**DORMHUB: AI-ENHANCED WEB-BASED PLATFORM**

**FOR SMART DORMITORY MANAGEMENT**

**AND TENANT SERVICES**

A Capstone Project

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**INTRODUCTION**

**Rationale of the study**

   Life in a dormitory can differ greatly from life in one's home. In a living quarter away from home, students encounter complex and transgressing barriers of culture, different values, and socioeconomic status, so something will always happen to them in interactions with other Roommates. Students who stay in dormitories are usually conditioned by their hopes and goals, which will lead to frustrations if threatened. A dormitory is a student's home away from home.  The type of environment in which he/she live in a dormitory house can influence or affect their academic performance as well as their personality development.  Every higher institution of learning should support should adopt a program in its students services unit, with thrusts or objectives of actualizing a congenial environment that animates the true,  the good,  and the beautiful in every student and which also fulfils, develops, and intensifies his sense of identity and affirms his dignity and humanity so that he could be a better member of the community to which he belongs. Batara, O. A., & Orpia, C. (2022)

  Despite these common perceptions, there are inherent difficulties in estimating the impact of living on campus has on student performance. For the schools that require freshman students to live on campus, there is no active control group. Typically, freshman students who do not live on campus share other features with each other that set them apart as nontraditional students. Many of these schools only require freshmen to live on campus, so one might be tempted to compare the academic performance of sophomores who live on campus versus off campus. The problem with such a strategy is that the assignment of a sophomore student to on-campus versus off-campus housing is not random. Rather, it is the choice of an individual student, and this choice likely depends on his or her perceptions of the academic benefits he or she received while living on campus during the freshman year. Students who did receive academic benefits are more likely to stay on campus, while students who did not are more likely to move to campus. This is known as a self-selection problem in regression analysis. Therefore, the explanatory variable, living on campus, is jointly determined with the dependent variable, some measure of academic performance. This leads to biased and inconsistent estimates of the impact that living on campus has on academic performance. Beneficiaries in Occidental Mindoro State College (March 9, 2023)

  The innovative AI-powered platform will significantly enhance the way dormitories are managed and promoted. Tenants will benefit from a highly personalized search experience, where they can filter dormitories based on their specific preferences such as budget, location, and amenities. This ensures that tenants can quickly find the most suitable living options. For landlords, the platform offers tools to easily manage property listings, including detailed profiles and photos that make their dormitories more attractive to potential tenants. Additionally, the integration of Google Maps provides a seamless way for users to view dormitory locations, helping them make informed decisions. Predictive analytics will aid landlords in optimizing room availability and setting competitive prices by analysing demand trends. Furthermore, the platform’s AI-driven recommendations will improve user engagement by suggesting dormitories that match individual preferences. With these advanced features, the platform will boost tenant satisfaction, increase occupancy, and streamline operations for landlords, making dormitory management more efficient and effective.

  DormHub Cebu is an AI-integrated platform designed to streamline the management and promotion of dormitories in Cebu. The platform uses Google Maps API for efficient search and promotion, allowing potential tenants to find nearby dormitories. Landlords can promote their properties through detailed profiles, including room availability, amenities, and photos. The platform also uses AI-driven predictive analysis for tracking room availability, offering pricing recommendations, and managing operations. It also provides automated review analysis and personalized search recommendations to engage tenants based on their feedback. AI sentiment analysis evaluates tenant feedback, offering landlords actionable insights to improve tenant experience. Predictive occupancy and demand forecasting help landlords stay ahead of tenant needs, improving occupancy rates and overall management. DormHub Cebu offers an advanced, automated solution for both tenants and landlords.

  The proposed system significantly contributes to improving the overall experience for both tenants and landlords in dormitory management. For tenants, the platform simplifies the search for dormitories by providing personalized recommendations based on preferences like budget, location, and amenities. The integration of Google Maps allows users to easily locate nearby options, enhancing convenience. For landlords, the system automates key aspects of property management, such as tracking room availability and offering data-driven pricing recommendations based on demand patterns. Additionally, the platform provides landlords with valuable insights through AI-powered sentiment analysis of tenant feedback, helping them make informed decisions to improve service quality and tenant satisfaction. Overall, the system enhances operational efficiency, increases occupancy rates, and promotes better tenant-landlord interactions.

**Objective of the Study**

**General Objective:**

This study aims to develop Dormitory, a web-based platform that integrates the Google Maps API to streamline the process of finding and promoting dormitories in Cebu. Specifically.

**Specific Objectives**

1. Identify the current dormitory management systems with regards to:

1.1. the process of searching and promoting dormitories.

1.2. the problems encountered by tenants and landlords.

2. Determine the mechanisms and technologies to be utilized in terms of:

2.1. Integration of Google Maps API with a pin-based location system  
 AI Integration: Proximity-based AI Suggestions

2.2. Room availability tracking with detailed information  
 AI Integration: Predictive Availability and Pricing

2.3. Tenant review and feedback feature  
 AI Integration: Automated Review Analysis

2.4 AI Integration: Personalized Search Recommendations

3. Define the best features of DormHub Cebu in terms of:

4. Establish the level of acceptability of DormHub Cebu in terms of:

**SCOPE AND LIMITATIONS**

  This study dives into creating and rolling out an AI-driven platform aimed at improving dormitory management and marketing in Cebu. The goal is to make it easier for tenants to find the right place by letting them filter options based on their preferences, like budget, location, and amenities. On the flip side, landlords will have access to tools that help them manage their listings, keep track of room availability, adjust pricing, and gather insights from tenant feedback. Plus, with Google Maps integration, tenants can easily see where dormitories are located and how close they are to important spots. The study also explores using predictive analytics to anticipate room demand and pricing trends, along with AI-powered suggestions to boost tenant engagement. The main players in this study are the dormitory owners and tenants in Cebu.

  While the platform boasts a variety of features, there are some limitations to consider. It's specifically designed for dormitories in Cebu, so its effectiveness might not translate well to other areas due to varying market behaviours and preferences. Additionally, the AI-driven recommendations depend heavily on the accuracy and availability of data from tenants and landlords. If that data is incomplete or inconsistent, it could impact the quality of the system's predictions. Another point to note is the reliance on internet connectivity; the platform needs a stable connection to work effectively, especially for real-time updates and Google Maps integration. Moreover, even though the system employs predictive analytics, it can't fully account for unexpected external factors like changes in local regulations, shifts in the economy, or natural disasters, all of which can influence occupancy rates and pricing trends. Lastly, it's important to remember that the system is focused solely on dormitory management and doesn't extend to other areas of property management, such as legal or financial matters.

**Significance of the study**

This study aims to streamline dormitory management and enhance tenant engagement through an AI-powered platform. The study will benefit the following:

* **Landlords**: By providing tools such as predictive analytics for pricing and room availability, as well as personalized tenant feedback, landlords can efficiently manage their properties, optimize occupancy rates, and improve tenant satisfaction.
* **Tenants**: The platform will help tenants find dormitories that match their preferences, such as budget, location, and amenities while offering an interactive map to visualize dormitory proximity to key areas.
* **Future Researchers**: The findings and data from this study will serve as a foundation for researchers interested in AI applications in property management and tenant engagement, helping guide future developments in this area.

**Definition of terms**

* **Dormitory Management:** Refers to the administration and oversight of dormitory operations, including room availability, tenant records, maintenance, and occupancy.
* **Landlords**: Individuals or entities who own and manage dormitory or boarding house properties and are responsible for renting rooms to tenants.
* **Tenants**: Individuals, often students, who rent rooms in dormitories or boarding houses for temporary residence while pursuing their studies or work.
* **AI-powered Platform**: A software system integrated with artificial intelligence (AI) to automate processes, provide data-driven insights, and offer personalized services, such as room recommendations and pricing analysis.
* **Predictive Analytics**: The use of AI to analyse historical data and make informed predictions about future events, such as occupancy trends or optimal pricing for dormitories.
* **Personalized Recommendations**: AI-driven suggestions tailored to individual user preferences based on factors like budget, location, and amenity preferences.
* **Google Maps API**: A programming interface that allows integration of Google Maps into the platform, providing users with the ability to visualize dormitory locations on an interactive map.
* **Engagement**: The interaction between tenants and landlords or between users and the platform, which includes activities like searching for dormitories, leaving feedback, and interacting with listings.

**CHAPTER II**

**REVIEW OF RELATED LITERATURE AND STUDIES**

This chapter provides a thorough review of the literature, conceptual framework, studies, and comparative matrix related to the proposed DormHub Cebu web-based system.

**Related Literature**

**Process of Searching and Promoting Dormitories** These days, finding a dorm is a whole different ball game, especially with all the cool tech we have at our fingertips. Gone are the days of just relying on word of mouth or simple flyers. Now, there are awesome platforms out there that use fancy algorithms to help both tenants and landlords make the most of their experience.

Modern dorm management systems are super user-friendly, letting folks narrow down their search based on what they really want. Whether it’s how close a place is to schools or transport, or if they need stuff like air conditioning or a private bathroom, users can set all kinds of filters. Plus, they can sort things by budget and lease length. According to Xiang (2024), these filtering options really cut down the time and hassle of hunting for the right spot. And here's the kicker: these systems can show real-time updates on room availability, so people aren’t stuck looking at outdated listings.

For landlords, advertising dorms has gotten a whole lot smarter. Many of these platforms have built-in tools that let landlords target their properties to the right crowd. So, if someone has been searching for certain features or is in a specific area, their listings can pop up right in front of them. This kind of focused marketing helps increase visibility, leading to a 20-30% boost in inquiries during busy times, according to Yue and Zhang (2023). With these advanced systems, landlords can fill their rooms faster and keep occupancy rates high.

On top of that, these smart systems often come with email or app notifications to let tenants know when new dorms that fit their criteria hit the market. It really makes the whole searching process so much easier and personalized.

**Browse Dormitory**

DormHub Cebu builds upon key insights found in existing research related to dormitory management systems. For instance, Chen et al. (2024) focused on the development of user-friendly interfaces that streamline tenant experiences. Their study emphasizes the importance of providing real-time data, clear filters, and easy navigation, which have become essential in modern rental platforms.

Similarly, Samonte et al. (2023) discussed the relevance of integrating advanced features like location-based search, which helps tenants find accommodations in preferred areas. This aligns with DormHub Cebu’s offering of customizable filters based on location, price, amenities, and room types. Moreover, transparency in property listings, as highlighted by Fernandez (2022), ensures that tenants make informed decisions by providing high-quality images, detailed descriptions, and information on room availability.

By incorporating these elements into the browsing experience, DormHub Cebu offers a streamlined and efficient search process that benefits both landlords and tenants. Tenants can now easily navigate and search for boarding houses in Cebu that meet their specific preferences, enhancing engagement and satisfaction. The platform’s integrated tenant screening and reservation systems further enhance convenience and trust.

**Integration of Google Maps API**

Integrating Google Maps API into dormitory management platforms has completely changed how people look for places to stay. Now, people searching for dorms can see them right on interactive maps, which show exactly where they are in relation to important places like schools, workplaces, public transport stops, shopping areas, and parks. So, for instance, if a student wants to find a spot near a specific university, they can easily pull up a map and look for dorms within a certain distance from the campus. This makes it super easy to check out travel times and nearby amenities before they decide.

On the tech side, Google Maps API gives dorm management systems access to really useful geospatial data, which means they can offer cool features like geofencing. Geofencing lets the system show only dorms that are within a certain distance from a landmark or address the tenant is interested in. As noted by DormHub Cebu builds upon key insights found in existing research related to dormitory management systems. For instance, Chen et al. (2024) focused on the development of user-friendly interfaces that streamline tenant experiences. Their study emphasizes the importance of providing real-time data, clear filters, and easy navigation, which have become essential in modern rental platforms.

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(2024), this has really boosted the accuracy of search results, helping tenants find the listings that really matter without having to dig through a ton of unrelated options.

Plus, this Google Maps feature is a win for landlords too. Whenever a landlord lists a new dorm, it gets automatically placed on the map and becomes part of searches based on where it's located. That means people looking in a specific area are more likely to see the listing, which definitely helps boost visibility. For landlords who have multiple properties, the API integration allows them to see all of their dorms on one map, making it way easier to keep track of their places.

And with real-time updates, landlords can provide accurate directions to potential tenants. If someone sets up a viewing or asks about a property, landlords can share the exact location along with nearby landmarks, making communication smoother. Research by Wang and Li (2023) suggests that Google Maps integration has really helped enhance tenant satisfaction by making the search and viewing process a lot more efficient and way less stressful.

**Room Availability Management**

One of the key parts of any dorm management system is keeping track of room availability. This feature makes sure that listings stay current, so there are no mix-ups with overbooking or claiming rooms are available when they’re not. By using real-time data management, these systems can automatically update room availability whenever something changes. That way, anyone looking for a place to live is always getting the right info.

In the old days, landlords had to manually update room availability whenever someone booked, moved out, or reserved a room, which often led to delays and mistakes. But thanks to these real-time systems, things change on the fly. The moment someone books or cancels a room, the system updates the availability right away. This means no more double-booking or showing rooms that are already taken. Research from Yang and Chen (2022) shows that dorm sites using real-time availability management have seen a 25% boost in tenant satisfaction because their listings are spot-on and reliable.

This feature is a huge win for landlords too. During busy times, like the start of the school year or holidays, they can count on these automated systems to take care of bookings without having to constantly monitor things. These systems can even send alerts to landlords if occupancy is low or if rooms are in high demand. For example, if there are only a few rooms left during peak times, the system might remind landlords to check their pricing or get ready for more inquiries. This smooth way of managing availability helps landlords keep things running smoothly and avoid conflicts or issues with overbooking, plus it can really help boost their revenue.

**Room Availability**

DormHub Cebu integrates key insights from existing research to provide a seamless Room Availability feature for tenants. In their study, Chen et al. (2024) emphasized the need for real-time data and efficient filtering systems, which have become essential in modern dormitory platforms. This aligns with DormHub Cebu’s feature that allows tenants to check the availability of rooms instantly.

Samonte et al. (2023) discussed the importance of location-based search functionalities, which DormHub Cebu incorporates by enabling tenants to search for available rooms near key landmarks in Cebu, such as schools or workplaces. The platform also allows for filtering based on price, room type, and amenities, making the search process more personalized and efficient.

Fernandez (2022) highlighted the value of transparency in property listings, including detailed descriptions and high-quality images, which build trust between tenants and landlords. DormHub Cebu enhances the tenant experience by providing clear and comprehensive room information, such as room dimensions, security features, and availability of common areas like kitchens or laundry rooms.

The Room Availability feature offers tenants an efficient and user-friendly way to browse and book boarding house accommodations that meet their specific needs, ensuring a streamlined process for both tenants and landlords.

**AI-Generated Price Filtering**

DormHub Cebu incorporates an AI-Generated Price Filtering feature to enhance the tenant experience when searching for affordable accommodations. Chen et al. (2024) emphasized the importance of intelligent systems in dormitory management, particularly in improving the efficiency of tenant searches. DormHub Cebu builds on this by utilizing AI algorithms to help tenants filter room listings based on their budget in real time.

Samonte et al. (2023) explored how personalized search functionalities can improve user satisfaction. Following these findings, the platform’s AI-Generated Price Filtering allows users to input a price range, and the AI dynamically presents the most relevant room listings that match their preferences. This ensures that tenants can easily find rooms within their budget, saving time and effort in the search process.

Fernandez (2022) also discussed transparency and detailed property listings, which DormHub Cebu integrates by providing clear pricing information alongside AI-generated suggestions for room listings. This helps tenants make informed decisions based on both their financial limits and room availability.

Through this feature, DormHub Cebu enhances tenant engagement and provides a smarter, more personalized approach to finding affordable accommodations, ensuring that tenants can quickly locate rooms that match their price range and preferences.

**AI-Powered Room Recommendation**

DormHub Cebu enhances the tenant experience with an AI**-**PoweredRoom Recommendation feature that personalizes the search for boarding houses. This system uses AI algorithms to suggest room listings based on tenant preferences, past searches, and room availability. As explored by Chen et al. (2024), intelligent dormitory management systems significantly improve efficiency and satisfaction among users, and DormHub Cebu integrates these concepts through AI technology to streamline room searches.

Samonte et al. (2023) demonstrated that personalized recommendations increase user engagement in digital platforms. In response, DormHub Cebu’s AI**-**PoweredRoom Recommendation analyzes tenant data, such as preferred price range, location, amenities, and room types, to present the most relevant listings. This reduces the effort required for tenants to find suitable accommodations and offers a more tailored experience.

Furthermore, Fernandez (2022) emphasized the importance of detailed listings and transparent property information, which DormHub Cebu fully integrates. The AI system suggests rooms with comprehensive descriptions, high-quality images, and information on nearby landmarks, ensuring tenants receive accurate and relevant recommendations.

By implementing AI-Powered Room Recommendation, DormHub Cebu makes the search for boarding houses more convenient, efficient, and personalized, benefiting both landlords and tenants by improving engagement and decision-making.

**Tenant Review and Feedback**

The tenant review and feedback system is super important for modern dorm platforms because it boosts trust, transparency, and accountability between tenants and landlords. This feature lets tenants who have lived in a dorm share their thoughts about their experience, covering things like room quality, how responsive the landlord is, cleanliness, and the overall vibe of the place. The reviews and ratings from past tenants give potential renters a better idea of where they might want to stay.

Plus, these review systems help create a sense of community within the dorm management platform. As Samonte et al. (2023) points out, platforms with solid review systems build trust among users by providing real feedback from actual tenants. Reviews usually include a rating system where tenants can give a score based on how happy they were with the dorm. This quick data lets future tenants gauge a property’s quality at a glance, while the detailed written feedback dives deeper into specific aspects of their stay.

For landlords, the review system is a goldmine of feedback they can use to level up their offerings. If tenants keep bringing up similar issues like spotty internet, lack of amenities, or slow responses from the landlord, landlords can step in to fix those problems and keep tenants happier. Positive reviews, on the other hand, can help landlords bring in more tenants by displaying the good stuff about their properties, like cleanliness, awesome management, and convenience.

This review system also promotes accountability for both landlords and tenants. Knowing that their property will be publicly reviewed nudges landlords to keep their standards high, while tenants are often more mindful of their behavior since they know their feedback matters. This creates a nice cycle that benefits everyone involved. According to Samonte et al. (2023), dorm platforms with built-in review systems have seen better tenant retention and happier landlords thanks to the transparency and accountability it brings.

**AI-Powered Tenant Review Analysis**

DormHub Cebu integrates AI-Driven Sentiment Analysis to automatically evaluate tenant feedback and categorize dormitories based on positive or negative reviews. This feature leverages AI to process tenant comments, analyzing the sentiment behind their feedback, and displaying whether a particular room or dormitory has received mostly positive or negative feedback. Xiang (2024) discussed the effectiveness of using AI for precision management in dormitories, and this feature builds on that by offering real-time analysis of tenant opinions.

Through this sentiment analysis, rooms or dormitories with predominantly positive feedback are flagged as "Highly Rated" or "Recommended," while those with negative sentiment are marked for potential improvements. Yang and Chen (2022) emphasized the need for data-driven insights in dormitory management systems, which this AI integration directly supports. Landlords can monitor tenant feedback to identify strengths or areas of concern, allowing for more effective management of their properties.

Fernandez(2022) highlighted the value of responsiveness in dormitory management. With AI analyzing tenant reviews, DormHub Cebu ensures that tenants and landlords can quickly assess the general sentiment around a particular dormitory. This transparency enables tenants to make more informed decisions when choosing accommodations, and landlords can act swiftly on areas requiring improvement to maintain a positive tenant experience.

By providing real-time feedback analysis, DormHub Cebu enhances the browsing experience, making it easier for tenants to find highly-rated rooms and giving landlords valuable insights into tenant satisfaction.

**Personalized Search Recommendations**

You know, personalized search recommendations are one of the coolest features of modern dormitory platforms. These platforms use AI and machine learning to look at what you do, what you like, and what you’ve searched for in the past to give you suggestions that really fit your style. For instance, if you often look for dorms with specific stuff like private bathrooms, air conditioning, or being close to campus, the system will show you listings that match those preferences next time you search. This makes finding a place way easier since you won’t have to keep tweaking the filters all the time.

This feature isn’t just about making things easier, it’s also about keeping tenants happy because it saves them time and effort. According to Ma (2024**)**, dormitory platforms with these personalized recommendations saw a 30% bump in user engagement since tenants could quickly find a suitable dorm. Plus, the system can learn from what tenants think—if you keep giving high ratings to certain types of dorms, it’ll start showing you similar options in the future.

For landlords, these personalized recommendations mean their listings are shown to tenants who are really interested in their properties. This smart approach cuts down on irrelevant questions and boosts the chances of getting bookings. Landlords can also take these insights to tweak their listings or enhance their dorms based on what’s popular. For example, if the system indicates that tenants are often searching for places with high-speed internet, landlords might want to consider adding that feature to make their properties more appealing.

Plus, personalized suggestions can work hand-in-hand with other features on the platform, like notifications or alerts. Tenants can get a heads-up when a new listing that matches their preferences pops up, making the whole experience even better. As Wang (2024) points out, platforms with these personalized search features have really boosted tenant satisfaction rates because tenants feel like the platform gets what they need and offers options just for them.

**Landlord And Tenant Communication**

DormHub Cebu integrates a robust tenant communication system to enhance engagement and foster a sense of community within its dormitory houses. This aligns with the findings of Batara and Orpia (2022), who emphasized the importance of clear communication in fostering tenant satisfaction and retention. The platform features a real-time messaging system, allowing tenants to communicate directly with landlords for any concerns or updates. Furthermore, automated notifications for rent payments, maintenance requests, and important community events ensure that tenants are always informed and up-to-date, mirroring Fernandez’s (2022) recommendation for real-time updates in dormitory management systems.

By providing a transparent and efficient communication channel, DormHub Cebu not only improves tenant satisfaction but also encourages active participation in maintaining a harmonious living environment. This feature helps build a sense of belonging among tenants, similar to what Ma (2024) highlighted in research on dormitory culture. The automated review analysis further supports this system by analyzing tenant feedback and identifying key sentiments, enabling landlords to address issues proactively and maintain a positive living environment. This approach reflects the importance of data-driven insights in dormitory management, as noted by Yang and Chen (2022).

DormHub Cebu enhances tenant communication through its real-time messaging system, allowing seamless interactions between tenants and landlords. This feature provides a direct and instant way for tenants to raise concerns, make requests, or inquire about dormitory-related matters. It ensures transparency and prompt responses, reducing misunderstandings and delays that could otherwise lead to dissatisfaction. Additionally, automated notifications for rent payments, maintenance schedules, and community events help tenants stay informed and up-to-date. By offering these efficient communication channels, DormHub Cebu fosters a collaborative environment, encouraging tenants to actively participate in maintaining their living spaces and promoting a sense of belonging within the community.

**Tenant Screening and Reservation System**

Tenant screening systems play a pivotal role in reducing risks in rental management, such as late payments, property damage, and tenant disputes. According to Chen (2024), automated systems that evaluate tenants' rental history, employment status, and financial stability help landlords make informed decisions, ultimately leading to better property management outcomes. This process minimizes the likelihood of evictions and fosters a safer, more organized environment for all parties involved.

Building on this, Yang and Chen (2022) examined the integration of tenant screening within reservation systems in dormitory management. Their research demonstrated how unifying these two processes streamlines operations and increases efficiency. Tenants can access real-time availability of dormitory units and reserve rooms based on qualifications, preventing overbooking and ensuring a smooth experience for both landlords and tenants. The combination of screening and reservation not only simplifies the tenant approval process but also ensures a seamless room booking experience.

Further reinforcing the importance of tenant screening, Batara and Orpia (2022) highlighted its impact on tenant-landlord relationships. Their research found that landlords utilizing tenant screening systems experienced fewer tenant-related issues and higher satisfaction rates. Moreover, tenants felt more secure knowing that their neighbors had gone through a similar vetting process, thereby contributing to a harmonious living environment.

Drawing from these insights, DormHub Cebu integrates an advanced tenant screening and reservation system that streamlines the dormitory rental process. Landlords can use automated screening tools that evaluate potential tenants based on their rental history, employment status, and other relevant factors. This ensures that only qualified tenants are accepted, minimizing risks such as late payments or property damage. Once tenants pass the screening process, they can immediately reserve rooms in real-time, avoiding overbooking and enhancing the transparency of the reservation system.

For landlords, this unified system significantly reduces administrative burdens and ensures fair, consistent property management practices. On the tenant side, the combination of screening and reservation creates a secure and organized environment, as tenants are assured that their future neighbors have undergone the same thorough vetting process. DormHub Cebu promotes an efficient, transparent, and secure rental experience for both landlords and tenants.

**Booking**

DormHub Cebu incorporates several features that align with current trends in property management and communication systems, as discussed in the literature. According to Ma (2024), effective communication systems in dormitories foster a sense of community and improve overall tenant satisfaction. DormHub Cebu addresses this by offering real-time messaging, ensuring seamless communication between tenants and landlords for maintenance requests, inquiries, and updates. Furthermore, the platform sends automated notifications for important events such as rent payments and maintenance schedules, similar to the system described by Fernandez (2022) in dormitory management platforms that utilize technology for efficient information dissemination.

In addition to enhancing communication, DormHub Cebu features a booking system that allows prospective tenants to view available dormitories, review room details, and reserve accommodations directly through the platform. This functionality streamlines the room-booking process and provides automated confirmations, aligning with the findings of Batara and Orpia (2022), who emphasize the importance of efficient, user-friendly housing services in ensuring tenant satisfaction. The platform's seamless booking and communication features reflect modern advancements in dormitory management systems, making DormHub Cebu an innovative solution for managing multi-tenant properties in Cebu.

DormHub Cebu is equipped with a Smart Room Booking system, allowing tenants to easily browse available rooms, check room features, and make instant reservations. It also provides automated reminders for important events such as rent due dates, maintenance requests, and community updates. The real-time messaging feature ensures instant communication between landlords and tenants, while automated booking confirmations and room availability updates enhance the overall user experience. By integrating these essential features, DormHub Cebu streamlines the entire process of booking, managing, and communicating within dormitory environments.

**Room Availability Notifications**

When it comes to dorm management, keeping track of room availability is super important for both tenants and landlords. No one enjoys checking out a room just to find out it's already taken, right? These days, with all the cool dorm management systems out there, you can get real-time notifications about what's available, making things a lot smoother for everyone involved.

These systems automatically refresh room listings whenever there’s a change—whether someone books a room or cancels. This means that potential tenants only see rooms that are really up for grabs, which cuts down on the chances of double bookings or old info hanging around. According to Perez (2024), this has boosted tenant satisfaction by a massive 30%, since it saves time and gives people the real scoop during their room hunt.

For landlords, this instant notification setup is a total breakthrough. No more manually updating the statuses of rooms—now the system does that for them, which means they can focus on other important stuff. Plus, they get alerts if occupancy rates start to dip, so they can tweak pricing or ramp up marketing right away. This proactive approach keeps more rooms filled and minimizes the time they sit empty, as noted by Yuan & Wu (2023).

On top of that, tenants get these handy push notifications that let them know as soon as a room that fits their needs pops up. Whether it’s through email or an app, it gives them a leg up in snagging their ideal space. Sanchez (2024) points out that platforms featuring these notifications see way more user engagement and faster room turnover, which is a win-win for both landlords and tenants.

**Conceptual Framework.**

The conceptual framework provides the theoretical foundation, detailing the key concepts, principles, and connections that shape and direct the study.

A diagram of a company

AI-generated content may be incorrect.

Figure 1: **DormHub Cebu Conceptual Framework**

Figure 1 outlines the core of the DormHub Cebu platform, a mobile and web-based application designed to streamline dormitory management for landlords and provide convenience for tenants. The platform integrates various features to optimize the overall boarding experience. The app tracks available dorms, tenant reservations, and payment statuses while utilizing geolocation technology to display nearby dormitories.

The platform utilizes a Google Maps API to detect and display available dormitories based on user inputs, such as location preferences. For dorm management, rule-based systems are applied to categorize dorm listings and tenant requests. This structure ensures that landlords can easily manage their properties and tenants can search for available accommodations with ease.

The tables below summarize the essential processes, models, and workflows within DormHub, detailing the methods used for dorm classification, tenant requests, room availability tracking, and feedback/rating system integration. These tables also describe fallback systems that guarantee efficiency and accuracy in managing the platform’s functions.

**Related Studies**

A screenshot of a website

AI-generated content may be incorrect.

Figure 2: **DORMS.PH**

Dorms.ph is a platform in the Philippines that simplifies the process of finding dormitory accommodations for students and young professionals. It connects renters and owners, offering a user-friendly interface for location, price, and other criteria, and aims to improve communication and convenience for both parties.

**A group of people walking on a street

AI-generated content may be incorrect.**

Figure 3: **RENTALBEE**

Rentalbee.ph is an online platform that simplifies finding co-living spaces for students and young professionals in the Philippines. It connects renters and property owners, offering a user-friendly interface for location, budget, and other criteria. The platform provides detailed property listings for tenants and tools for landlords to promote and manage their co-living spaces. Despite the competitive rental market, Rentalbee.ph ensures a smoother and more transparent renting experience.

A pool with a building in the background

AI-generated content may be incorrect.

Figure 4: **mytown.ph**

MyTown.ph is a platform that offers modern, luxurious co-living spaces for young professionals and students in key urban areas of the Philippines, particularly near Bonifacio Global City and Makati Central Business District. The platform connects renters with premium dormitory-style accommodations, offering a user-friendly interface for finding affordable housing. It also provides amenities like gyms, swimming pools, and lounges for residents. MyTown.ph combines affordability with modern conveniences, contributing to the growing demand for quality co-living spaces in the Philippines.

**A person smiling at camera

AI-generated content may be incorrect.**

Figure 5: **STUDENT.COM**

Student.com is a global platform that assists students in finding and booking accommodations near universities and colleges. It offers a wide range of accommodations in over 400 cities, allowing users to search based on location, price, and amenities. The platform provides detailed listings, support, and a smoother experience for both students and property owners.

**A screenshot of a web page

AI-generated content may be incorrect.**

Figure 6: **STUDENTROOMSTAY**

StudentRoomStay is an online platform that connects students with safe, affordable, and comfortable housing in cities worldwide. It offers detailed property information, fostering strong relationships between students and hosts. The platform simplifies the  rental process for both students and property owners, ensuring a safe and comfortable living environment. Its transparent interface simplifies the rental process, making it a valuable resource in the student accommodation landscape.

**Comparative Matrix.** The comparative matrix displays similar systems and applications to the proposed system. It illustrates the similarities and distinctions between each system.

Table 6 COMPARATIVE MATRIX

| **Features** | **DormsHub Cebu** | **Dorms. ph** | **RentalBee. ph** | **MyTown.ph** | **Student.com** | **StudentRoomStay** |
| --- | --- | --- | --- | --- | --- | --- |
| **Integration of Google Maps API** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Tenant Screening and Reservation System** | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| **Room Availability Notifications** | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ |
| **AI-Generated Price Filtering** | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ |
| **AI-Powered Room Recommendation** | ✓ | ✗ | ✗ | ✓ | ✓ | ✗ |
| **Personalized Search Recommendations** | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ |
| **Booking** | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ |

References

* M. Chen, "From Single Mode to Integrated Parenting: A Study on the Intelligent Level of Student Management and Parenting in Maritime Vocational Characteristics Applied Mathematics and Nonlinear Sciences, Vol. 9, 2024 DOI: [10.1109/ISPDS51347.2020.00074](https://doi.org/10.1109/ISPDS51347.2020.00074)
* Chen ZF, Ding X, Sun SP, Shi LM, Sun YX. Design and Realization of the Student Dormitory Management System Based on RFID. AMM 2014;631–632:1447–50. DOI: <https://doi.org/10.4028/www.scientific.net/amm.631-632.1447>.
* Mary Jane C. Samonte, Francesca Jacinthe C. Navarro, Vladimir D. Beduya and Cloyd Van S. Secuya Conference: 2023 13th International Conference on Software Technology and Engineering (ICSTE), Year: 2023, Page 51 DOI: [10.1109/ICSTE61649.2023.00016](http://dx.doi.org/10.1109/ICSTE61649.2023.00016)
* Gilbert M. Silagpo, Elman John M. Cabacang, Ronald L. Ilustrisimo, Miguelito R. Inajada, Jayson C. Jueco, "Monitoring and Prediction of Household Power Consumption using Internet of Things and ARIMA", *2024 3rd International Conference on Computational Modelling, Simulation and Optimization (ICCMSO)*, pp.170-175, 2024.                                                                DOI: [10.1109/TENCON.2017.8228205](https://doi.org/10.1109/TENCON.2017.8228205)
* Batara, O. A., & Orpia, C. (2022). Students’ Satisfaction on Housing Services: Basis of Management Plan in the New Normal. *Journal of Education Review Provision*, *2*(1), 12-22. <https://doi.org/10.55885/jerp.v2i1.144>
* Riski, Yunia Tiara, et al. "Descriptive Study: Implementation of Character Education in the Dormitory of the Indonesian School of Davao, Philippines." *Metodik Didaktik: Jurnal Pendidikan Ke-SD-an* 18.2 (2023): 66-77.DOI: <https://doi.org/10.17509/md.v18i2.50236>
* Ma, Qingjie. "Research on the Relationship Between Dormitory Culture Construction and Student Management in Vocational Colleges." *Journal of Modern Education and Culture* 1.2 (2024)**.** <https://doi.org/10.70767/jmec.v1i2.264>
* Fernandez SM (2022) Dormitory Management Information System with SMS Notification and Biometric Security. Indian Journal of Science and Technology 15(26): 1296-1305.   [10.17485/IJST/v15i26.1578](https://doi.org/10.17485/IJST/v15i26.1578)
* X. Xiang, "Enhancing the Precision Management of University Student Dormitories Based on Big Data," *2024 5th International Conference on Big Data & Artificial Intelligence & Software Engineering (ICBASE)*, Wenzhou, China, 2024, pp. 11-14, doi: 10.1109/ICBASE63199.2024.10762527.
* Y. Yang and S. Chen, "Design and Implementation of College Dormitory Management System," 2022 Fourth International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT), Mandya, India, 2022, pp. 1-5, doi: 10.1109/ICERECT56837.2022.10059902.
* Batara, O. A., & Orpia, C. (2022). Students’ Satisfaction on Housing Services: Basis of Management Plan in the New Normal. Journal of Education Review Provision, 2(1), 12-22. [https://doi.org/10.55885/jerp.v2i1.144](https://l.facebook.com/l.php?u=https%3A%2F%2Fdoi.org%2F10.55885%2Fjerp.v2i1.144%3Ffbclid%3DIwZXh0bgNhZW0CMTAAAR3Kkbnqtp5qLouED5btbkEZ_R9BNXqKGhWgepfbmVb1ljFdGGNKFawCYkc_aem_WQDFH0G_8dNCxQdZ70kPMA&h=AT0AtTgfYbuoTjNMhqHK80EeMfNKx59xgymsi-CNWJCZFY18GTzkwm-oUPtASWYf1MAzLhO-BdxtXqJBjqkbFLhh6wItD3xgFcbRG7eFgZ9Fz8u9GcNSS1XPT4dlkKbiP65awQ)
* Ambong, Ryan Mark and Bantog, Noel and Declaro-Ruedas, Mary Yole Apple, Determinants of Saving Capacity of the Expanded Students Grants-In-Aid Program for Poverty Alleviation (ESGPPA) Beneficiaries in Occidental Mindoro State College (March 9, 2023). Available at SSRN: [http://dx.doi.org/10.2139/ssrn.3800502](http://dx.doi.org/10.2139/ssrn.3800502?fbclid=IwZXh0bgNhZW0CMTAAAR16lfHgA-Ot5ZSJPgBIMdHFb_0Raag812jGh-sxVd9ucgeDlNjeqvpTzB8_aem_PvFJlq3Pjbl67FveFfym2Q)