



## Research on Technologies Empowered in Crafting PG-Platform

*Luv Pratap Singh<sup>1</sup>, Dr. Vishal Shrivastava<sup>2</sup>, Dr. Akhil Pandey<sup>3</sup>*

<sup>1</sup>B.TECH. Scholar, <sup>2,3</sup>Professor, <sup>4</sup>Professor

Computer Science & Engineering, Arya College of Engineering & I.T. India, Jaipur

[luvjadaun786@gmail.com](mailto:luvjadaun786@gmail.com), [vishalshrivastava.cs@aryacollege.in](mailto:vishalshrivastava.cs@aryacollege.in), [akhil@aryacollege.in](mailto:akhil@aryacollege.in).

### ABSTRACT

This research paper introduces the PG-PLATFORM project, a cutting-edge web service designed to revolutionize the search for Paying Guest (PG) accommodations. The platform's primary goal is to provide an unmatched experience for individuals seeking reliable PG services. By integrating advanced technologies such as artificial intelligence (AI), data analytics, and modern web development frameworks, PG-PLATFORM offers a seamless and user-centric approach to locating PG accommodations.

At its core, this web application is a dedicated platform that streamlines the booking and search processes for PG accommodations. Users benefit from easy navigation and intuitive search functionalities, ensuring a hassle-free experience. The platform serves as a comprehensive information hub, presenting users with detailed insights into various PG options available.

PG owners can easily register their accommodations, providing essential information that undergoes meticulous verification by the admin team. This rigorous process ensures that users access a structured and trustworthy list of PG accommodations. By leveraging this web service, students and individuals searching for PG accommodations gain access to a curated and reliable selection of verified PGs. This not only enhances the efficiency of their search but also provides peace of mind, knowing they are selecting from a trusted pool of accommodations.

### 1. Introduction

The quest for suitable Paying Guest (PG) accommodations has undergone a significant transformation in the digital age. PG-PLATFORM stands at the forefront of this revolution, offering a streamlined and user-centric experience. This paper explores the intricate technological architecture that powers PG-PLATFORM, delving into the integration of Artificial Intelligence (AI), data analytics, and modern web development frameworks. Through meticulous analysis, we unveil how these technologies elevate the platform's functionality, accessibility, and overall user experience.

Technologies Empowered :

Crafting PG-PLATFORM required a meticulous selection of advanced technologies to ensure a refined and efficient platform. Here are the key technologies that played pivotal roles in shaping the platform's capabilities:

- **Express:** As a swift and minimalist web framework for Node.js, Express laid the groundwork for robust backend services.
- **MongoDB with Mongoose:** This dynamic duo facilitated seamless data storage and retrieval, empowering the platform to manage vast amounts of PG accommodation information effortlessly.
- **Passport.js:** Safeguarding authentication, Passport.js offered various strategies to fortify user data and privacy.
- **Cloudinary:** Enabling seamless image uploads, Cloudinary allowed users and PG owners to visually showcase their accommodations in stunning detail.
- **Multer:** Working hand-in-hand with Cloudinary, Multer simplified the process of file uploads, enhancing the platform's visual appeal.
- **Node-fetch and Axios:** These powerful HTTP clients facilitated seamless communication between the server and external data sources, ensuring a cohesive integration of information.
- **Joi:** With its schema description language and data validation prowess, Joi ensured incoming data met stringent criteria, maintaining impeccable data integrity.
- **Stripe:** The integration of Stripe provided users with a secure and hassle-free payment experience, boosting trust and reliability.

- **Nodemailer:** Automating email notifications, Nodemailer kept users engaged with timely updates and essential communications.
- **Express-session:** This module provided essential session middleware for Express, managing user sessions securely and efficiently.
- **Passport-local-mongoose:** Simplifying user authentication with MongoDB and Express, Passport-local-mongoose streamlined the login process for users, ensuring a seamless experience from start to finish.

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## 2. METHODOLOGY / EXPERIMENTAL

For the planning and development of this system we are using these Technologies :

### 1. HTML : Hyper Text Markup Language

This is the essential artificial language, it's used for the design of the system. HTML is that the quality terminology for creating Web-pages. HTML describes the structure of a web page. HTML consists of a series of elements. HTML elements tell the browser how to display the content. HTML elements label pieces contain "this can be a heading", "this might be a paragraph", "this might be a link", etc.

### 2. CSS stands for "Cascading Style Sheets" CSS:

CSS stands for "Cascading Style Sheets" CSS is that the language we use to style an HTML document. CSS describes how HTML elements should be displayed. CSS saves many labor. It can control the layout of multiple sites all directly. External stylesheets are stored in CSS files.

### 3. JAVASCRIPT:

JavaScript is that the world's preferred programming language. JavaScript is that the unreal language of the web. Javascript is easy to search out out.

### 4. Bootstrap Framework :

Bootstrap is also a free front-end framework for faster and easier web development. Bootstrap also gives you the pliability to easily create responsive designs. Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and plenty of others, further as optional JavaScript plugins

### 5. Node.js :

Node.js is a powerful runtime environment that allows developers to run JavaScript on the server-side. It has gained immense popularity for its efficiency, scalability, and versatility in building web applications. Let's delve into what Node.js is and why it has become a staple in modern web development:

### 6. Stripe:

Stripe is a popular payment processing platform that enables businesses to accept online payments securely and seamlessly. It provides a suite of tools and APIs that simplify the process of integrating payment functionality into web and mobile applications.

### 7. Cloudinary :

Cloudinary is a cloud-based media management platform that simplifies the process of uploading, storing, optimizing, and delivering images and videos for web applications. It offers a comprehensive suite of tools and APIs to handle media assets efficiently.

### 8. Multer :

Multer is a middleware module for Express, a popular web framework for Node.js. It adds support for handling multipart/form-data, which is commonly used for uploading files via HTML forms. Multer parses the incoming form data containing files, making it easy to process and store uploaded files on the server.

### 9. Joi :

Joi is a schema-based validation library for JavaScript applications, particularly popular in Node.js applications. It allows developers to define schemas that specify the structure, constraints, and rules for validating data. Joi makes it easy to validate complex data types, such as objects and arrays, with a simple and intuitive syntax

### 10. Nodemailer:

Nodemailer is a module for Node.js that allows developers to send emails programmatically. It supports a wide range of email services and protocols, making it flexible for different use cases. Whether it's sending transactional emails, notifications, newsletters, or any other type of email, Nodemailer provides a simple and reliable solution.

### 11. MongoDB:

MongoDB is a NoSQL (Not Only SQL) database designed for modern application development. It stores data in flexible, JSON-like documents called BSON (Binary JSON), allowing developers to work with data in a way that closely mirrors native programming language data structures. MongoDB is known for its scalability, performance, and ease of use.

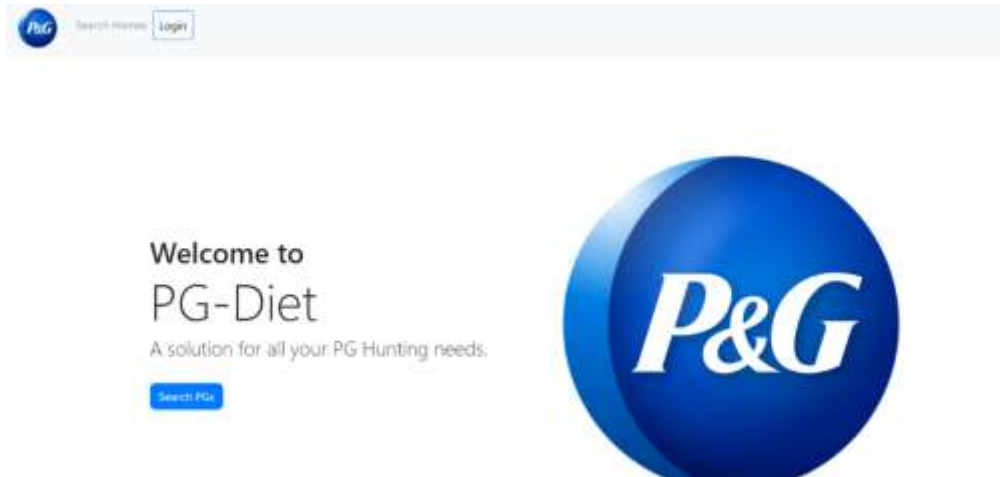
## Components / Block Diagram :

### 1. Front Page

This is an Front Page of PG-Diet Website. The front page of the research project's website presents a user-friendly interface tailored to engage participants effectively. At the top-left corner, the logo, carefully crafted to represent the project's branding, serves as a visual anchor. Located prominently at the top-left corner, the logo represents the branding of the research project. The logo is designed to be visually appealing and memorable, aiding in the recognition of the study. Directly beneath the logo, a simple and intuitive navigation bar is present, offering easy access to various sections of the website.

This addition emphasizes the inclusion of a search bar, which can greatly enhance the usability of the website by allowing users to quickly find specific information they are looking for.

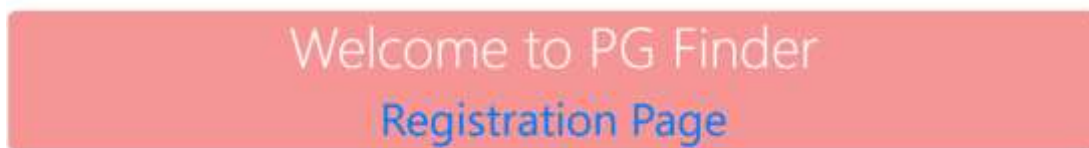
At the bottom of the front page, a footer section contains essential links such as "Privacy Policy," "Terms of Service," and "Copyright Information." This area ensures transparency and provides necessary legal information for users.



### 2. Registration Page

The Registration Page of the research project's website is designed to facilitate a smooth and secure registration process for participants. It serves as the gateway for individuals to create accounts and access the full range of study features.

The Registration Page prompts participants to provide their full name for accurate identification within the study. A valid email address is required to enable account verification and establish a direct channel of communication with the research team. Additionally, participants are prompted to create a secure password, with guidelines provided to encourage strong account security practices. These three essential fields ensure a smooth and secure registration process for participants of the research project.



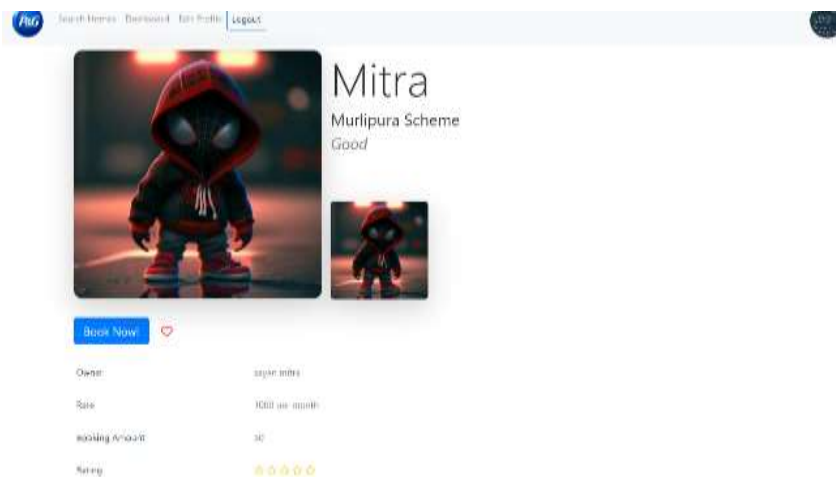
After filling out the registration form, participants are typically directed to a verification step. An email confirmation link is sent to the provided email address. Clicking on this link verifies the account, confirming the legitimacy of the user and completing the registration process. This verification step adds an extra layer of security to the registration process.

### 3. Login / Page

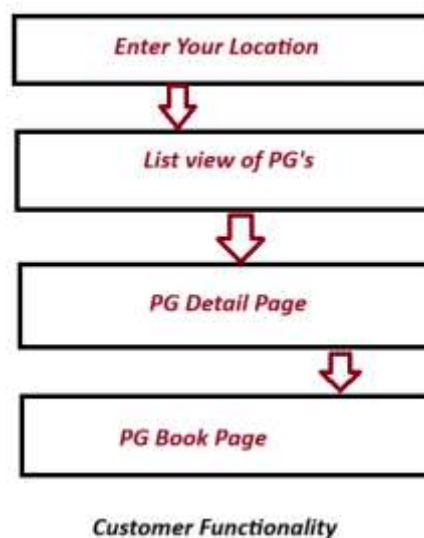
The Login Page of the research project's website provides registered participants with two essential fields to access their accounts. Participants are prompted to enter either their email address or username, ensuring unique identification within the study's platform

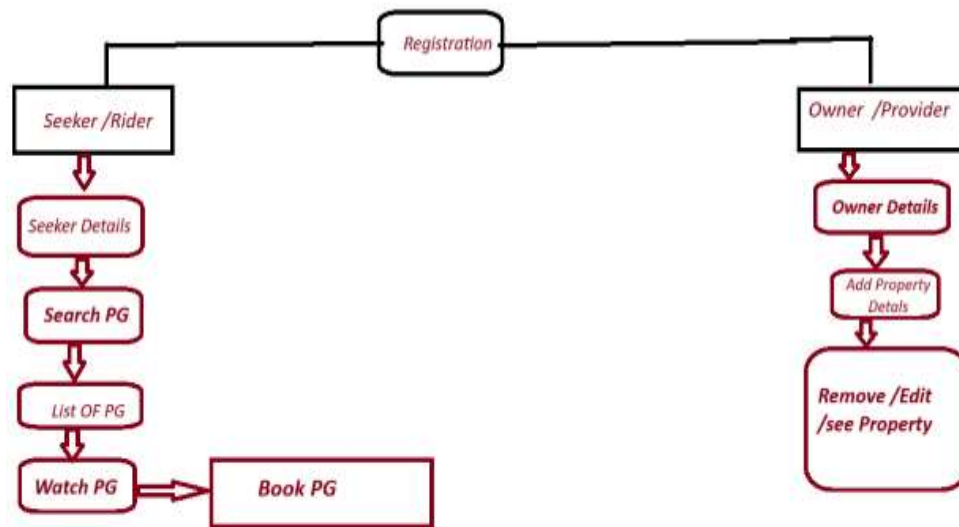


### 4. Property-Result Page



Customer Functionality Flow-Chart:



**Seeker and Provider Functionality Flow-Chart:****CONCLUSION**

In conclusion, the technologies empowered in crafting PG-PLATFORM have redefined the PG accommodation search experience. The integration of , data analytics, and modern web development frameworks has resulted in a platform that is not only efficient and user-friendly but also highly effective in matching users with their ideal PG accommodations. The success of PG-PLATFORM highlights the transformative impact of advanced technologies in addressing real-world challenges. As the platform continues to evolve and adapt, it sets a new standard for the future of PG accommodation search platforms. This research paper has provided valuable insights into the technologies behind PG-PLATFORM, paving the way for future innovations in the field.

This research paper on Technologies Empowered in Crafting PG-PLATFORM offers a comprehensive analysis of the platform's technological foundation. By exploring the role of data analytics, and modern web development frameworks, it provides valuable insights into the transformative impact of these technologies on the PG accommodation search experience. Through meticulous examination and analysis, this paper aims to contribute to the advancement of PG accommodation search platforms.

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