

Research Study and Development of Web-App Based on Real-Estate Business

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Submitted: 05-06-2022

Revised: 17-06-2022

Accepted: 20-06-2022

ABSTRACT: The Property Rental & Selling issue is one among the part elements of society. Nowadays, it is extraordinarily troublesome to seek out appropriate accommodation in the town areas if individual seek for it physically. On the opposite hand, the property owner additionally must rent and sell the property. The aim of the study is to develop a typical web-based online platform for both property owners and tenants/buyers in order that can reciprocally enjoy the system. This paper presents the development of web application for the peoples. Wherever each will register and might have properties for rent or selling via a classy contact with the property owner. The proposed online system has been tested and valid. It works very accurate with several options. The system can facilitate to unfold trustworthy services nationwide and provide users with the possibility to talk and improve the Property Renting and Selling India. It has many several options, this developed property rental and selling system can create it straightforward for property owners to rent and sell their property. Alternatively the people who want to buy and rent a home will simply do their tasks.

I. INTRODUCTION

Development of Property Portal for renting and Buying has become a crucial element in modern society. This chapter can offer a short understanding of the background of the study, definition of the project problem statement, its objectives, scopes, project justification, project deliverable and project budget and schedule. Housing has central importance to quality of life with substantial economic, social, cultural and private significance. Although a country's national prosperity is sometimes measured in economic terms, increasing wealth is of diminished prices unless all will share its edges and if the growing wealth is not accustomed redress growing social deficiencies, one of that is housing. Housing plays an enormous role in invigorating economic process in any country,

with shelter being among the key indicators of development. Most families opt to rent houses supported their financial gain and family things. Sadly, there might not be enough smart quality rental housing for these families. The demand for rental houses is extraordinary high and a lot of rental homes have to be complied to be place in situation. Developing rental and buying homes has varied blessings, notably for landlords, who can increase their profits through the rent paid by tenants. The growing number of tenants and property owners complicates management, particularly for property owners who lose massive sums of cash to tenants who do not pay their rent. The above statement offers a transparent declaration on why rental property and buying property management system needs to develop. This web-app is designed to attend to all your needs – from buying property, selling property or renting/ leasing of property in India. Here you found the higher chance to speculate your price of entire life. Property Portal facilitates us to take care of the database of various property owners information .It not only help us to maintain the owners information but here we also allow owners to access the portal updated information across the global environment. If you looking to buy, sell, rent, invest and lease a property then here is the better place to think forward. We know it is a tiring to call individual property owners, arrange appointment, finding better time for appointment and they can assist you .For such complex method we offer a one simple online form which require your basic data and we can assist in kind fundamental measure.

II. AIM

The main aim of this project is to bring the real estate industry online and facultative assets business participant to learn from the web. Site acts as an interface between Individuals and tenants. Here the user will advertise his property for buying or for selling. Site provides online real-estate service associated to serving you create wise and profitable

choices associated with buying, selling, renting and leasing of properties, in India. We will give a recent new approach to our prestigious users to go looking for properties to buy or rent, and list their properties for selling or leasing. Property guarantees to be for most popular method of finding your dream property and we are committed to assist you make a wiser property decision, as a buyer or a seller. We tend to perceive the needs and concerns of Individuals, Brokers and Builders and supply them a typical platform for realizing most advantages and security from real-estates. The search is supported the amount of bed rooms, range of Wash rooms, price, area, city, plot size, type of property etc. Enter your search criteria and click the SEARCH button to show the matching property. After you click the search button the property publicized are going to be shown. Give a superior real-estate expertise by making it easier, faster, secure and more additional correct to search out buyers for your valuable property. We tend to provide our customers ease to use and conjointly we will maintain an honest relationship with the customers, brokers, sellers for properties.

- Real Estate Company: This includes study on however the Real Estate business is being done process involved and opportunity that exist for improvement
- General customers furthermore the company's employee will be able to use the system effectively.
- Web-platform implies that the system is going to be accessible for access 24/7 except once there is a brief server issue that is predicted to be taken.
- Existing Systems: This involves learning the present systems and learning their weakness thus developing a brand new system to cater for the challenges the native and world domains faces when addressing with house rental problems.

III. LITERATURE REVIEW

This chapter provides the literature review for the system which will be developed. The literature review is a process of reading, analysis, evaluating and summarizing scholarly material about a specific. It can be a guideline to develop a brand new system so the new system will give a better or more practical than existing system. The main objective of literature review is:

1. It presents the literature in an organize way.
2. It surveys the literate in space of the study
3. It synthesis the knowledge in this literature into an outline.

A. Literature Survey

Currently most of the Property Rental and buying websites like "Housing.com" and others are only provide their services in Tier 1 and Tier 2 cities, they are not providing the services for the little districts and lots of alternative cities therefore those who wish to buy or rent a property they contact to the broker. Presently the foremost property managers manage property and tenants details on papers. Once customers finds a vacant house, they can call or email manager of the houses indicating the scale of the house they might like rented to them. The property manager can email them back giving them all the details about the house they are requesting. The details include; Rent per month Deposit paid Terms and conditions to follow acceptance Users of the Existing System:

1. Rental
2. Tenant
3. Broker

With this system recording the main points of varied activities of user is completely manual and entails a lot of paper work. Every house has a file that contains the house: range, size, and rent per month, expected deposit, inhabitant and standing. Rent payment table contains tenants: first name, last name, and Phone number, date of payment, amount and balance if any. The present system solely provides text based interface which is not as user friendly as Graphical user interface. Since the system is enforced manually, the response is incredibly slow. The transactions don't seem to be secure as papers might stray or broken. Hence, there would like of reformation of the system with additional benefits and flexibility. The system eliminates most of the restrictions of the present system.

B. Proposed System

The Proposed System that we tend to implement has an interactive user interface to use and has capability to avoid most of the issues in the current system by having:

1. There is prescheduled user input text boxes to fill home records.
2. To allocate home the system easily arranges according to their order to be registered
3. The system upload photos of home with available information and the user can see the photos about home he/she need.

Here the user can advertise his property for buying or for selling. Site provides online real-estate service committed to helping you make wise and profitable decisions related to buying, selling, renting and leasing of properties, in India. We will

offer a recent new approach to our prestigious users to search for properties to buy or rent, and list their properties for selling or leasing. Property guarantees to be the most well-liked manner of finding your dream property and that we are committed to assist you make a wiser property decision, as a buyer or a seller. We tend to perceive the requirements and concerns of Individuals, Brokers and Builders and provide them a common platform for realizing maximum benefits and security from real-estates. Offer a superior real-estate expertise by creating it easier, faster, secure and more accurate to find buyers for your valuable property. We tend to provide our customers ease to use and additionally we will maintain a honest relationship with the customers, brokers, sellers for properties.. Users initially want to sign up and create the account and user logs in the system automatically will show number of rented house in particular places. In this information like owner name, house rent, address, and mobile number will the user to avoid the house broker, rent payment form, registration form. Each form has several command buttons like new, search, cancel, back and exit. With the command buttons you can manipulate the database.

IV. ANALYSIS

Analysis is an investigation into a problem and the way a replacement system will solve it. It is the foremost essential part of the development of a project of analysis. Analysis consists of system part, method and necessities. To research the system, has to study the system in details. The analyst has to perceive the functioning and concept of the system in detail, before design the appropriate web based system that will meet all the requirements of the existing system.

A. Requirement Analysis

Requirement analysis concerned shaping customer needs and objectives within the context of planned customer use, environments and known system characteristics to work out necessities for system functions. Requirement analysis is a software engineering technique that is composed of the assorted tasks that verify the requirements or conditions that are to be met for a replacement or altered product, taking into thought the potential conflicting necessities of the assorted users.

B. Requirement Specification

This Property Rental Web application provides functionalities for both seller and buyer. The buyers can browse the web site without any security and they can search for houses based on state/city/price/features. For the seller, a security issue is added. The seller needs to create an account

in the system and every time he logs in, the previous advertisements posted by him are presented. He can then delete any of these, and he can add new ones.

The functionalities are as follows:

1. The results are displayed twelve per page and the buyer can view the consecutive or previous page.
2. The results will be sorted and viewed by selecting the sorting item and order.
3. Once a buyer clicks the link for each listed item, he will be redirected to a page that lists the detail information for this house.
4. A seller can create an account in the system, and each seller has a username and a password.
5. The seller can add new advertisements and provide the detailed information and photo.

C. Functional Analysis

Functional requirements are those requirements that are used to illustrate the internal operating nature of the system, the outline of the system, and clarification of every scheme. It consists of what task the system ought to perform, the processes concerned, that data ought the system holds and the interfaces with the user.

The functional requirements identified are:

1. Customer's registration: The system ought to enable new users to register online.
2. Online reservation of House: Customers ought to be ready to use the system to make booking and online reservation.
3. Automatic update to database once reservation is formed or new customer registered; whenever there's new reservation or new registration, the system ought to be able update the database without any additional efforts from the admin.
4. Feed-backs to customers: It should provide means for customers to leave feedback.

D. Non-Functional Requirements

The official definition for a non-functional requirement specifies how the system ought to behave:"A non-functional requirement is a statement of how a system must behave; it is a constraint upon the system behavior." Non-functional requirements specify all the remaining requirements not coated by the functional requirements. They specify criteria that choose the operation of a system, instead of specific behaviors. It describes aspects of the system that area unit involved with however the system provides the functional requirements. They are:

- a) Security: The subsystem ought to give a high level of security and integrity of the data held by the system, only authorized personnel of the company can gain access to the company's

secured page on the system; and only users with valid password and username can login to view user's page.

- b) Performance and Response time: The system should have high performance rate when executing user's input and should be able to provide feedback or response within a short time span usually 50 seconds for highly complicated task and 20 to 25 seconds for less complicated task.
- c) Error handling: Error should be considerably minimized and an appropriate error message that guides the user to recover from an error should be provided. Validation of user's input is highly essential. Also the standard time taken to recover from an error should be 15 to 20 seconds.
- d) Availability: This system should always be available for access at 24 hours, 7 days a week. Also in the occurrence of any major system malfunctioning, the system should be available in 1 to 2 working days, so that the business process is not severely affected.

V. DESIGN

The user's requirements document was analyzed for higher understanding of what was required of the system. Ways of implementing these requirements were analyzed. Physical modules of the system were designed and distinctive of the operational environment in which they were to figure on. The system was a visual basic system/application. The database was updated each time the administrator; add, deletes or deletes data on the system. It's solely the administrator who has access to the system to look at or make changes when necessary. The system was designed to permit the administrator to view, edit, delete and add data to the database. Each time a customer comes, he/she is registered in the tenant registration table of the database with other relevant details about the tenant. System design involved transforming the software requirements into an architecture that described its top-level structure and identified the software components and developed a detailed design for each software components. For each requirement, a set of one or more design elements was produced.

A. System Architecture

The System architecture of the proposed system is shown in below figure. The Architecture diagram shows the overall flow of the Property Rental Web-app. There will be Tenant, User and System. The user can upload the data and mange the data uploaded by him

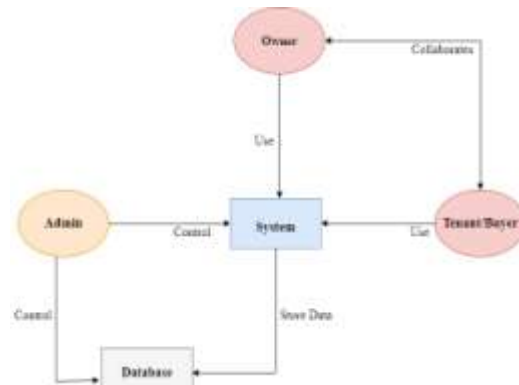


Fig -1: System Architecture

B. Overall Use Case

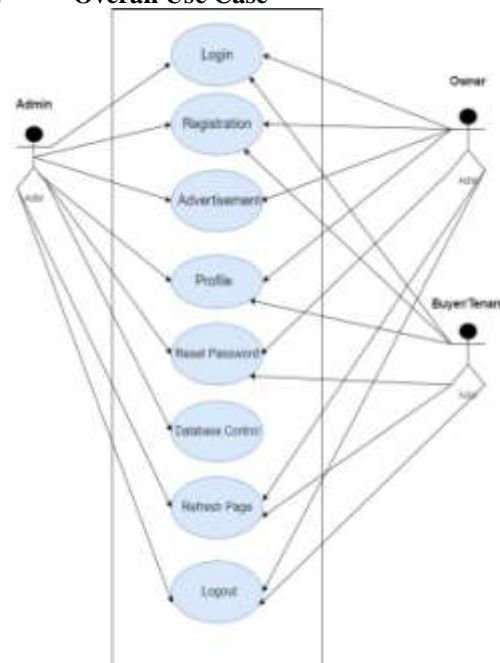


Fig -2: Overall Use Case Diagram

The above Figure provides the total use case diagram of the system. The system has three types of users: admin, owners and tenants. This system can be used by owners and tenants after a successful and verified registration. For admin, the system is open for extension and modification. Total system will be monitored by the admin. For owners or tenant users, it is open for extension and closed for modification. That means owners could post house advertisements and tenants can contact them.

C. Data Design

The general theme behind a database is to handle information as an integrated whole. A database is a collection of interrelated data stored with minimum redundancy to serve the users quickly and effectively. After designing input and

output, the analyst must concentrate on database design or how data should be organized around user requirement. The general objective is to make information access, easy, quick and flexible for other users. For database we used Firebase Real time Database. Firebase Real time Database Store and sync data with our NoSQL cloud database. Data is synced across all clients in real-time, and remains available when our app goes offline. The Firebase Real-time Database is a cloud-hosted database. Data is stored as JSON and synchronized in real-time to every connected client. When we build cross-platform apps with our JavaScript SDKs, all of our clients share one Real-time Database instance and automatically receive updates with the newest data.

Key capabilities:

1. Real-time:- Instead of typical HTTP requests, the Firebase Real-time Database uses data synchronization—every time a data change, any connected device receives that update within milliseconds. Provide collaborative and immersive experiences without thinking about networking code.
2. Offline:-Firebase apps remain responsive even when offline because the Firebase Real-time Database SDK persists your data to disk. Once connectivity is reestablished, the client device receives any changes it missed, synchronizing it with the current server state.
3. Accessible from Client Devices: - The Firebase Real-time Database can be accessed directly from a mobile device or web browser; there's no need for an application server. Security and data validation are available through the Firebase Real-time Database Security Rules, expression-based rules that are executed when data is read or written.
4. Scale across multiple databases:-With Firebase Real-time Database on the Blaze pricing plan, you can support your app's data needs at scale by splitting your data across multiple database instances in the same Firebase project. Streamline authentication with Firebase Authentication on your project and authenticate users across your database instances. Control access to the data in each database with custom Firebase Real-time Database Rules for each database instance.

D. Interface Design

Even through the underlying back-end code went through a drastic re-factor midway through the implementation, the overall design and layout of the user-interface components has remained the same. The interface has several components. The Interface is designed by using HTML, Bootstrap, CSS,

material UI. The interface designed is very user friendly and easy for the user to select and find the appropriate option on the Web app. If the user wants to Register/Login him so there is an option provided on the UI. MUI Core (formerly Material-UI) is the React UI library you always wanted. Follow your own design system, or start with Material Design.

VI. IMPLEMENTATION

Implementation deals with the tools used for front end design and techniques used for back end connections. Visual Studio Code is the tool on which the web application is developed. The other tools used are Node and Firebase. The programming languages The Programming techniques used are Material UI and Bootstrap is a free and open-source front-end web framework for designing websites and web applications. It contains HTML and CSS based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions unlike many web frameworks, it concerns itself with framework only. By using these above concepts we implemented Web Application through below steps:

1. Development of Web Application using HTML, CSS, JavaScript, Bootstrap and React.
2. Setting up database connection with Firebase.

We use Linear Search to search cities and Localities that the user wants to search for the purpose of Renting and Buying the Property. Linear search is also called as sequential search algorithm. It is the simplest searching algorithm. In Linear search, we simply traverse the list completely and match each element of the list with the item whose location is to be found. We have tried to achieve the following features in our select problem domain of designing a modern dynamic Property rental and buying/selling application-

- Dynamic Property Search
- Property Type Posting
- Transport tracking
- Favorites
- A responsive application of the system web view

VII. CONCLUSION

Property Rental and Buying/selling business has emerged with a new goodies compared to the past experience where every activity concerning Property rental and Buying/selling business is limited to a physical location only. Even though the physical location has not been totally eradicated; the nature of functions and how these functions are achieved has been reshaped by the power of internet. Nowadays, customers can reserve

book/buy/sale House online, rent House online, and have the house contracted successfully without any sweat once the customer is a registered member of the Property Rental Management System. The web based House rental systems has offered an advantage to both Tenants as well as Landlords to efficiently and effectively manage the business and satisfies customers' need at the click of a button. Effectively resolving the apartment issues is important to the buyer's long-term future; the Home Rental Project will be an important tool for creating rental housing stability by helping tenants speak with greater credibility through initiating and documenting communications and building productive relationships with sellers. Finally, the goal of the project is to create a better relationship between tenants and sellers which can be achieved through this project.

FUTURE SCOPE

There are several motivations to develop the new web-based Property Rental and Buying System:

1. The Proposed System will remove the tedious task of customers for searching Property for rental and buying.
2. The System will help to the home administrative staff i.e. the Property Rental to keep the daily and the history record details of the customers need in proper database.
3. Will generate proper available Properties for customers at the time.
4. The Customer will allow remote access to Property rent and cost from the database only for customer and make payment as they need.

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