbots taught me the importance of **data privacy and precise prompt engineering**. Comprehensive **testing validated functionality** but highlighted challenges in simulating API interactions. Overcoming setup and debugging hurdles **built problem-solving skills**, preparing me for future software engineering roles with a focus on secure, scalable, and user-friendly applications.