

House Appraisal System Business Requirements Document (BRD)

March 2025

Version 1.0

PropTech Website

1 Document Revisions

Date	Version Number	Document Changes
06/03/25	1.0	Initial Draft

2 Approvals

Role	Name	Title	Signature	Date
Project Sponsor				
Business Owner				
Project Manager				
System Architect				
Development Lead				
User Experience Lead				
Quality Lead				
Content Lead				

3 Introduction

3.1 Project Summary

3.1.1 Objectives

1. The main goal is to predict the accurate or reasonable prices for the buyers.
2. Different dataset has been collected from Kaggle and we have to train regression models for predicting house price.
3. To predict the price based on the input or parameters like locality, number of rooms, floors, etc. given by the customers
4. It's a real time application where we can get the access of the application from different locations.
5. Helps buyers to make the best decision out of the available properties.
6. Different regression techniques have been used to predict the house prices.

3.1.2 Background

A website for house price prediction using machine learning can significantly streamline the property-buying process. Customers can easily input various property details (e.g., location, size, amenities) to receive accurate price predictions. By leveraging machine learning algorithms, the website will provide real-time, data-driven insights into property values. This platform will help both home buyers and sellers make informed decisions and will enable the business owner to reach a broader audience, increasing engagement and revenue by offering a valuable, technology-driven service online.

3.1.3 Business Drivers

- **Customers** are looking for accurate and quick property price predictions, based on reliable data and machine learning models.
- **Customers/Buyers** will be the main end users of the website, searching for accurate property price estimates based on various factors like location, size, and amenities.
- **Admin** is the business owner who will be responsible for managing the property data, ensuring the accuracy of the price prediction models, and overseeing the overall functionality and user experience on the website.

3.2 Project Scope

The scope of the project is to design and develop a web-based platform for house price prediction using machine learning. Customers will be able to use the frontend of the website to input various property details (such as location, size, and amenities) and receive accurate price predictions. The website will provide valuable insights into property values, helping buyers and sellers make informed decisions. The web-based admin panel will enable the business owner to manage property data, update prediction models, monitor customer interactions, and ensure the accuracy of price predictions.

3.2.1 In Scope Functionality

User (Buyer/Homeowner/Investor)

- Login
- Registration
- Input property details (e.g., location, size, number of rooms, amenities)
- View price prediction results based on input data
- View property details with relevant information (location, amenities, etc.)
- Compare predicted prices for different properties
- Save favorite properties for later review
- Receive recommendations for similar properties
- Share property predictions on social media
- Ratings and reviews for property listings (if applicable)
- View prediction history
- Manage account details and preferences
- Track the status of ongoing predictions and updates

Admin (Website Owner/Data Analyst)

- Ability to create/edit/delete property listings
- Manage property categories and sub-categories
- Manage price prediction models and algorithms
- Manage customer accounts and access permissions
- Monitor user activity and interactions on the website
- View statistics and reports on predictions and user engagement
- Manage content on the website (e.g., FAQs, help sections, property details)
- Monitor and handle ratings and reviews
- Oversee prediction results to ensure accuracy and updates

3.2.2 Out of Scope Functionality

- Real-time updates of property prices (e.g., based on market fluctuations)
- Providing cash offers or financing options for properties
- Property sales transactions or any form of direct property buying/selling
- Providing physical property tours or detailed location-based services

3.3 User Roles

Role	Description
Visitors	<ul style="list-style-type: none">▪ Search for properties using keywords, location, and filters.▪ View property details, including images, descriptions, and pricing.▪ Check estimated price predictions for properties.▪ View property ratings and reviews.▪ Share property listings on social media.▪ Contact property sellers or agents.▪ Check amenities and neighborhood details.
Buyers	<ul style="list-style-type: none">▪ User registration and login.▪ Search for properties by keywords, location, and filters (e.g., price range, size, number of rooms).▪ View property details with images, pricing trends, and estimated future prices.▪ Save properties to a wish list.▪ Share property listings on social media.▪ Contact sellers or real estate agents.▪ Post property reviews and ratings.▪ Track past inquiries and saved properties.▪ Manage account settings.
Admin/ Owner	<ul style="list-style-type: none">▪ Manage users (buyers, sellers, agents).▪ Manage property listings (add, update, delete).▪ Categorize properties based on location, type, and price range.▪ Review and approve property listings.▪ Manage predictions and update machine learning models.▪ Monitor user interactions and engagement statistics.▪ Manage ratings and reviews.▪ Generate reports on property trends, user activity, and pricing analytics.▪ Configure website content and settings.▪ Manage advertisements and featured listings.

System Perspective

3.4.1 Assumptions

- Property listings will be provided by verified sellers or real estate agents.
- Admin will manage the property database with unique property IDs.
- The website will not handle direct property transactions but will provide price predictions.
- Property prices will be displayed in the local currency.
- The system will primarily serve users from a specific region or country.

3.4.2 Constraints

- Machine Learning Model Training: The accuracy of price predictions depends on data quality and training models.
- Feature Expansion: Adding new features (e.g., rental price estimation) may require additional time and budget.
- Platform Updates: Any updates to the hosting or database infrastructure may impact system performance and deployment timelines.
- Budget: Limited resources may affect the scope of development.
- Schedule: Expected project delivery deadline (e.g., December 31st).

3.4.3 Risks

- Data Availability: Insufficient or outdated property data may affect prediction accuracy.
- User Adoption: Users may be hesitant to rely on AI-based price predictions.
- Technical Challenges: Scalability and performance issues with a growing number of users and property listings.
- Legal Compliance: Ensuring compliance with real estate regulations and data privacy laws.

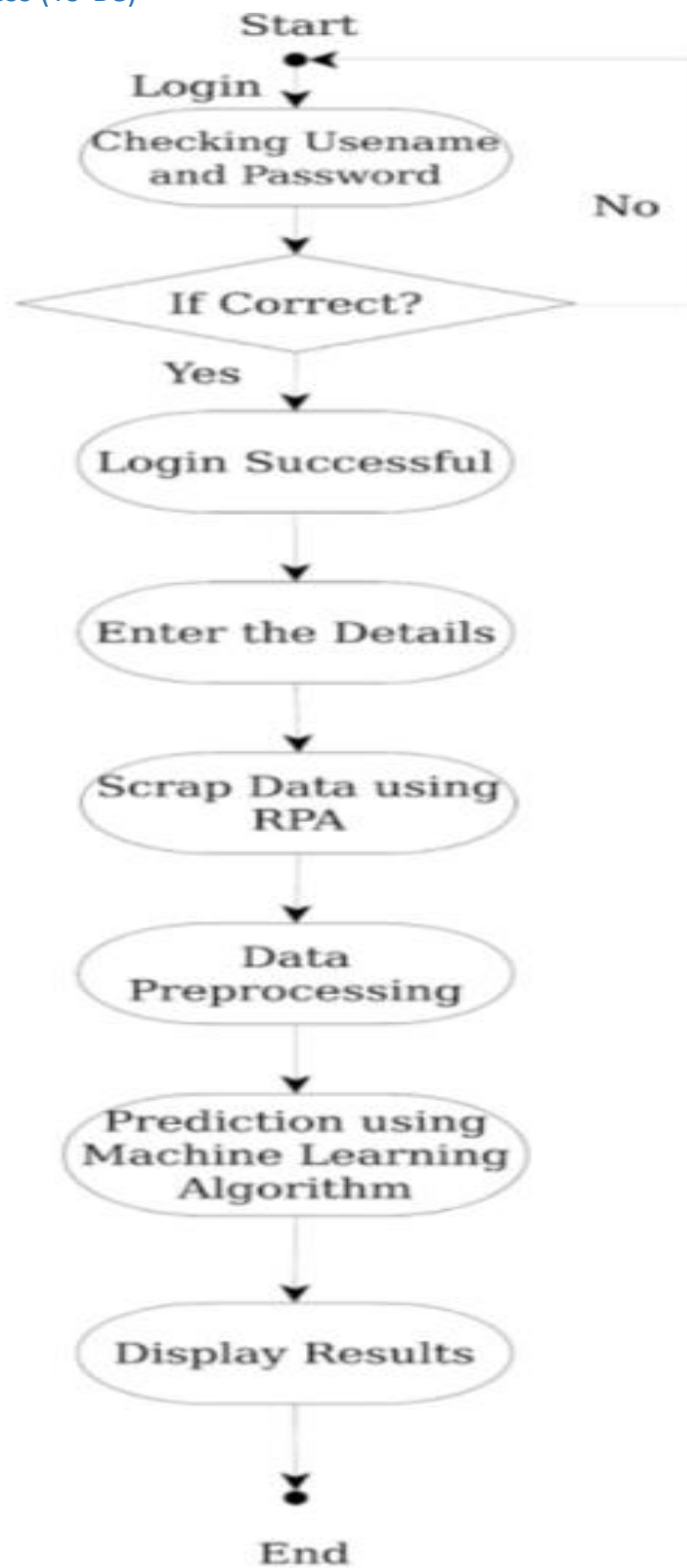
3.4.4 Issues

- Integration with external real estate databases for accurate pricing trends.
- Approval from real estate authorities or regulatory bodies.
- Securing funding for continued model improvements and data acquisition.
- Availability of skilled developers for machine learning and web development.

4 Business Process Overview

- Users register on the website and create an account.
- Search for properties using keywords, location, price range, or filters (e.g., number of rooms, area).
- View property listings with predicted prices, historical trends, and market insights.
- Click on a property to view details, including images, price predictions, neighborhood information, and ratings.
- Save properties to a wish list for future reference.
- Contact sellers or agents through the platform for inquiries.
- Request a price prediction report for a specific property.
- Receive property alerts based on saved preferences.
- Schedule property visits or virtual tours (if applicable).
- Get notifications and insights about market trends and property value changes.
- End of user interaction unless further inquiries or transactions are needed.

4.1 Proposed Business Process (To-Be)



5 Business Requirements

The requirements in this document are prioritized as follows:

Value	Rating	Description
1	Critical	Most Urgent and most important requirements.
2	High	Urgent but not as critical requirements and important requirements
3	Medium	Important but not urgent requirements
4	Low	Low Important and not urgent requirements
5	Future	Future scope requirements.

5.1 Functional Requirements

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-001	1	Login	<ul style="list-style-type: none">• Username: A unique identifier for the user, such as an email address or a custom username.• Password: A secure password for the user to access the system.• Password Recovery: A password recovery mechanism, such as a security question or a password reset link.	Buyer

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-002	1	Registration	<ul style="list-style-type: none"> Buyers will be able to get registered on website with simple registration form with below details: <ul style="list-style-type: none"> First name Last name Email id Contact number Password Conform password Accept terms and conditions Email id verification would be mandatory to get login into website. User will receive email verification link on registered email id to verify the email. Once 	Buyer
			email id verified successfully, user will be able login into website with email and password	
FR-003	1	Property Search	<ul style="list-style-type: none"> Buyers will be able to search the properties by keyword, by browsing through category/sub-category, using filters and sorting options. User would be able to search for the properties without login into website. 	Buyer/ Guest user

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-004	1	Property Listing	<p>Buyers will be able to view the listing of properties with the following details:</p> <ul style="list-style-type: none"> • Property Title: Brief description of the property • Thumbnail Image: A small image of the property • Price: The asking price of the property • Ratings & Reviews: Feedback from previous buyers or appraisers <p>By clicking on the property title or image, users will be able to navigate to the property detail page to view more details about the property, including:</p> <ul style="list-style-type: none"> - Comprehensive property description - Additional photos and virtual tours - Property features and amenities - Appraisal value and report - Nearby comparable sales 	Buyer/ Guest user

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-005	1	Property details	<ul style="list-style-type: none"> ▪ User should be able to view all product property on this page. Login will not be required to view property details. ▪ User should be able to check the property location and nearby amenities by entering pin code. User should be able to view following details about the property on property detail <ul style="list-style-type: none"> • Property title • Thumbnail image • Property images • Property description • Price • Sizes/ colors • Ratings & reviews be able to add the property to his favorite list. 	Buyer/ Guest user
			<ul style="list-style-type: none"> ▪ User will not be able to add the product to favorite without login. 	
FR-006	2	Wishlist	<ul style="list-style-type: none"> ▪ Buyer will need to get registered and login into website to maintain the properties in wishlist. ▪ Buyer will be able to view/ add/delete properties added into his favorite. User will be able to proceed for checkout process of items available in favorite. 	Buyer

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-007	1	Favorite list	<ul style="list-style-type: none"> ▪ The properties can be added into favorite list from the property detail page. ▪ User is required to get register and login to manage the properties in his favorite list. User will be able to add /remove / update properties in the favorite list ▪ User will be able to proceed for checkout of any properties/ all properties available in favorite list ▪ User will be able to view property price, sub-total and total price of the properties available in favorite list. 	Buyer
FR-008	1	Checkout & Payment	<ul style="list-style-type: none"> ▪ Payment and checkout process of the items selected from the favorite list will be considered for placing for buying. ▪ Buyer is required to login into website for checkout and payment. ▪ Buyer will require to enter details before confirm and payment. ▪ Buyer will be required to select payment method for confirm <ul style="list-style-type: none"> payment ○ Credit card/ debit card ○ Net banking ▪ Buyer will be able to view the final summary on this page. confirmed summary will show following details: <ul style="list-style-type: none"> • Item total • Sub-total Shipping cost • Tax 	Buyer
			<ul style="list-style-type: none"> • final total <ul style="list-style-type: none"> ▪ Buyers will be able to receive email notifications for the property status update. 	

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-009	4	Social media sharing	<ul style="list-style-type: none"> User will be able to share property on social media. Login is not mandatory to share properties on social media. 	Buyer/ Guest user
FR-010	1	My Account	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Buyers will be able to manage their following details from account section Profile details: email, phone number Change password <ul style="list-style-type: none"> Addresses <p>Buyer will be able to access below sections from My account:</p> <ul style="list-style-type: none"> My properties favorite list Ratings and reviews Logout 	Buyer
FR-011	2	Ratings & Reviews	<ul style="list-style-type: none"> User will be able to give ratings and review to the properties which he has bought past/ recently. User will be able post rating and review only for the property which he has bought from the website. Login and registration will be mandatory for the user to post ratings and review. 	Buyer
FR-012	1	Order History	<ul style="list-style-type: none"> Buyers will be able to view the property list i.e. properties bought by the buyer on past. User will be able to view all details about the properties with total amount paid, buyer address, property location, price etc. User will be able to reorder the properties which are shown in the property details. 	Buyer

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-013	2	Contact	<ul style="list-style-type: none"> Buyers will be able to contact support team via email regarding any queries/ 	Buyer, Admin
		Support	<ul style="list-style-type: none"> complaints by simply posting name, email, contact number and message to the admin. Admin will be able to receive an email regarding complaint details posted by buyer. 	user
FR-014	1	Login	<ul style="list-style-type: none"> The admin will be able to login to the admin panel. The admin will be asked to enter the user name and password in the given field. Reset password option for the admin to reset password in case of forgot password. 	Admin user/ Sub-users
FR-015	1	Dashboard	<ul style="list-style-type: none"> Admin user will be able to view following information on dashboard <ul style="list-style-type: none"> Total no. of active and inactive registered buyers Total no. of Properties uploaded on website Total Revenue: today/ this month 	Admin user/ Sub-users
FR-016	1	Buyers Management	<ul style="list-style-type: none"> Admin user will be able to view/edit/active/inactive buyers account information from this section. Admin user will be able to view all detail of the buyer's account like profile details, address, orders, favorite list, items in cart. 	Admin user/ Sub-users

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-017	1	property Management	<p>Admin user will be able to view list of all buyers placed by the buyers on website with current status of each order.</p> <p>Admin user will be able to view/edit property details.</p> <p>Admin user will be able to update the status of property bookings placed by the buyer. Status of the booked process will be as below:</p> <ul style="list-style-type: none"> • Open • Confirmed • In process • final • registration • Admin user will be responsible for properties booked by the buyers. <p>▪ Admin user will be able to maintain the below property details into system for each</p>	Admin user/ Sub-users
			<p>order:</p> <ul style="list-style-type: none"> • Property registration • Property id • Current status of payment • Registration address • Convenience fee 	

Req#	Priority	Description	Rationale	Impacted Stakeholders
FR-018	1	Property categories management	<ul style="list-style-type: none"> Admin user will be able add/edit/active/inactive property categories and subcategories from this section. User will be able to add properties under these categories & sub-categories from the property management section. 	Admin user/ Sub-users
FR-019	1	properties management	<ul style="list-style-type: none"> Admin user will be able to Add/ Edit/Active/ Inactive properties in catalog from this section. Admin user will also be able to manage following information of the properties: <ul style="list-style-type: none"> Property name Images Description Keywords 	Admin user/ Sub-users
		Payment Management	<ul style="list-style-type: none"> Ability for the admin to view/edit payment information i.e. bank account details to receive properties payments from buyers. Admin user will be able to view payment status of each property booked by the buyers. Stripe payment gateway will be used for online payment gateway integration. 	Admin user
FR-020	3	Ratings & Review	<ul style="list-style-type: none"> Admin user will be able to approve/ reject ratings and reviews posted by the buyers for properties. 	Admin user/ Sub-users
FR-021	2	Statistics & Reports	<ul style="list-style-type: none"> User will be able to view the following reports in system: <ul style="list-style-type: none"> Properties uploaded: 	Admin user/ Sub-users

Req#	Priority	Description	Rationale	Impacted Stakeholders
			<ul style="list-style-type: none"> - Registration day - Month - Year ○ Revenue/ total sale <ul style="list-style-type: none"> - Today - Current week - Date: From-To - Month - Year ▪ Admin user will be able to export reports into pdf and excel format. 	
FR-022	2	System users Management	<ul style="list-style-type: none"> ▪ Admin user will be able to create/edit/delete/ active/inactive sub-users to operate the various sectional operations in system 	Admin user/ Sub-users
FR-023	2	Roles Management	<ul style="list-style-type: none"> ▪ Ability to add/edit/delete/active/inactive sub-admin users with role based access 	Admin user/ Sub-users
FR-024	3	Email Management	<ul style="list-style-type: none"> ▪ Admin user will be able to add/edit/delete content for emails to be sent to buyers regarding new product launch, offers, and promotions. 	Admin user/ Sub-users
FR-025	2	Complaints/ Feedbacks	<ul style="list-style-type: none"> ▪ Admin user will be able to view queries/ complaints/ feedbacks received from the buyers. Admin will also receive an email regarding the feedback / complaints and queries sent by the buyers. 	Admin user/ Sub-users

5.2 Non-Functional Requirements

ID	Requirement
NFR-001	Scalability: The house appraisal system shall accommodate up to 100 concurrent users, ensuring seamless performance and minimal delays.
NFR-002	Speed: Web pages shall load within 30 seconds or less, even with a high volume of users, ensuring a smooth and efficient user experience.
NFR-003	Reliability: The system shall ensure that web pages are always available and do not display "page not found" errors, even in cases where a page is not available. Instead, a user-friendly error message shall be displayed.
NFR-004	Security : The system shall employ robust security measures

6 Appendices

6.1 List of Acronyms

Not Applicable

6.2 Glossary of Terms

Not Applicable

6.3 Related Documents

Not Applicable

SIGNATURE:

