CS301

Final Project Report

A marketplace for renting unique and interesting properties, such as treehouses, yurts, or houseboats.

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APPLICATION NAME

RAREROOFS

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I. Project Description

1.Project Overview

Rareroofs is a website that specializes in renting unique and unconventional accommodations in different parts of the world. The website offers a range of properties that cater to travelers seeking new and memorable experiences.

2.The Purpose of the Project

2a. Background of the Project

The website features a curated selection of properties from around the world, including treehouses, yurts, caves, houseboats, and other unconventional dwellings. Each property is carefully selected and vetted for its unique features, location, and

experience it offers to guests. The website also provides detailed information about each property, including photos, descriptions, amenities, and pricing.

- Rareroofs' business model is similar to other online rental platforms such as Airbnb, with hosts listing their properties and guests booking them through the platform. Rareroofs charges hosts a commission fee for each booking made through the website, and also charges a booking fee to guests for each reservation.
- The website's marketing strategy focuses on creating a strong brand identity and leveraging social media to reach a wider audience. Rareroofs regularly features properties on its social media channels, showcasing their unique features and experiences. The website also partners with local tourism boards, travel bloggers, and influencers to promote its properties and reach a wider audience.

2b. Goals of the Project

- Offer Unique and Memorable Accommodations: Rareroofs aims to provide travelers with an unforgettable travel experience by offering a curated selection of unique and unconventional accommodations from around the world. The website strives to help travelers discover new destinations, cultures, and experiences that go beyond traditional hotel stays.
- Provide Exceptional Customer Service: Rareroofs' goal is to provide exceptional customer service to both hosts and guests. The website aims to offer a seamless booking experience for guests and provide hosts with the support they need to offer a quality experience to their guests.
- Build a Strong Brand Identity: Rareroofs seeks to establish a strong brand identity that resonates with travelers seeking new and memorable experiences. The website's branding focuses on the idea of "rare" accommodations that offer something special and unique to guests.

- Expand its Reach: Rareroofs' goal is to expand its reach and offer properties in new and exciting destinations around the world. The website aims to partner with local tourism boards, travel bloggers, and influencers to promote its properties and reach a wider audience.
- Provide a Sustainable and Responsible Travel Option: Rareroofs recognizes the importance of sustainable and responsible travel and aims to provide travelers with options that are environmentally friendly and socially responsible. The website encourages hosts to adopt sustainable practices and provides information to guests on how they can reduce their environmental impact while traveling.

3. Stakeholders

- Customers (Travelers): Customers are the primary stakeholders of Rareroofs. They are the ones who book accommodations through the website and generate revenue for the company. Rareroofs' success largely depends on the satisfaction and loyalty of its customers.
- Hosts: Hosts are also key stakeholders of Rareroofs. They list their properties on the website and generate revenue through bookings made by guests. Rareroofs' success is also dependent on the satisfaction and loyalty of its hosts.
- Employees: Rareroofs' employees, including its founders, developers, and customer support staff, are critical stakeholders in the success of the company. They work towards achieving the goals of the company and contribute to its growth and success.
- Investors: Rareroofs' investors provide the financial backing necessary for the company to operate and grow. They are invested in the success of the company and expect a return on their investment.
- Partners: Rareroofs partners with local tourism boards, travel bloggers, and influencers to promote its properties and reach a wider audience. These partners

are important stakeholders in the success of the company as they help to expand its reach and generate more bookings.

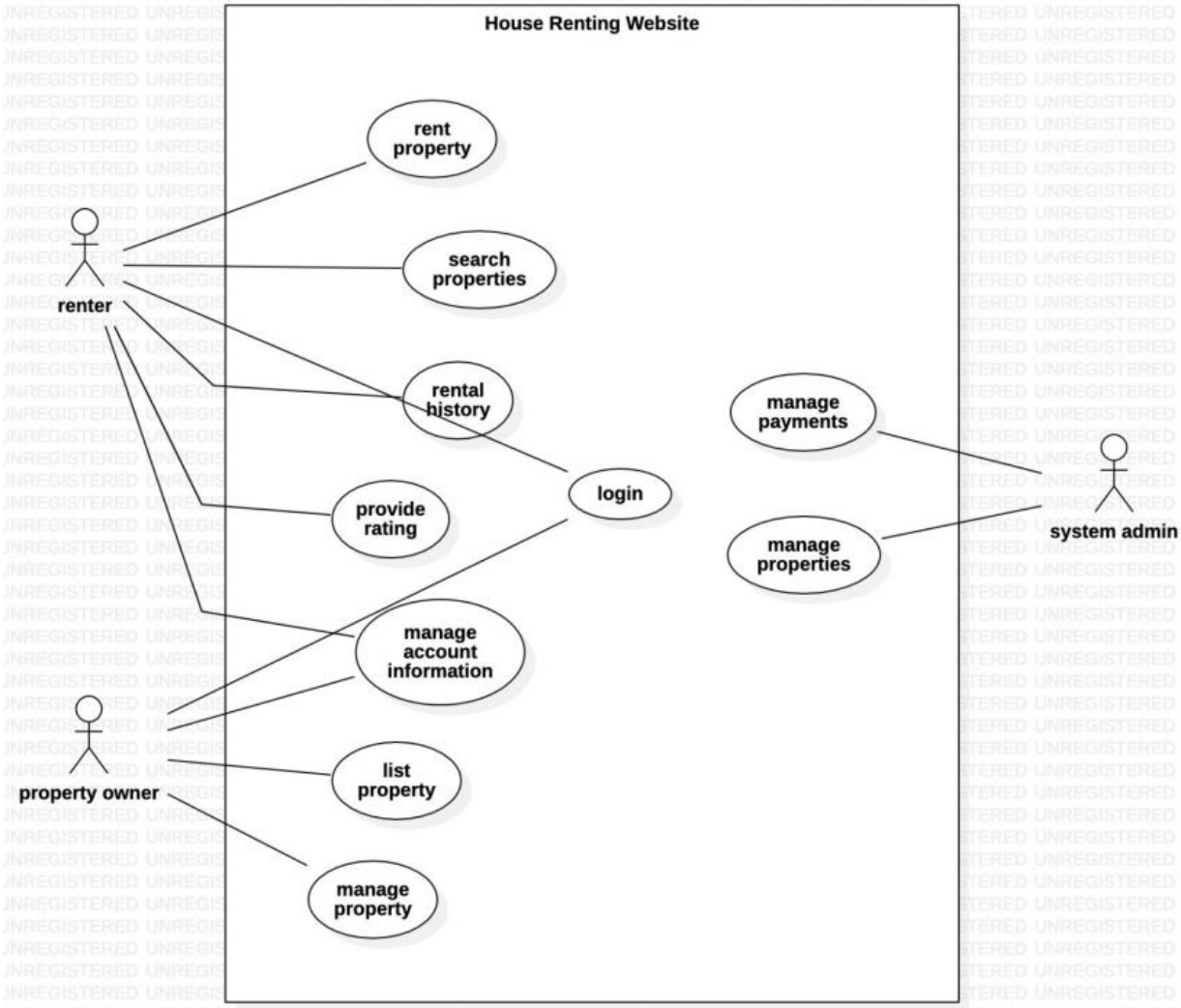
- Local Communities: Rareroofs' properties are located in local communities, and the company has a responsibility to be a responsible and sustainable travel option. The company's success is also dependent on the support and cooperation of local communities.

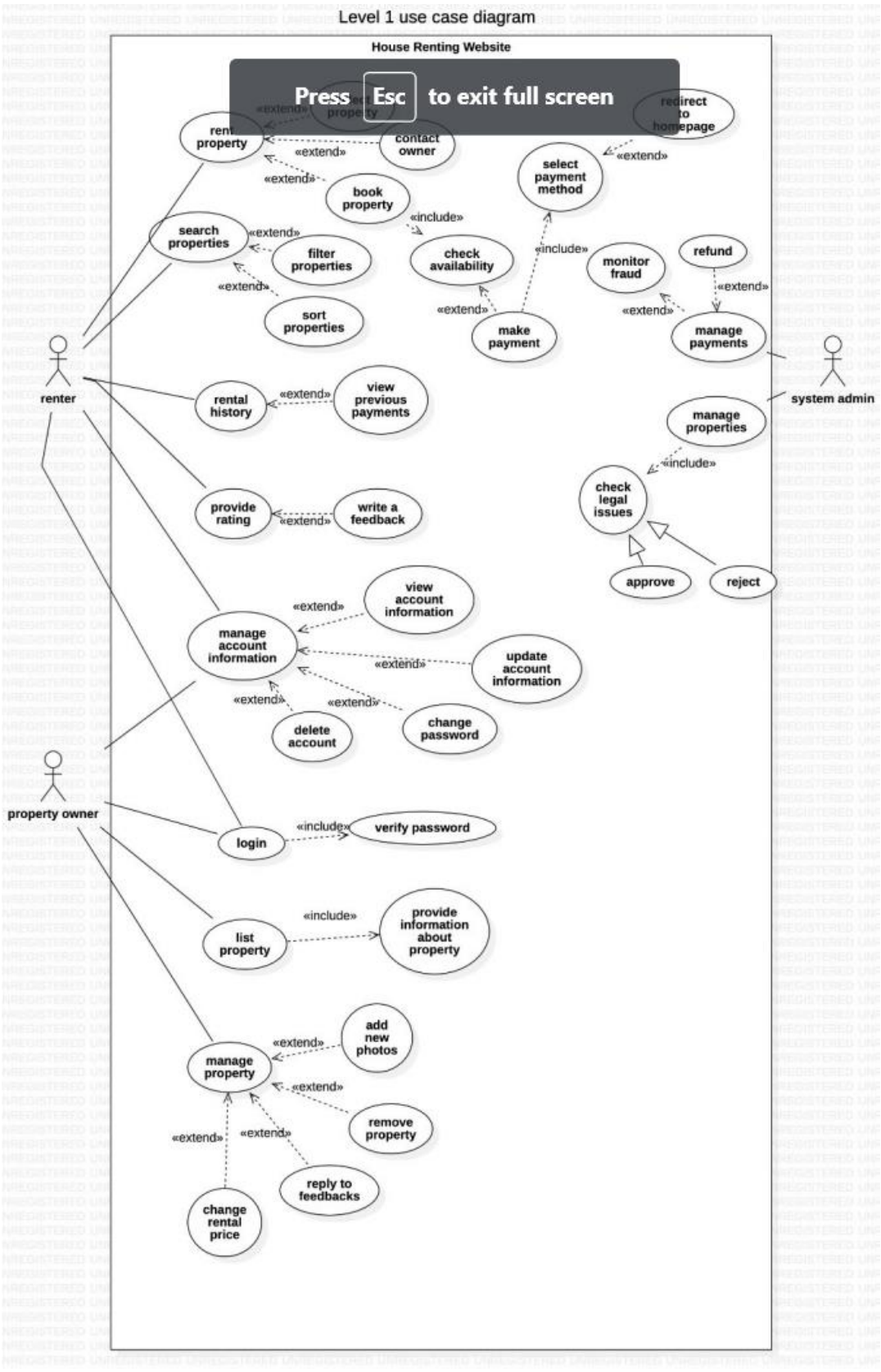
II. Requirements

4.Product Use Cases

4a. Product Use Case Diagrams

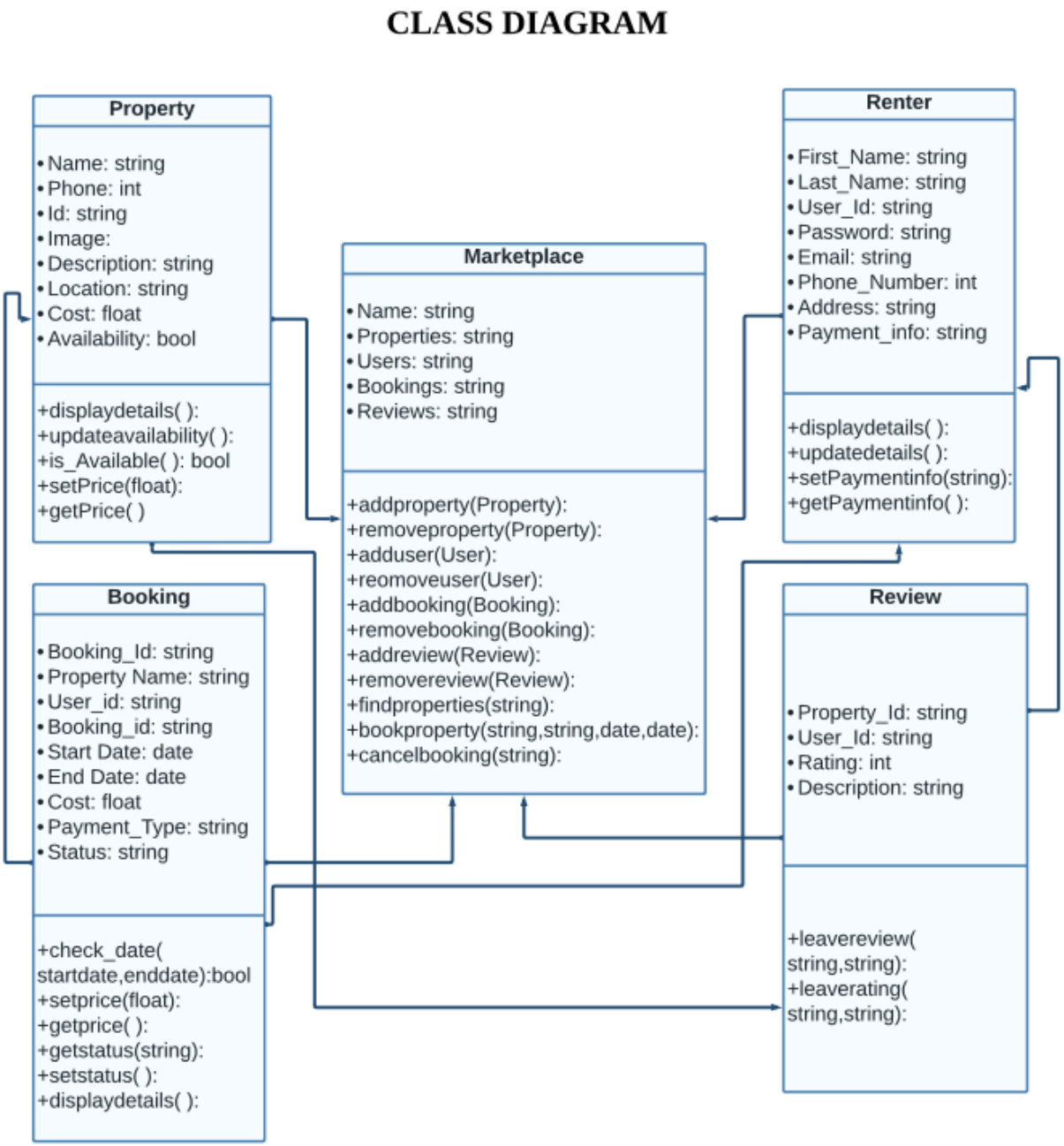
Level0 use case diagram




Level 1 use case diagram
House Renting Website
Press Esc to exit full screen
rent property
contact owner
book property
select payment method
redirect to homepage
search properties
filter properties
sort properties
check availability
make payment
monitor fraud
refund
manage payments
renter
system admin
rental history
view previous payments
manage properties
check legal issues
provide rating
write a feedback
approve
reject
view account information
manage account information
update account information
delete account
change password
property owner
login
verify password
list property
provide information about property
add new photos
manage property
remove property
reply to feedbacks
change rental price
«extend»
«include»

5.Data Requirements

5a. Class Diagrams



6.Technical feasibility

We will be developing a user-friendly web based application. The following aspects need to be considered:

- Website Development: Rareroofs' website appears to be well-designed, with a user-friendly interface and easy navigation. The website is built on a stable platform that can handle large amounts of traffic and bookings. The website is also mobile-responsive, which is important for travelers who often book accommodations on-the-go.
- Payment Processing: Rareroofs integrates with payment processing systems, such as Stripe or PayPal, which allows guests to securely make payments and for hosts to receive payment for their bookings. The payment processing system appears to be reliable and secure.
- Database Management: Rareroofs' database management system appears to be efficient and reliable, which is important for storing large amounts of data on properties, hosts, and guests. The website uses a secure server to store data and implements measures to ensure data privacy and security.
- Customer Support: Rareroofs offers customer support to both hosts and guests, which is important for resolving issues and ensuring customer satisfaction. The website has a FAQ section and contact form for users to get in touch with customer support. The company also appears to have an active presence on social media, which is an additional channel for customer support.

- Security: Rareroofs has implemented security measures to protect its website from cyber threats and to ensure that customer data is secure. The website uses SSL encryption to protect customer information and implements best practices for data security and privacy.

Overall, Rareroofs appears to be technically feasible and has implemented measures to ensure that its platform is reliable, secure, and user-friendly.

7.Financial feasibility

- Revenue Streams: Rareroofs generates revenue by charging a commission fee on each booking made through the platform. This fee is typically a percentage of the total booking amount, and it is charged to the host. In addition, Rareroofs may generate revenue through partnerships and advertising.
- Expenses: Rareroofs' expenses will include website development and maintenance costs, payment processing fees, marketing and advertising expenses, customer support costs, and administrative expenses.
- Market Size: The size of the market for unique and rare accommodations can impact the financial feasibility of Rareroofs. A large market size can provide opportunities for growth and increased revenue, while a small market may limit growth potential.
- Competition: Rareroofs faces competition from other online travel agencies and rental platforms. The level of competition and the ability of Rareroofs to differentiate itself from competitors can impact the financial viability of the company.

- Profitability: Ultimately, the financial feasibility of Rareroofs will depend on its ability to generate sufficient revenue to cover its expenses and generate a profit. Factors that can impact profitability include the commission fee charged, the level of competition, and the effectiveness of marketing and advertising efforts.

Overall, the financial feasibility of Rareroofs will depend on a variety of factors, including its ability to generate revenue, manage expenses, and achieve profitability in a competitive market.

8.Resource feasibility

- Human Resources: Rareroofs will require a team of skilled professionals to develop and maintain the website, provide customer support, and handle administrative tasks. The company may need to hire developers, designers, marketers, and customer support representatives to ensure the smooth operation of the platform.
- Financial Resources: As mentioned earlier, Rareroofs will require financial resources to cover website development and maintenance costs, payment processing fees, marketing and advertising expenses, customer support costs, and administrative expenses. The company may need to secure funding through investors or loans to ensure adequate financial resources.
- Technological Resources: Rareroofs will require a reliable and secure technological infrastructure, including servers, software, and databases, to ensure the smooth operation of the platform. The company may need to invest in upgrades or improvements to its technological resources over time.
- Property Resources: Rareroofs relies on the availability of unique and rare accommodations to list on its platform. The company will need to establish

partnerships and agreements with property owners to ensure a steady supply of accommodations for its customers.

- Legal and Regulatory Resources: Rareroofs will need to comply with relevant legal and regulatory requirements, including data privacy regulations, tax laws, and local regulations related to rental properties. The company may need to invest in legal and regulatory resources, such as legal counsel or compliance experts, to ensure compliance.

Overall, the resource feasibility of Rareroofs will depend on its ability to secure and manage adequate resources, including human, financial, technological, property, and legal and regulatory resources.

III. Design

9. System Design

9a. Design Goals

- Simple and Intuitive Navigation: The platform should be easy to navigate and use, with clear and concise menus and buttons to help users find what they need quickly and efficiently.
- Responsive Design: Rareroofs should be designed with a responsive layout, ensuring that it can be accessed on multiple devices, including desktops, laptops, tablets, and mobile phones.
- Visual Appeal: The platform should have an attractive and visually appealing design, with high-quality images and videos showcasing unique and rare accommodations from around the world.

- Personalization: Rareroofs should provide a personalized experience for users, with features such as saved searches, wish lists, and personalized recommendations based on user behavior and preferences.
- Clear and Concise Information: The platform should provide clear and concise information about each accommodation, including details on amenities, location, and pricing, to help users make informed decisions.
- User Reviews and Ratings: Rareroofs should provide user reviews and ratings for each accommodation, giving users valuable insights into the experiences of previous guests.

10. Proposed Software Architecture

- Presentation Layer: This layer will be responsible for handling user requests and displaying the user interface. It will consist of a front-end framework such as React or Angular, which will communicate with the other layers of the application through APIs.
- Application Layer: This layer will handle business logic and data processing. It will be built using a back-end framework such as Node.js or Ruby on Rails, and will communicate with the data layer and the presentation layer through APIs.
- Data Layer: This layer will be responsible for storing and retrieving data. It will consist of a database management system such as MySQL or MongoDB, and will communicate with the application layer through APIs.
- Infrastructure Layer: This layer will handle infrastructure management and scalability. It will consist of cloud-based services such as Amazon Web Services (AWS) or Microsoft Azure, which will provide serverless computing, storage, and networking capabilities.

- Security Layer: This layer will ensure the security and integrity of the platform. It will consist of various security measures, such as SSL encryption, firewalls, and access control, to protect against data breaches and other security threats.

The proposed software architecture provides a modular and scalable structure that separates concerns, promotes code reusability, and facilitates maintenance and future enhancements. It leverages well-established frameworks, libraries, and technologies to build a robust and efficient time tracking and invoicing app for freelancers and small businesses.

11. User Interface

- Homepage: The homepage will feature high-quality images and videos showcasing unique and rare accommodations from around the world. It will also provide a search bar where users can enter their desired location and dates.
- Accommodation Listings: Each accommodation listing will include a detailed description, high-quality images, and videos. Users will be able to view the accommodation's location on a map and read reviews from previous guests.
- Booking System: The booking system will allow guests to search for available accommodations, view pricing and availability, and book their stay. Hosts will be able to manage their bookings and communicate with guests through the platform.
- User Profile: Each user will have a personal profile page where they can view their booking history, wish lists, and personalized recommendations based on their behavior and preferences.

- Search Filters: The search functionality will allow users to filter results based on their desired location, dates, price range, accommodation type, and other relevant criteria.
- Wish Lists: Users will be able to create and save wish lists of their favorite accommodations, making it easy to find and book their desired stay in the future.
- Mobile Optimization: The user interface will be optimized for mobile devices, ensuring a seamless and user-friendly experience for users on the go.

The UI will be kept clean, uncluttered, and visually appealing. Proper organization of components, logical grouping of related features, and consistent use of color schemes and typography will be implemented to create a positive user experience. Additionally, clear labels, tooltips, and contextual help will be used to guide users and reduce any learning curve associated with the app.

12. Object Design

- Users: Each user will have a profile object that stores their personal information, preferences, and booking history. Users will be able to view and edit their profile information, manage their bookings, and create wish lists.
- Accommodations: Each accommodation will have a listing object that stores its details, such as location, description, amenities, pricing, and availability. Hosts will be able to manage their listings, communicate with guests, and receive payment for their bookings.
- Bookings: Each booking will have a reservation object that stores the details of the guest's stay, such as check-in and check-out dates, number of guests, and total cost. Guests will be able to manage their bookings, view their reservation details, and communicate with their host.

- Reviews: Each review will have a feedback object that stores the guest's rating and comments about their stay. Reviews will be visible on the accommodation listing and will help other users make informed decisions about their bookings.
- Wish Lists: Each wish list will have a collection object that stores the user's saved accommodations. Users will be able to create, edit, and delete their wish lists, and view their saved accommodations.

IV. Test Plans

13. Features to be Tested

When testing our app, it is important to ensure that all key features are thoroughly tested to verify their functionality, accuracy, and usability. Here are some of the features that should be tested:

- Search Functionality: The search functionality should be thoroughly tested to ensure that users can find accommodations based on their desired location, dates, price range, accommodation type, and other relevant criteria.
- Accommodation Listings: Each accommodation listing should be tested to ensure that all information is accurate and up-to-date, and that images and videos are high-quality and load quickly.
- Booking System: The booking system should be tested to ensure that guests can search for available accommodations, view pricing and availability, and book their stay. Hosts should also be able to manage their bookings and communicate with guests through the platform.

- User Profile: Each user profile should be tested to ensure that users can view their booking history, wish lists, and personalized recommendations based on their behavior and preferences.
- Payment System: The payment system should be thoroughly tested to ensure that transactions are secure and reliable, and that hosts receive payment for their bookings.
- Mobile Optimization: The user interface should be tested on various mobile devices to ensure that it is optimized for mobile use and provides a seamless and user-friendly experience.
- Reviews: The review system should be tested to ensure that guests can leave ratings and feedback on their stay, and that reviews are visible and informative for other users.
- Wish Lists: The wish list functionality should be tested to ensure that users can create and save wish lists of their favorite accommodations, and that they can easily find and book their desired stay in the future.

V. Project Issues

14. Tasks

14a. Project Planning

Project planning for Rareroofs will involve a number of key steps, including:

- Defining the project scope and objectives: This involves defining the purpose of the project, the expected outcomes, and the target audience.
- Conducting a feasibility study: This involves assessing the technical, financial, and resource feasibility of the project to determine if it is viable and sustainable.
- Identifying the key stakeholders: This involves identifying the key stakeholders, such as users, hosts, investors, and partners, and understanding their needs and expectations.
- Defining the project requirements: This involves defining the functional and non-functional requirements for the platform, such as search functionality, booking system, user profile management, payment system, and reviews.
- Creating a project timeline and budget: This involves creating a detailed timeline for the project, including milestones and deliverables, and determining the required resources and budget to complete the project.
- Identifying the project team and roles: This involves identifying the required team members and their roles and responsibilities, such as project manager, developers, designers, testers, and marketing specialists.
- Defining the project methodology: This involves defining the project methodology and process, such as Agile or Waterfall, and identifying the key project management tools and software to be used.
- Creating a risk management plan: This involves identifying potential risks and challenges that may arise during the project, such as technical issues, financial constraints, or legal issues, and developing strategies to mitigate these risks.

- Defining the project communication plan: This involves defining the communication channels and protocols for the project, such as regular team meetings, status reports, and stakeholder updates.

14b. Planning of the Development Phases

Planning the development phases of Rareroofs will involve breaking down the project into smaller, more manageable phases or sprints. Here are some key steps to follow:

- Define the project scope: This involves defining the overall scope of the project and identifying the key features and functionalities that need to be developed.
- Prioritize the features: Prioritize the features based on their importance and urgency, and create a backlog of features to be developed.
- Define the development phases: Based on the backlog, break down the project into smaller development phases or sprints, each with a specific set of features to be developed.
- Define the sprint goals: For each sprint, define the goals and objectives, and identify the team members and resources required.
- Estimate the time and resources: Estimate the time and resources required for each sprint, including development time, testing time, and any other resources required.
- Develop a project plan: Develop a project plan that outlines the timeline for each sprint, including the start and end dates, milestones, and deliverables.
- Assign tasks and responsibilities: Assign tasks and responsibilities to each team member, and ensure that everyone understands their roles and responsibilities.

- Monitor and track progress: Regularly monitor and track progress during each sprint, and use project management tools and software to ensure that tasks are completed on time and within budget.
- Conduct regular reviews and retrospectives: Conduct regular reviews and retrospectives at the end of each sprint to evaluate the progress and identify areas for improvement.