Project Proposal

1. Introduction

Our project is inspired by the real-life experience of students and workers who often struggle to find reliable rental rooms in big cities. Many online listings contain incomplete or misleading information, making it difficult and time-consuming to choose a suitable place. To solve this problem, our team aims to develop a web platform that helps users quickly find verified, comfortable, and safe rooms through detailed images, smart filters, and trustworthy reviews. This project is designed especially for students and busy workers who want a convenient and reliable way to search for accommodation without visiting each room in person.

2. Target Users and Environments

Target Users:
- Students studying at universities and colleges in big cities such as Ho Chi Minh City, Hanoi, and Da Nang who need to find a room at a reasonable price, safe and convenient for studying.
- Workers who plan to move or work in big cities such as Ho Chi Minh City, Hanoi, and Da Nang, and want to find accommodation suitable for their work location, income, and busy schedules.

Environments:
The system is deployed on the Render Cloud environment for the backend server, with a configuration of 1 CPU, 512MB RAM, 1GB Storage, costing about 7 USD/month.
The frontend is deployed on the Netlify platform, ensuring fast loading speed and supporting custom domains.
The database uses Neon PostgreSQL - a cloud database service with flexible scalability and high security.

3. Key Features

I. Guest
1. **AI-based Room Image Analysis:** Uses artificial intelligence to evaluate room photos — analyzing brightness, cleanliness, and safety.
2. **Online Booking & Deposit System:** Allows guests to reserve rooms by paying a deposit online for secure transactions.
3. **Electronic Contract Viewer:** Enables users to view and download an electronic rental contract template.
4. **Search & Filter Rooms:** Search by location, price, area, and amenities with dynamic filters.
5. **Room Detail Display:** Shows photos, facilities, price, and booking status with reviews from other tenants.

6. **Save Favorite Rooms:** Bookmark favorite rooms for easier comparison.

7. **Booking Management:** Manage all reservations, deposits, and cancellations.

8. **Ratings & Reviews:** Renters can review rooms after their stay.

II. Host

9. **Room Posting Management:** Add, edit, or delete room listings with detailed descriptions.

10. **AI Safety Analysis:** Evaluate fire safety and risk through uploaded images.

11. **Room Availability Control:** Mark rooms as booked, reserved, or available.

12. **Booking Request Management:** Manage booking requests and deposit confirmations.

13. **Revenue & Statistics Dashboard:** Visualize income and booking data.

14. **Host Profile Management:** Update profile and verification info.

III. Administrator

15. **Room Approval System:** Verify listings before publishing.

16. **User Management:** Manage user accounts and handle complaints.

17. **System Statistics:** Track platform data and performance.

IV. Common Features

18. **Sign Up / Login (Google OAuth):** Secure authentication via Google or email.

19. **Notification System:** Real-time alerts for bookings and transactions.

20. **Security & Transaction History:** Log all activities for transparency.