

## **\*\*Final Report on PropertyHub Development\*\***

As we conclude the development of PropertyHub, it is important to reflect on the journey from the initial proposal to the final implementation, including the modifications made, the application's achievements and shortcomings, changes in the schema, and the technical challenges we overcame.

### **\*\*Project Evolution and Modifications\*\***

Initially, PropertyHub was envisioned to include several ambitious features. However, as development progressed, adjustments were necessary. We decided against adding ratings and the feature of locating houses next to certain landmarks. Instead, we introduced an even more advanced filtration system and a user-friendly way of interacting with properties. These changes were made to align the project more closely with practical constraints and user needs.

### **\*\*Achievements and Shortcomings\*\***

Our application has successfully created a user-friendly platform with numerous features that simplify how users track and manage properties. This has significantly enhanced user experience. On the downside, our front end did not turn out as visually appealing as we had hoped. While this is a drawback, it is not a fatal flaw and leaves room for future improvements in aesthetics.

### **\*\*Schema and Data Source Changes\*\***

During the course of development, we had to modify our data schema. The initial data received included unnecessary details, prompting us to streamline our database to better meet our project's needs.

### **\*\*Database Schema Adjustments\*\***

Significant changes were made to our ER diagram and database schema from the original design. We removed the Sellers, Sales, and Search tables and added the audit\_log table as well as the UserFavorites and UserProperties tables. The Address table was also modified to work based on latitude and longitude instead of a street address, and its primary key was changed to a specific ID. These changes allowed for more efficient updates and deletions from the properties, crucial for maintaining an effective and user-friendly application.

### **\*\*Functionalities and Features\*\***

Throughout the project, some proposed functionalities were removed while others were added. The machine learning algorithms intended for personalized property recommendations were dropped due to insufficient data. However, we implemented user profile functionalities, which were not originally planned but were added following our midpoint review. These included a new

login/signup page, allowing users to manage their listings and favorites effectively within their profiles.

### **\*\*Advanced Database Programs Integration\*\***

Our application's robustness is partly due to the advanced database programs we integrated. We utilized transactions to manage potential duplicate property listings, stored procedures to facilitate property searches within a specific mile radius, and triggers to ensure data consistency and accuracy in real-time updates and deletions.

### **\*\*Technical Challenges and Resolutions\*\***

Each team member encountered and overcame specific technical challenges:

- **\*\*Divyam\*\*** dealt with port management issues on GCP, learning valuable lessons in server management.
- **\*\*Mihir\*\*** navigated the complexities of using Node.js and Express.js, gaining insights into these frameworks' integration with backend and frontend systems.
- **\*\*Sourya\*\*** resolved filtering system errors caused by improper handling of stored procedure outputs.
- **\*\*Abhiram\*\*** tackled problems related to password hashing, enhancing the security of our login system.

### **\*\*Future Enhancements\*\***

Looking forward, enhancing the interface will be a priority. Moreover, adding community features such as forums and implementing a comprehensive rating system could further enhance user engagement and trust in the platform.

### **\*\*Conclusion\*\***

The development of PropertyHub has been a collaborative and enlightening experience. The project not only adapted to evolving requirements but also integrated sophisticated technological solutions to overcome challenges. The effective division of labor among the team members ensured that each component of the website was meticulously crafted, resulting in a powerful tool for real estate management and search.