Property Price Predictor

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ABSTRACT - The real estate sector increasingly relies on digital tools to facilitate informed investment decisions. However, the complexity and variability of property prices—driven by multiple parameters such as location, size, and amenities—make accurate estimation a challenging task. To address this, our project presents a web-based Property Price Predictor application, developed entirely using HTML, CSS, and JavaScript. The system is designed to operate on the client side, eliminating the need for a backend server or machine learning model integration, thereby reducing latency and improving accessibility. The application allows users to estimate property prices dynamically by selecting specific attributes including total square footage, number of bedrooms and bathrooms, and location. These user inputs are processed in real time against a curated JSON dataset that contains diverse property listings. Upon matching the input with available data, the application displays the predicted price along with relevant property details such as area type, availability, and society information. The intuitive interface ensures that even non-technical users can navigate the platform with ease. This project highlights the potential of lightweight, browser-based solutions for solving data-driven problems in domains traditionally dominated by server-heavy architectures. In addition to its utility for property buyers and sellers, the application serves as a demonstration of how front-end web technologies can be leveraged to build scalable, portable, and interactive tools for real-time data exploration. This work not only contributes to the development of smarter digital platforms in real estate but also provides a foundation for future integration with predictive analytics and cloud-based data pipelines.

***Key Words*:** *Property Price Prediction, Web-Based Application, JSON Dataset, Frontend Development, User Interface (UI), Real-Time Filtering, Real Estate Technology, Responsive Web Design.*

1.INTRODUCTION

The real estate industry is undergoing a significant transformation with the integration of digital technologies aimed at enhancing decision-making processes. Accurate property valuation remains a critical component for stakeholders, including buyers, sellers, and investors. Traditional methods of property appraisal often involve manual assessments, which can be time-consuming and subject to human error. In response to these challenges, the development of automated, data-driven tools has gained momentum. This project introduces a client-side web application designed to predict property prices using front-end technologies such as HTML, CSS, and JavaScript. The application leverages a structured JSON dataset containing historical property listings, enabling users to input parameters like location, area, number of bedrooms, and bathrooms to receive real-time price estimations. By processing data entirely on the client side, the application ensures swift responses and eliminates the

need for server-side computations, thereby enhancing user experience and accessibility. The primary objective of this project is to demonstrate the feasibility of utilizing front-end web technologies for developing efficient and user-friendly tools in the real estate sector. By providing immediate price predictions based on user-defined criteria, the application serves as a valuable resource for individuals seeking to make informed property-related decisions without relying on traditional appraisal methods.

2. LITERATURE SURVEY

2.1 Housing Price Prediction Using Machine Learning Algorithms: Support Vector Machines (SVM)

Australian Author: The Danh Phan, 2018

Housing Price Prediction Using Machine Learning Algorithms, explored the application of Support Vector Machines (SVM) on historical housing data from Melbourne. The research showed that SVM was successful in identifying patterns and predicting housing prices with high accuracy. Key factors such as location, size, and local pricing trends were included in the dataset, and the study emphasized the importance of data preprocessing and appropriate model selection in improving prediction outcomes (Phan, 2018).

2.2 Predicting Sales Prices of the Houses Using Regression

Methods

Algorithms: Traditional Regression Techniques

Authors: Parasich Andrey Viktorovich ; Parasich Viktor

Aleksandrovich ; Kaftannikov Igor Leopoldovich ; Parasich Irina Vasilevna, 2018

In their paper Predicting Sales Prices of Houses Using Regression Methods, the authors applied traditional regression techniques to compete in a Kaggle challenge focused on housing price prediction. Their methodology involved feature selection, model optimization, and performance evaluation using mean squared error, illustrating how basic regression methods could perform well in competitive data science environments. The study highlighted the significance of structured data and the effectiveness of regression models for forecasting (Parasich et al., 2018).

2.3 Real Estate Value Prediction Using Linear Regression

Algorithms: Linear Regression

Authors: Nehal N Ghosalkar ; Sudhir N Dhage, 2018.

In Real Estate Value Prediction Using Linear Regression, Ghosalkar and Dhage applied linear regression to predict residential property prices in Mumbai. By considering factors like property type, location, and number of rooms, they found that this simple model could yield low prediction errors when appropriately tuned. The study underscored the importance of historical data trends and consistency in enhancing model performance, supporting linear regression as a reliable method for basic price prediction (Ghosalkar & Dhage, 2018).

2.4 House Price Prediction Using Machine Learning and Neural Networks

Algorithms: Neural Networks (Deep Learning)

Authors: Ayush Varma et al. (2018)

The research team led by Ayush Varma in House Price Prediction Using Machine Learning and Neural Networks employed deep learning techniques, particularly neural networks, to enhance prediction accuracy. Their approach modeled complex, non-linear relationships between housing features and prices using multiple layers and nodes. The results showed that neural networks outperformed traditional models, particularly when applied to large datasets, highlighting the potential of deep learning for real estate applications (Varma et al., 2018).

2.5 Forecasting House Price Index of China Using Dendritic Neuron Model

Algorithms: Dendritic Neuron Model (Biologically-Inspired Neural Network)

Authors: Ying Yu et al. (2016)

In their study Forecasting House Price Index of China Using Dendritic Neuron Model, Ying Yu and colleagues proposed a novel neural network architecture inspired by the biological structure of neurons. This model was used to predict fluctuations and trends in China's real estate market, outperforming traditional regression methods by

effectively capturing dynamic market behaviors. The research introduced biologically-inspired computing as an innovative approach to real estate forecasting (Yu et al., 2016).

3. METHODOLOGY

The development of the Property Price Predictor web application follows a structured methodology involving dataset preparation, frontend design, data handling through client-side scripting, and user interaction mechanisms. The entire system is developed using HTML, CSS, and JavaScript, with no server-side or machine learning backend, allowing the application to function independently in the browser.

Dataset Collection:

A structured JSON dataset was prepared by aggregating historical property listings. Each entry in the dataset includes parameters such as total square footage (total_sqft), number of bedrooms and bathrooms, location, price, area type, availability, and society name. The dataset serves as the core reference for generating predictions based on user inputs.

Data Integration and Preprocessing:

The dataset is directly imported into the application using asynchronous JavaScript fetch operations. Upon loading, the application dynamically extracts unique values for parameters like square footage, bedrooms, bathrooms, and location, populating corresponding dropdown menus. No server-side preprocessing is necessary since the data is pre-cleaned and formatted.

User Input and Filtering Logic:

Users interact with the form by selecting values for square footage, bedrooms, bathrooms, and location. JavaScript event listeners are employed to update dropdown menus based on dependencies—for example, available bedroom options change dynamically based on selected square footage. Once all values are selected, the application filters the dataset and retrieves the matching record.

Price Prediction and Display:

If a matching record is found, the predicted price is displayed in real time along with additional metadata like area type, availability date, and society. The prediction is not derived through machine learning but is a direct retrieval from the dataset, which ensures quick response time and zero latency.

Frontend Development:

The frontend of the Property Price Predictor web application plays a crucial role in delivering an interactive and responsive user experience. It is developed entirely using HTML, CSS, and JavaScript, allowing the application to function as a standalone client-side tool without reliance on backend infrastructure.

HTML (HyperText Markup Language):

HTML provides the foundational structure of the web interface. It defines the layout of the application, including input fields, dropdowns, buttons, and result display containers. The form is designed to collect user inputs for key property parameters such as total square footage, number of bedrooms and bathrooms, and location. Semantic HTML elements are used to ensure accessibility, search engine optimization, and proper screen reader compatibility.

CSS (Cascading Style Sheets):

CSS is employed for styling and visual enhancement. A responsive design is achieved by using flexible layouts, font scaling, and adaptive widths that allow the application to render well across devices including desktops, tablets, and smartphones. Features include: Background image with blur effect for visual depth. Card-based design with shadows and hover transitions. Styled buttons and input fields for modern usability. Smooth transitions and animations for user feedback (e.g., button press and hover effects). The styling ensures the interface is not only aesthetically appealing but also functionally clean and accessible, improving the overall user experience.

JavaScript (JS):

JavaScript provides the logic and interactivity for the application. It performs several key roles: Data Loading: Fetches the property_data.json file asynchronously upon page load using the fetch() API. Dynamic Dropdowns: Extracts unique values from the dataset (e.g., all distinct total_sqft values) to populate dropdowns. Interdependent Filtering: Updates options for bedrooms, bathrooms, and locations based on the selected square footage. Prediction Logic: On user submission, searches the dataset for a matching property entry and displays relevant information such as price, area type, and availability.

Error Handling: Provides user-friendly messages when no matching record is found.

4.RESULT

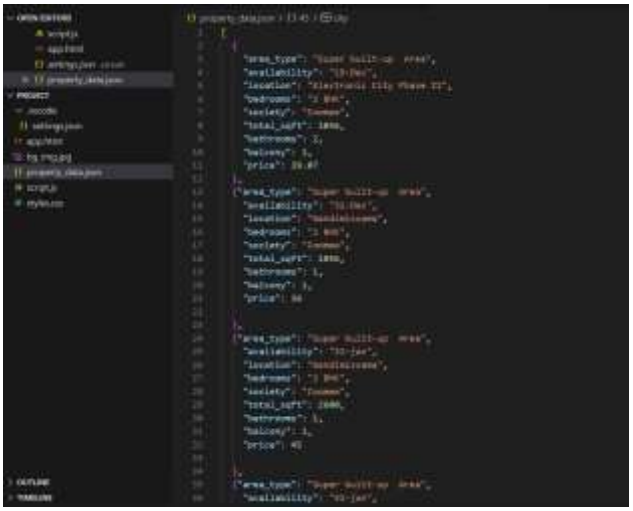

Figure 4.1: Dataset Collection

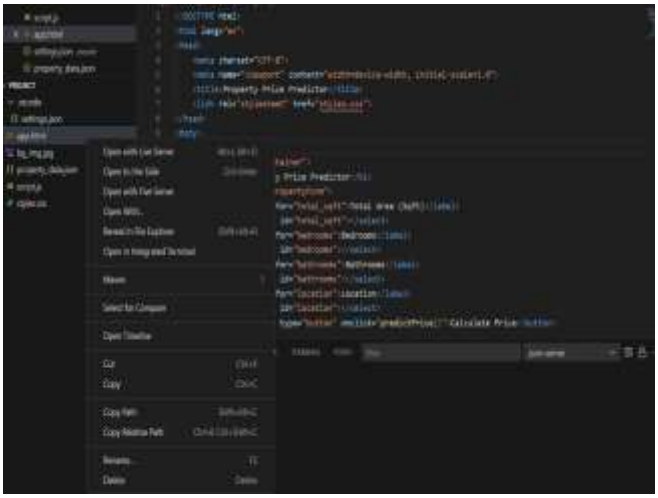

Figure 4.2: Open with Live Server

IJSREM sample template format ,Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

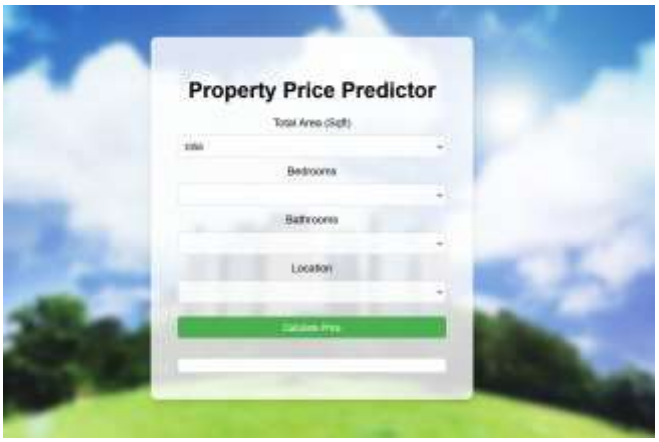

Figure 4.3: Home Page

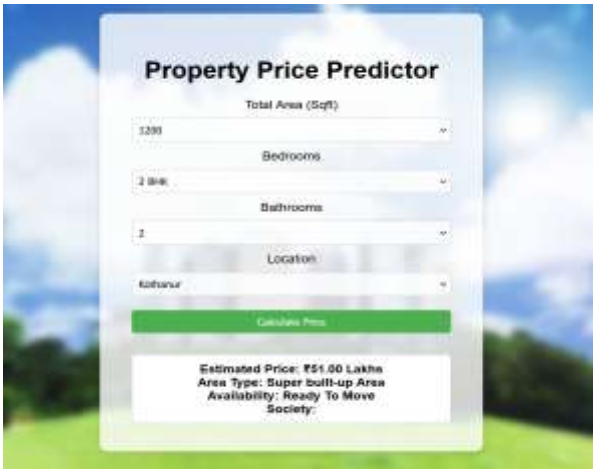

Figure 4.4: Final Result

5. CONCLUSIONS

The Property Price Predictor web application successfully demonstrates how frontend technologies like HTML, CSS, and JavaScript can be integrated with static JSON datasets to build a responsive and interactive tool for estimating real estate prices. The system dynamically populates user input fields based on available property data, allowing users to select specific configurations (area, bedrooms, bathrooms, location) and receive instant price predictions. The use of JavaScript enables real-time filtering and matching against the dataset to find exact property entries and display relevant details. The intuitive UI, enhanced by CSS styling and a background image, ensures a user-friendly experience. While this version leverages a fixed dataset and does not incorporate machine learning in the frontend, it lays a solid foundation for future integration with predictive models and real-time data sources to further improve accuracy and functionality.

6.FUTURE SCOPE

In the future, the Property Price Predictor web application can be significantly enhanced by integrating machine learning models to enable intelligent predictions beyond exact dataset matches, allowing for greater flexibility and accuracy. Real-time data integration from APIs and dynamic property listings would ensure up-to-date market relevance, while expanding the dataset with additional features such as property age, floor level, parking availability, and nearby amenities would improve the prediction depth. Incorporating map-based visualizations and geolocation tools can provide users with spatial insights, and developing a mobile version would improve accessibility. Personalization features, including user authentication, saved searches, and notifications, would create a more engaging experience. Additionally, multilingual support and robust data security measures would expand the app's usability across regions and ensure user privacy. Collectively, these advancements would transform the application into a scalable, intelligent, and user-centric tool for real estate analysis and decision-making.

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