

FINAL YEAR PROJECT

BATCH: 2022-2026

StayPoint

**Intelligent Room Locating System With Real Time
Availability & ML Based Recommendation**

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ABSTRACT

StayPoint is an intelligent online platform designed to streamline the process of finding Paying Guest (PG) accommodations for students, particularly in Tier 2 and Tier 3 cities where reliable online listings are scarce or outdated. The system centralizes verified PG data by collecting accurate, real-time information directly from local sources, addressing the challenge faced by students due to limited hostel capacities and unstructured information. **StayPoint** features a responsive web application built with React.js and Java Spring Boot, offering robust search and filtering capabilities, real-time room availability, and Google Maps integration for location-based listings. A key innovation is its machine learning-based recommendation engine, developed using Python (scikit-learn) and Flask, which suggests optimal PGs based on user preferences such as rent, amenities, and location. By providing a user-friendly interface and intelligent recommendations, **StayPoint** not only simplifies the PG search process for students but also delivers data-driven insights for PG owners, making it a scalable and impactful solution for student housing challenges in underserved regions.

PROJECT IDEA DESCRIPTION

StayPoint is an online platform designed to assist students in finding suitable PG (Paying Guest) accommodations near college campuses, especially in Tier 2 and Tier 3 cities where online PG listings are either limited or outdated. The platform aims to centralize local PG data by gathering accurate and real-time information directly from local sources.

In many Tier 3 cities, college hostels have limited capacity, which forces students from other cities/states to search for off-campus PGs. However, due to lack of structured and verified information online, this becomes a stressful and time-consuming task.

To solve this, **StayPoint** offers:

- A central repository of verified PGs with filters based on distance, rent, amenities, and food availability
- Room availability status in real-time
- Location-based listing using Google Maps integration
- An intelligent **ML-based** Recommendation system, which recommends a suitable PG based on the rent and other factors given by the student.

PROJECT SYNOPSIS

PROBLEM STATEMENT

To develop a smart, student-focused PG rental platform that provides real-time information about PG availability near college campuses and uses machine learning to predict ideal PGs based on rent, amenities and location. The project solves the challenge of finding suitable PG accommodations for students coming from different cities, especially in Tier 2 and Tier 3 locations where online PG data is scarce or outdated.

OBJECTIVES

- Develop a responsive web application for PG listings and searches with dummy data initially.
- Collection of raw and accurate data by physically visiting the nearby PG owners.
- Provide a clean, user-friendly UI with powerful filters and sorting on the real collected PG data.
- Build the backend using **Java Spring Boot** and the frontend using **React.js**
- Location-based listing using Google Maps integration.
- Implement Machine Learning model for predicting ideal PG for the students based on the rent and some other amenities which they are comfortable with. (Major phase)

DATA COLLECTION PLAN

To build a reliable and real-time PG listing system, we will manually visit PG accommodations near the college and collect data directly from the owners.

Basic Information

- **PG Name**
- **Owner Name**
- **Contact Number**
- **Alternate Contact** (if any)
- **PG Address**
- **Landmark Nearby**

Room Details

- **Number of Rooms**
- **Types of Rooms** (Single, Double, Triple sharing)
- **Room Size** (sq ft approx.)
- **Attached Bathroom** (Yes/No)
- **Furnished** (Bed, Table, Fan, Cupboard, etc.)

Facilities Provided

- **Food** (Yes/No, Veg/Non-Veg, 2 or 3 times)
- **WiFi Availability** (Yes/No)
- **AC / Cooler Availability**
- **Drinking Water Supply**
- **Housekeeping Service**
- **Laundry Service**
- **Power Backup**

Pricing Details

- **Rent per Room Type** (Monthly)
- **Security Deposit** (Yes/No, Amount)
- **Any Hidden Charges** (Cleaning, Maintenance)

Visual Details

- **Photos of Rooms, Common Areas, Washroom, Entrance etc.** (Min. 3–5 per PG)

Availability Status

- **Current Status** (Vacant / Partially Occupied / Full)

Safety & Environment

- **Gender** (Only Boys / Only Girls / Co-ed)
- **In-time or curfew rules** (if any)
- **Reviews from students staying at present.**

TECHNOLOGY STACK

| Layer | Tools/Technologies |
|----------|--|
| Frontend | React.js, Tailwind CSS |
| Backend | Java, Spring Boot |
| Database | MySQL |
| Storage | Appwrite/Cloudinary Storage (for images) |
| ML | Python (scikit-learn), Flask API (major) |
| Others | GitHub, Figma (UI design) |

Proposed Features

- Search PGs by location, rent range, and amenities
- Real-time room availability status
- PG registration panel for owners
- Upload photos and details of PGs
- Develop Android/iOS App version
- **ML based Recommendation model**
- Filter/sort by distance, rent, and facilities
- **Integrate Chatbot for inquiries**
- **Map-based location view (Google Maps integration)**

PROS (Advantages)

- **Real-world problem solving**– Helps outstation students find PGs within their budget easily.
- **ML integration adds intelligence** – Smart recommendation feels more modern & advanced
- **User-centric experience** – Personalized suggestions based on user budget and filters.
- **Reduces manual effort** – Users don't need to scroll through irrelevant PGs.
- **Scalable solution** – Can expand to other cities and integrate booking, payments, verification, etc.
- **Data-driven insights** – PG owners can also benefit from understanding budget trends.

CONS (Challenges)

- Maintaining updated availability
- PG Owners may not be tech-savvy
- High competition (e.g., OLX, MagicBricks, Justdial)
- Scalability beyond one city
- Security / trust for students

CONCLUSION

StayPoint tackles a real-world issue by making PG search efficient and accessible for students. With the integration of machine learning in the major project phase, the system will transform into an intelligent platform capable of prediction and user-based recommendations.