Hostel / PG Recommendation System using Machine learning.

Rajakishore Selvaraj

1. Problem Statement:

Development of an Intelligent Hostel / PG Recommendation System.

2. Objective:

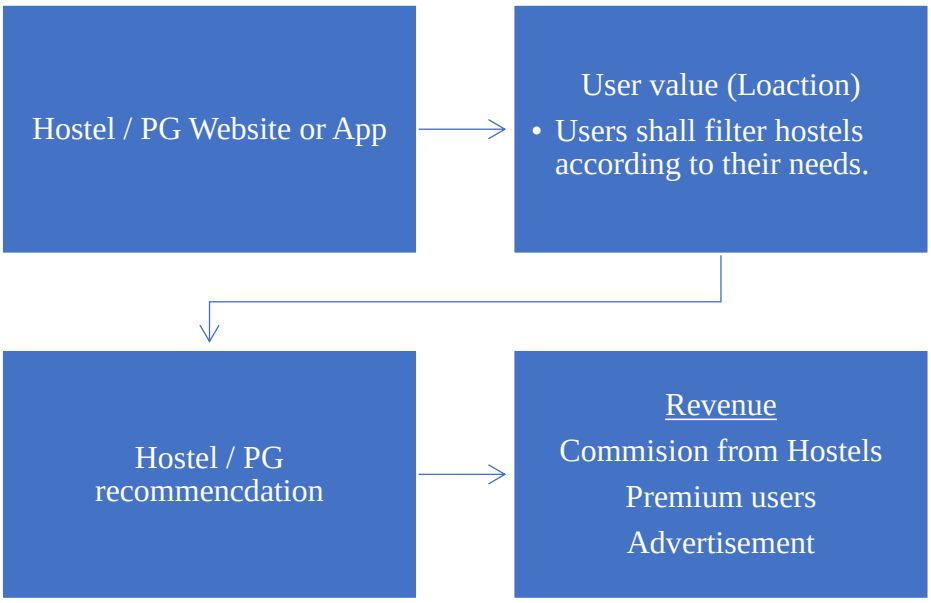
To build a robust recommendation system that assists individuals in finding suitable hostel or PG accommodations based on their preferences, budget, location, and other relevant factors.

3. Market or customer need assessment:

1. **Growing Demand for Hostel and PG Accommodations:** The market for hostel and PG accommodations is witnessing significant growth, driven by factors such as increasing student populations, migration for job opportunities, and the need for affordable housing options. A recommendation system can cater to the rising demand by assisting individuals in finding suitable accommodations efficiently.
2. **Time and Cost Efficiency:** The traditional process of searching for hostels or PG accommodations can be time-consuming and resource intensive. A recommendation system streamlines the search process by providing personalized suggestions, saving users valuable time and effort in manually searching and evaluating numerous options.
3. **Enhanced User Experience:** Finding the right hostel or PG accommodation is a critical decision for individuals. By offering tailored recommendations based on user preferences, budget constraints, location, and other relevant factors, a recommendation system improves the overall user experience, leading to higher satisfaction levels.
4. **Comprehensive and Objective Information:** Hostel and PG accommodations can vary significantly in terms of amenities, safety features, proximity to educational institutions, and overall quality. A recommendation system can provide comprehensive and objective information about different accommodations, allowing users to make informed decisions.
5. **Increased Accessibility:** With the proliferation of online platforms and mobile applications, users now expect convenience and accessibility in various domains. A hostel or PG recommendation system can be accessed anytime, anywhere, enabling users to search for accommodations at their convenience and from any location.
6. **Competitive Advantage:** In a crowded market, platforms offering a reliable and efficient hostel or PG recommendation system can gain a competitive edge. By providing value-added services and personalized recommendations, businesses can attract and retain users, leading to increased market share and revenue potential.

4. Business Model:

1. **Affiliate Marketing:** Partner with hostels, PG accommodations, or related service providers and implement an affiliate marketing model. We can earn a commission or referral fee for each successful booking or transaction generated through the platform. Collaborate with accommodation providers who are willing to offer exclusive deals or discounts to users referred from your recommendation system.
2. **Premium Listings:** Offering premium listing options to accommodation providers. Allowing people to enhance their visibility and reach a wider audience by featuring their properties prominently in search results or providing additional promotional opportunities. Charging fee for premium listings, offering value-added benefits such as verified listings, priority placement, or highlighted features.
3. **Advertising and Sponsorship:** Exploring advertising and sponsorship opportunities within the platform. Accommodation providers, local businesses, or service providers catering to the accommodation sector may be interested in advertising their offerings to the user base. Offering banner ads, sponsored recommendations, or dedicated sections for promotional content, and charging advertisers based on impressions, clicks, or a fixed fee.
4. **Data Insights and Analytics:** Leveraging the data and insights gathered through the recommendation system to provide analytics and market insights to accommodation providers, real estate agencies, or other relevant stakeholders. Offering subscription-based access to aggregated data, trends, user behaviour patterns, or market reports, helping people make informed decisions and improve their business strategies.
5. **Value-Added Services:** Identifying additional services that can complement the recommendation system and provide value to users. For example, we can partner with moving services, utility providers, or rental insurance companies and earn referral fees or commissions for successful conversions generated through your platform. This approach expands the revenue streams beyond accommodation bookings.
6. **API Licensing:** If the recommendation system has unique algorithms, data models, or APIs, licensing them to other platforms, developers, or businesses operating in the accommodation industry helps further. Providing access to the technology stack or offer tailored integration solutions, charging licensing fees based on usage or API call volume.



5. Financial Model:

The goal of this project is to develop an intelligent hostel or PG recommendation system that utilizes data-driven approaches to streamline the accommodation search process. The system will consider multiple factors such as user preferences, budget constraints, location, amenities, safety ratings, and proximity to educational institutions. By leveraging machine learning algorithms and advanced data analysis techniques, the recommendation system will provide accurate and relevant suggestions to users, ultimately simplifying the hostel or PG selection process.

1. **User Interface:** It can be represented by a web or mobile application interface. This is where users interact with the recommendation system, create profiles, and access various features and functionalities.
2. **User Profile Management:** The user profile management component allows users to create and manage their personalized profiles. It includes fields for users to enter their preferences, budget constraints, location preferences, and other relevant information. This component stores and retrieves user profile data.
3. **Recommendation Engine:** The recommendation engine forms the core of the product. It utilizes machine learning algorithms, data analysis techniques, and user preferences to generate personalized recommendations. This component takes user profiles as input, processes accommodation data, and outputs relevant recommendations.
4. **Accommodation Data Collection:** The accommodation data collection component gathers comprehensive information about hostels and PG accommodations. This data includes details such as location, amenities, safety features, pricing, user ratings, and reviews. The component ensures the availability and accuracy of accommodation data for the recommendation process.

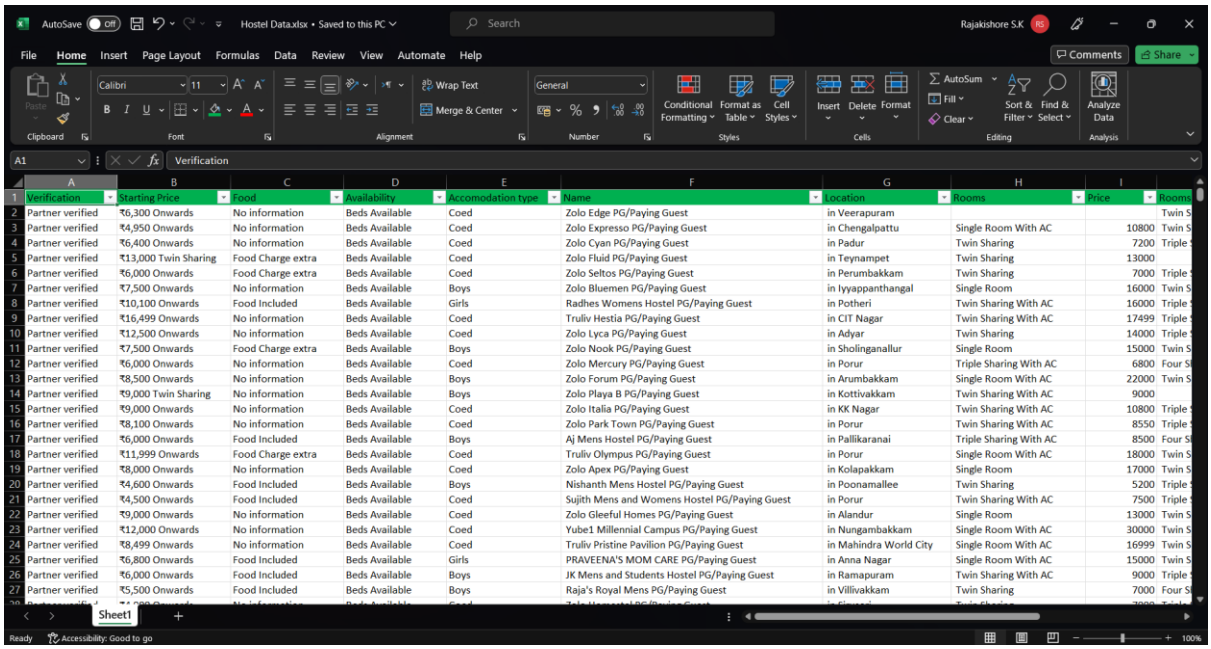
5. **Filtering and Sorting:** The filtering and sorting component provides users with various options to refine their search results. It includes functionalities such as filtering based on amenities, safety ratings, location, and price ranges. This component helps users customize their search criteria and obtain more tailored recommendations.

6. **User Feedback and Rating:** The user feedback and rating component enables users to provide feedback and ratings on recommended accommodations. It facilitates the collection of user experiences and sentiments, which can be utilized to improve the recommendation system and enhance the accuracy of future recommendations.

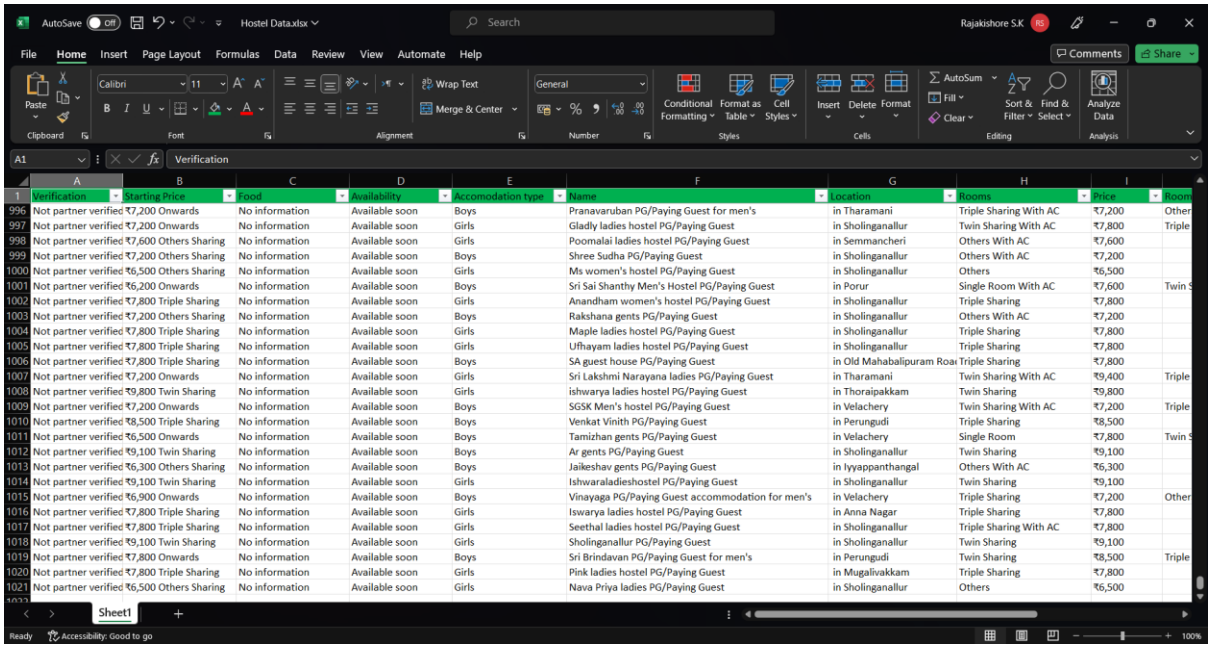
7. **External Integrations:** External integrations with partners, such as hostels, PG providers, and other relevant service providers. These integrations allow for exclusive deals, discounts, and additional value-added services to be offered to users.

3.1 Data sources:

For the prototype model, real world data is extracted by web-scrapping using Microsoft Power Automate. Data of Hostels / PGs in Chennai is extracted from a website and used as a sample data. The sample data contains information's about hundreds of PGs in Chennai.



Verification	Starting Price	Food	Availability	Accomodation type	Name	Location	Rooms	Price	Rooms
Partner verified	₹6,300 Onwards	No information	Beds Available	Coed	Zolo Edge PG/Paying Guest	in Veerapuram			Twin S
Partner verified	₹4,950 Onwards	No information	Beds Available	Coed	Zolo Expresso PG/Paying Guest	in Chengalpattu	Single Room With AC	10800	Twin S
Partner verified	₹6,400 Onwards	No information	Beds Available	Coed	Zolo Cyan PG/Paying Guest	in Padur	Twin Sharing	7200	Triple
Partner verified	₹13,000 Twin Sharing	Food Charge extra	Beds Available	Coed	Zolo Fluid PG/Paying Guest	in Teynampet	Twin Sharing	13000	
Partner verified	₹6,000 Onwards	Food Charge extra	Beds Available	Coed	Zolo Seltos PG/Paying Guest	in Perumbakkam	Twin Sharing	7000	Triple
Partner verified	₹7,500 Onwards	No information	Beds Available	Boys	Zolo Bluemen PG/Paying Guest	in Iyyappanthangal	Single Room	16000	Twin S
Partner verified	₹10,100 Onwards	Food Included	Beds Available	Girls	Radhes Womens Hostel PG/Paying Guest	in Potheri	Twin Sharing With AC	16000	Triple
Partner verified	₹16,499 Onwards	No information	Beds Available	Coed	Truliv Hestia PG/Paying Guest	in CIT Nagar	Twin Sharing With AC	17499	Triple
Partner verified	₹12,500 Onwards	No information	Beds Available	Coed	Zolo Lyca PG/Paying Guest	in Adyar	Twin Sharing	14000	Triple
Partner verified	₹7,500 Onwards	Food Charge extra	Beds Available	Boys	Zolo Nook PG/Paying Guest	in Sholinganallur	Single Room	15000	Twin S
Partner verified	₹6,000 Onwards	No information	Beds Available	Coed	Zolo Mercury PG/Paying Guest	in Porur	Triple Sharing With AC	6800	Four S
Partner verified	₹8,500 Onwards	No information	Beds Available	Boys	Zolo Forum PG/Paying Guest	in Arumbakkam	Single Room With AC	22000	Twin S
Partner verified	₹9,000 Twin Sharing	No information	Beds Available	Boys	Zolo Playa B PG/Paying Guest	in Kottivakkam	Twin Sharing With AC	9000	
Partner verified	₹9,000 Onwards	No information	Beds Available	Coed	Zolo Italia PG/Paying Guest	in KK Nagar	Twin Sharing With AC	10800	Triple
Partner verified	₹8,100 Onwards	No information	Beds Available	Coed	Zolo Park Town PG/Paying Guest	in Porur	Twin Sharing With AC	8550	Triple
Partner verified	₹6,000 Onwards	Food Included	Beds Available	Boys	Aj Mens Hostel PG/Paying Guest	in Pallikaranai	Triple Sharing With AC	8500	Four S
Partner verified	₹11,999 Onwards	Food Charge extra	Beds Available	Coed	Truliv Olympus PG/Paying Guest	in Porur	Single Room With AC	18000	Twin S
Partner verified	₹8,000 Onwards	No information	Beds Available	Coed	Zolo Apex PG/Paying Guest	in Kolapakkam	Single Room	17000	Twin S
Partner verified	₹4,600 Onwards	Food Included	Beds Available	Boys	Nishanth Mens Hostel PG/Paying Guest	in Poonamallee	Twin Sharing	5200	Triple
Partner verified	₹4,500 Onwards	Food Included	Beds Available	Coed	Sujith Mens and Womens Hostel PG/Paying Guest	in Porur	Twin Sharing With AC	7500	Triple
Partner verified	₹9,000 Onwards	No information	Beds Available	Coed	Zolo Gleeful Homes PG/Paying Guest	in Alandur	Single Room	13000	Twin S
Partner verified	₹12,000 Onwards	No information	Beds Available	Coed	Yube1 Millennial Campus PG/Paying Guest	in Nungambakkam	Single Room With AC	30000	Twin S
Partner verified	₹8,499 Onwards	No information	Beds Available	Coed	Truliv Pristine Pavilion PG/Paying Guest	in Mahindra World City	Single Room With AC	16999	Twin S
Partner verified	₹6,800 Onwards	Food Included	Beds Available	Girls	PRAVEENA'S MOM CARE PG/Paying Guest	in Anna Nagar	Single Room With AC	15000	Twin S
Partner verified	₹6,000 Onwards	Food Included	Beds Available	Boys	JK Mens and Students Hostel PG/Paying Guest	in Ramapuram	Twin Sharing With AC	9000	Triple
Partner verified	₹5,500 Onwards	Food Included	Beds Available	Boys	Raja's Royal Mens PG/Paying Guest	in Villivakkam	Twin Sharing	7000	Four S



	A	B	C	D	E	F	G	H	I
1	Verification	Starting Price	Food	Availability	Accomodation type	Name	Location	Rooms	Price
996	Not partner verified	₹7,200 Onwards	No information	Available soon	Boys	Pranavaruban PG/Paying Guest for men's	in Tharamani	Triple Sharing With AC	₹7,200
997	Not partner verified	₹7,200 Onwards	No information	Available soon	Girls	Gladly ladies hostel PG/Paying Guest	in Sholinganallur	Twin Sharing With AC	₹7,800
998	Not partner verified	₹7,600 Others Sharing	No information	Available soon	Girls	Poomalai ladies hostel PG/Paying Guest	in Semmancheri	Others With AC	₹7,600
999	Not partner verified	₹7,200 Others Sharing	No information	Available soon	Boys	Shree Sudha PG/Paying Guest	in Sholinganallur	Others With AC	₹7,200
1000	Not partner verified	₹6,500 Others Sharing	No information	Available soon	Girls	Ms women's hostel PG/Paying Guest	in Sholinganallur	Others	₹6,500
1001	Not partner verified	₹6,200 Onwards	No information	Available soon	Boys	Sri Sai Shanthy Men's Hostel PG/Paying Guest	in Porur	Single Room With AC	₹7,600
1002	Not partner verified	₹7,800 Triple Sharing	No information	Available soon	Girls	Anandham women's hostel PG/Paying Guest	in Sholinganallur	Triple Sharing	₹7,800
1003	Not partner verified	₹7,200 Others Sharing	No information	Available soon	Boys	Rakshana gents PG/Paying Guest	in Sholinganallur	Others With AC	₹7,200
1004	Not partner verified	₹7,800 Triple Sharing	No information	Available soon	Girls	Maple ladies hostel PG/Paying Guest	in Sholinganallur	Triple Sharing	₹7,800
1005	Not partner verified	₹7,800 Triple Sharing	No information	Available soon	Girls	Ufhayam ladies hostel PG/Paying Guest	in Sholinganallur	Triple Sharing	₹7,800
1006	Not partner verified	₹7,800 Triple Sharing	No information	Available soon	Boys	SA guest house PG/Paying Guest	in Old Mahabalipuram Roa	Triple Sharing	₹7,800
1007	Not partner verified	₹7,200 Onwards	No information	Available soon	Girls	Sri Lakshmi Narayana ladies PG/Paying Guest	in Tharamani	Twin Sharing With AC	₹9,400
1008	Not partner verified	₹9,800 Twin Sharing	No information	Available soon	Girls	ishwarya ladies hostel PG/Paying Guest	in Thoraipakkam	Twin Sharing	₹9,800
1009	Not partner verified	₹7,200 Onwards	No information	Available soon	Boys	SGSK Men's hostel PG/Paying Guest	in Velachery	Twin Sharing With AC	₹7,200
1010	Not partner verified	₹8,500 Triple Sharing	No information	Available soon	Boys	Venkat Vinith PG/Paying Guest	in Perungudi	Triple Sharing	₹8,500
1011	Not partner verified	₹6,500 Onwards	No information	Available soon	Boys	Tamizhan gents PG/Paying Guest	in Velachery	Single Room	₹7,800
1012	Not partner verified	₹9,100 Twin Sharing	No information	Available soon	Boys	Ar gents PG/Paying Guest	in Sholinganallur	Twin Sharing	₹9,100
1013	Not partner verified	₹6,300 Others Sharing	No information	Available soon	Boys	Jaikeshav gents PG/Paying Guest	in Iyyappanthangal	Others With AC	₹6,300
1014	Not partner verified	₹9,100 Twin Sharing	No information	Available soon	Girls	Ishwaraladieshostel PG/Paying Guest	in Sholinganallur	Twin Sharing	₹9,100
1015	Not partner verified	₹6,900 Onwards	No information	Available soon	Boys	Vinayaga PG/Paying Guest accommodation for men's	in Velachery	Triple Sharing	₹7,200
1016	Not partner verified	₹7,800 Triple Sharing	No information	Available soon	Girls	Iswarya ladies hostel PG/Paying Guest	in Anna Nagar	Triple Sharing	₹7,800
1017	Not partner verified	₹7,800 Triple Sharing	No information	Available soon	Girls	Seethal ladies hostel PG/Paying Guest	in Sholinganallur	Triple Sharing With AC	₹7,800
1018	Not partner verified	₹9,100 Twin Sharing	No information	Available soon	Girls	Sholinganallur PG/Paying Guest	in Sholinganallur	Twin Sharing	₹9,100
1019	Not partner verified	₹7,800 Onwards	No information	Available soon	Boys	Sri Brindavan PG/Paying Guest for men's	in Perungudi	Twin Sharing	₹8,500
1020	Not partner verified	₹7,800 Triple Sharing	No information	Available soon	Girls	Pink ladies hostel PG/Paying Guest	in Mugalivakkam	Triple Sharing	₹7,800
1021	Not partner verified	₹6,500 Others Sharing	No information	Available soon	Girls	Nava Priya ladies PG/Paying Guest	in Sholinganallur	Others	₹6,500