

ACROPOLIS INSTITUTE OF TECHNOLOGY AND RESEARCH

Department of Information Technology

Synopsis

On

Add Space: Comprehensive Space Rental and Management Platform.

1. Introduction

1.1 Overview

The **Add Space** project introduces a flexible, web-based platform for managing short-term space rentals, addressing the growing demand for venues that can be booked on an hourly or daily basis for events, meetings, and gatherings. Unlike traditional rental systems with rigid long-term commitments, **Add Space** provides users, brokers, and administrators with streamlined tools for booking, payment processing, and space management. Built using JSP, Servlets, and MySQL, this system offers a secure, role-based approach to access, allowing brokers and admins to oversee multiple bookings efficiently while users benefit from a seamless search and booking experience. The platform's design also supports future scalability, making **Add Space** a dynamic solution poised to enhance user convenience and space utilization in the rental market.

1.2 Purpose.

- Provide a flexible platform for booking spaces on an hourly or daily basis, catering to short-term needs like events, meetings, and gatherings.
- Address the market gap left by traditional rental systems that primarily offer only long-term rental options.
- Streamline the booking process for users, allowing them to quickly find and reserve spaces that meet their specific requirements.
- Equip brokers and admins with efficient tools for managing bookings, payments, and space details to improve operational efficiency.
- Maximize space utilization by offering a secure, user-friendly, and role-based access system for different users (admins, brokers, and general users).
- Ensure scalability of the platform, allowing for easy integration of future features to adapt to the dynamic rental market.
- Enhance user satisfaction by providing a convenient, centralized platform for seamless space search, booking, and management.

2. Literature Survey

2.1 Existing System

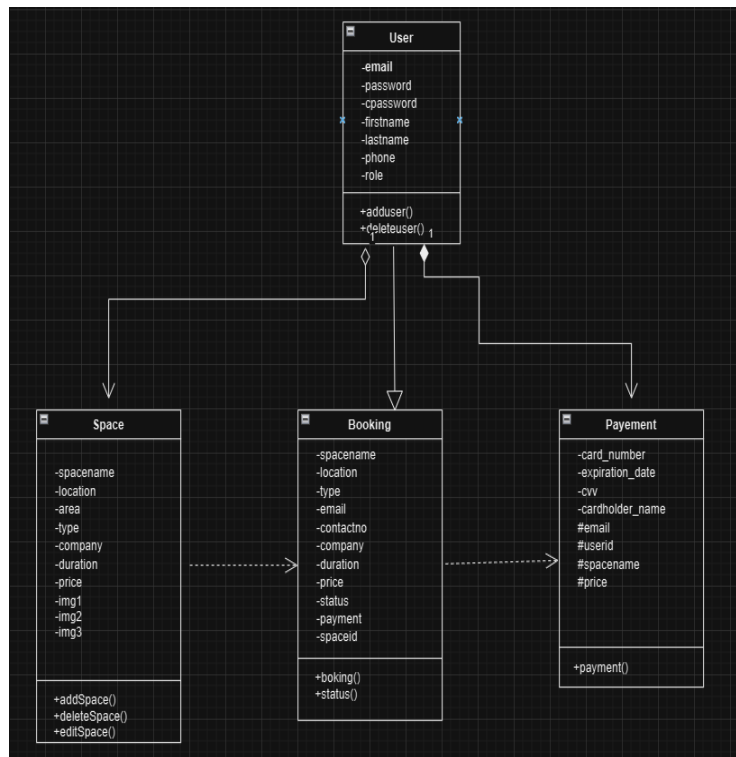
- **Traditional Rental Platforms:** These systems generally cater to long-term rentals, such as monthly or yearly leases. They often lack flexibility for short-term or hourly bookings, limiting options for users who need spaces temporarily.
- **Event Venue Booking Platforms:** Platforms like Peerspace and Splacer allow users to book venues for events by the hour or day. However, they may focus primarily on high-profile or specialty event spaces, which can limit options for everyday users or smaller gatherings.
- **Co-Working Space Platforms:** Companies like WeWork and Regus offer temporary rentals but are tailored primarily to co-working and office spaces. These platforms cater mostly to professionals and businesses and may not provide options suitable for social events or other non-office needs.
- **Hotel Conference Room Booking Systems:** Many hotels offer spaces for meetings or events, but these systems are often specific to hotels and may not have features for flexible hourly or daily rental outside of the hotel context.
- **Real Estate Management Software:** Solutions like Airbnb and Booking.com provide temporary accommodations but do not focus on event or gathering spaces. They also tend to be geared towards overnight stays rather than short-term rentals by the hour or specific event needs.

2.2 Proposed Solution

- **Flexible Booking Options:** Users can easily search for and book spaces for a few hours or days, catering to various needs such as events, meetings, or gatherings. This flexibility eliminates the need for long-term commitments, making it ideal for short-term rentals.
- **Role-Based Access Control:** The system is built with a role-based access structure that allows brokers, admins, and users to have personalized, secure interactions with the platform. Brokers and admins can manage space details, bookings, and payments, while users can browse, book, and pay for spaces.
- **Streamlined User Interface:** The platform features an intuitive interface that simplifies the booking process, from searching for spaces to confirming bookings and processing payments. Users can easily navigate through available spaces, view details, and complete bookings with minimal effort.
- **Space Management Tools:** Brokers and admins have access to tools that allow them to add, edit, and manage space listings. They can confirm or cancel bookings, update space availability, and send payment notifications to users, enhancing operational efficiency.
- **Payment Integration:** The system integrates payment gateways for seamless transaction processing, enabling users to securely make payments, and brokers and admins to track and manage financial transactions.
- **Real-Time Updates:** The platform provides real-time booking status updates, ensuring that users, brokers, and admins are always aware of space availability and booking changes.
- **Scalability:** The modular architecture of **Add Space** allows for future scalability. Additional features, such as advanced search filters, data analytics, or even integration with external services, can be incorporated to enhance the platform's capabilities.

3. Theoretical Analysis

3.1 Class Diagram



**Figure 1:
Diagram**

AddSpace Class

3.2 Hardware/Software Designing

Software Requirement

Integrated Development Environment (IDE)	VS Code (version 1.87)
Front-End Development	React or Flutter
Back-End Development	MongoDB (NoSQL) or MySQL/PostgreSQL (SQL)
User Authentication	Firebase Authentication or Auth0
Cloud Services	AWS or Heroku
Analytics and Monitoring	Crashlytics
Testing Tools	Jest or Mocha
Collaboration and Version Control	Git (with GitHub or GitLab)
Communication Tools	Slack or Microsoft Teams

Hardware Requirement

CPU	Intel Core i5 or AMD Ryzen series
RAM	8GB
Storage	500GB
Internet	High speed

4. Applications: -

1. **Event Hosting: Add Space** provides a platform for users to book venues for short-term events such as corporate meetings, workshops, parties, and conferences, offering flexibility in booking by the hour or day as needed.
2. **Pop-Up Shops and Markets:** Small businesses and vendors can use **Add Space** to find temporary locations for pop-up events, markets, and sales, giving them access to high-demand spaces without long-term commitments.
3. **Community and Social Gatherings:** Users looking for spaces to host social gatherings, community meetings, or local club activities can benefit from the platform's short-term rental options.
4. **Educational and Training Sessions:** Tutors and educational institutions can book rooms or spaces for short periods to conduct workshops, training sessions, or classes, allowing for flexibility in space usage.
5. **Photographic or Film Shoots:** Photographers and filmmakers can use **Add Space** to book locations for short-term shoots, choosing spaces that suit specific project requirements.
6. **Temporary Office Spaces:** For businesses in need of a temporary office setup, **Add Space** offers a way to book co-working spaces or conference rooms, accommodating both short-term and flexible booking needs.
7. **Real Estate Management:** Real estate brokers and space managers can use the platform to oversee and manage multiple spaces, keeping track of bookings, payments, and customer interactions in one centralized location.

REFERENCES: -

1. "A Survey on Web Application Development Technologies" – This paper can help understand the technical foundation (JSP, Servlets, JDBC, etc.) used in web application development.
2. "Flexible Space Management Systems: Current Trends and Future Directions" – Articles like these can provide insight into the demand for flexible, short-term rental spaces and the shift towards more dynamic space management solutions.
3. Statista and Grand View Research Reports – Reports on the event management, co-working, and short-term rental markets provide valuable statistics on the growing demand for flexible rental solutions.

4. "Short-Term Rental Market Analysis" – Research papers or reports on the trends in short-term rentals, often available from market research companies like IBISWorld or MarketsandMarkets, highlight the growth and challenges within this industry.
5. JSP, Servlets, and JDBC Documentation – The official documentation provided by Oracle or other reputable Java development sources can serve as a technical reference for backend implementation.
6. MySQL Documentation – Detailed guidance on MySQL setup, security, and best practices, useful for understanding database management in web applications.
7. Peerspace and Splacer – Visiting the official websites or reviewing case studies of these platforms can help provide context on similar solutions and justify the unique features of Add Space.
8. WeWork and Regus – Articles or white papers on co-working platforms can help differentiate Add Space in terms of short-term rental options outside the traditional office space market.
9. Payment Gateway Documentation (Stripe, PayPal) – For integrating payment features, these official resources provide best practices and API details relevant to secure transactions.
10. User Experience (UX) and User Interface (UI) Design Principles for Web Applications – Books or articles on UX/UI design will provide foundational knowledge for creating an intuitive interface for users, brokers, and admins.

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