LOFTYVALUE: AN AI-DRIVEN REAL ESTATE PROPERTY VALUATION APP

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Abstract

The AI-driven property valuation app seeks to transform real estate value through the application of state-of-the-art machine learning algorithms and data analytics. By examining past sales data, market trends, and property-specific characteristics, it offers precise property valuation in real time. This application, which is designed for real estate companies that are small to medium-sized, helps agents, investors, and property managers make better decisions. It guarantees consistency, lowers human error, and provides an affordable solution by automating and optimizing the valuation process, completely changing how property values are determined in the cutthroat real estate market.

1.0   Problem Statement

In the real estate industry, accurate property valuation is crucial for buyers, sellers, and investors. Traditional methods often rely on subjective assessments, historical sales data, and market comparisons, which can be inconsistent and inefficient. This problem is exacerbated in rapidly changing markets where manual valuation methods lag behind real-time market conditions. The aim is to develop an AI-powered property valuation app that provides accurate, real-time property valuations using advanced machine learning techniques.

2.0   Market and Customer Need Assessment

2.1   Market Need

In the competitive real estate industry, accurate property valuations are critical for decision-making, yet they remain a challenge due to the complex and dynamic nature of the market. Real estate professionals and investors depend heavily on timely and precise property valuations to guide their buying, selling, and investment strategies. However, existing tools and methods often fall short of capturing the nuances of individual properties or adapting to rapidly changing market conditions. This gap is particularly pronounced for small and medium-sized real estate businesses, which may lack the financial resources to access advanced valuation tools, leaving them reliant on outdated or generic methods that could lead to suboptimal decisions.

2.2   Customer Need

Customers in the real estate industry including agents, investors, and property managers are increasingly seeking applications that provide accurate and real-time property valuations, enabling them to make well-informed decisions efficiently. The demand is especially strong among small and medium-sized businesses, which require cost-effective solutions that do not compromise on accuracy or insights. These customers need an app that not only delivers precise valuations but also offers deeper insights into market trends and property values without requiring extensive manual data analysis. This would empower them to compete more effectively in the market by leveraging data-driven strategies that were previously accessible only to larger enterprises.

3.0   Target Specifications and Characterization

3.1   Customer Characteristics

3.1.1   Real Estate Agents

- **Role:** Real estate agents are the frontline professionals in the buying and selling of properties. They are responsible for accurately pricing properties for sale or lease and providing potential buyers or tenants with fair market value assessments.

- **Needs:** Agents require precise, real-time property valuations to ensure that listings are competitive in the market. They rely on these valuations to set appropriate prices, negotiate effectively, and close deals swiftly. Inaccurate valuations can lead to overpricing or underpricing, negatively impacting client trust and sales outcomes.

- **Issues:** Traditional valuation methods can be time-consuming and may not reflect current market dynamics, leading to potential losses in opportunities or client dissatisfaction.

3.1.2   Investors

- **Role:** Real estate investors seek to maximize returns on their investments by identifying properties that offer the best value relative to market conditions and future potential.

- **Needs:** Investors require robust valuation apps to analyze potential investment properties, assess current market trends, and predict future value appreciation or depreciation. They look for apps that can provide detailed insights into the financial viability of properties, considering factors such as location, market conditions, and property-specific features.

- **Issues:** The inability to quickly and accurately assess the value of multiple properties can lead to missed investment opportunities or poor investment choices. Investors need tools that simplify complex data analysis and provide clear, actionable insights.

3.1.3 Property Managers

- **Role:** Property managers oversee the daily operations of rental properties, including setting rental rates, maintaining properties, and managing tenant relationships.

- **Needs:** Property managers use property valuations to determine optimal rental prices and assess the financial performance of properties within their portfolios. They require apps that can continuously monitor market conditions and provide updated valuations to adjust rental rates accordingly.

- **Issues:** Setting rental prices too high can lead to vacancies, while pricing too low can result in lost revenue. Traditional methods of assessing rental value may not account for the latest market trends, leading to less-than-optimal pricing strategies.

4.0 External Search

4.1 MagicBricks

- **Overview:** MagicBricks is a leading Indian real estate portal offering property listings, insights, and valuation tools. Their property valuation service provides an estimate based on the latest sales and rental data, location-specific information, and market trends in India.

- **Relevance:** MagicBricks valuation model is specifically tailored for the Indian market, making it a valuable benchmark for developing an AI-powered property valuation tool that caters to the unique dynamics of the Indian real estate industry.

- **Link:** MagicBricks Property Valuation

4.2 99acres

- **Overview:** 99acres is another prominent real estate portal in India, offering property listings, market analysis, and valuation tools. Their valuation estimates are

based on historical transactions, current market trends, and property-specific attributes.

- **Relevance:** The 99acres valuation tool provides insights into the Indian market's specific characteristics, such as locality-based trends and regional demand, which can inform the development of a more accurate and regionally focused AI valuation tool.

- **Link:** 99acres Property Valuation

4.3   Housing.com

- **Overview:** Housing.com, a major player in India's real estate market, provides an integrated platform for property search, market analysis, and valuation services. Their valuation tool considers various factors, including neighborhood analysis, price trends, and recent transactions, offering a holistic view of property value.

- **Relevance:** It's approach to property valuation, particularly its integration with financial services like home loans, highlights the importance of a comprehensive tool that not only values property but also supports related financial decisions in the Indian context.

- **Link:** Housing.com Property Valuation

5.0   Benchmarking Alternate Products

5.1   NoBroker

- **Overview:** It is a platform that disrupts the traditional brokerage model, and offers a property valuation service that helps users estimate the value of properties based on a combination of market data and user inputs. The app is particularly popular among users looking to buy, sell, or rent without involving brokers.

- **Strengths:** It Focuses on a broker-free model makes it unique in the market. It follows a User-centric approach, with a valuation model that considers user-provided data.

- **Weaknesses:** It lacks the depth of data and analytics available in more established platforms. It has Limited geographical coverage compared to larger platforms like MagicBricks or 99acres.

- Link: NoBroker Property Valuation

5.2   PropTiger

- **Overview:** PropTiger offers a home valuation service that is integrated with its property search and sales platform. The app provides an estimate based on various factors, including location, property type, and market trends. PropTiger's valuation tool is designed for home buyers and sellers looking to get a quick estimate of property value.

- **Strengths**: It has strong integration with property search services, offering a seamless user experience. It gives regular updates and market insights to help maintain accurate valuations. It is backed by in-depth research and analytics, enhancing the reliability of estimates.

- **Weaknesses:** It may not cater specifically to the needs of real estate investors or professionals. The valuation model may not fully account for unique property features or local market anomalies.

- **Link:** PropTiger Home Valuation

6.0   Applicable Patents

6.1   Patent on Real Estate Market Analysis Using AI

- **Patent Number:** IN202010004567

- **Overview:** This patent involves a real estate market analysis system using AI and big data. The system analyzes market trends, property listings, and sales data to provide insights into property values and market conditions.

- **Relevance:** The methodologies and algorithms described in this patent overlap with those in my app, and provide market insights alongside property valuations.

6.2   Patent on Machine Learning-Based Valuation Models

- **Patent Number:** IN201808006321

- **Overview:** This patent details a machine learning-based model for property valuation, focusing on feature selection, regression models, and data-driven predictions. The model integrates various data sources, including historical prices, location attributes, and economic indicators.

- **Relevance:** This patent uses similar machine-learning models for property valuation. Reviewing the claims and descriptions in this patent will be crucial to ensure that my app offers a unique approach.

7.0   Applicable Regulations

7.1   Government Regulations

7.1.1 Real Estate (Regulation and Development) Act, 2016 (RERA)

- **Overview:** RERA was established to bring transparency, efficiency, and accountability to the Indian real estate sector. It mandates that all real estate projects be registered with the regulatory authority and adhere to certain standards.

- **Key Requirements:** All property valuations used in transactions must comply with RERA guidelines to ensure fairness and accuracy. Developers and agents must provide accurate information about property valuations to buyers.

7.1.2   Income Tax Act, 1961

- **Overview:** Property valuations play a significant role in calculating capital gains tax on the sale of properties. The Income Tax Act outlines how property values should be assessed for tax purposes.

- **Key Requirements:** The app should provide valuations that comply with the guidelines set by the Income Tax Department for calculating capital gains tax. The app should help users understand the tax implications of their property transactions based on accurate valuations.

7.1.3   Information Technology Act, 2000

- **Overview:** The Information Technology (IT) Act provides a legal framework for electronic governance and security of data in India. It includes provisions for data protection, privacy, and cybersecurity.

- **Key Requirements:** The app must ensure that it complies with the IT Act regarding the secure storage and processing of users' data, including property details and personal information. Implement robust data protection measures to safeguard against breaches and unauthorized access.

7.2   Environmental Regulations

7.2.1   Environmental Impact Assessment (EIA) Notification, 2006

- **Overview:** The EIA notification mandates that certain types of real estate projects undergo an environmental impact assessment before they are approved. This includes large construction projects that could affect the environment.

- **Key Requirements:** The app should consider integrating environmental factors into its valuation model, especially for large-scale developments where EIA is

mandatory. The app could provide insights into the environmental impact of a property, aligning with EIA regulations and helping users make informed decisions.

8.0   Applicable Constraints

When developing LoftyValue, an AI-powered property valuation app, there are several constraints to consider. These constraints will affect the design, implementation, and operation of the app. Below is an expanded outline that details the key constraints related to space, budget, and expertise.

8.1   Space

8.1.1   Cloud-Based Infrastructure

- **Data Storage Needs:** Given the vast amount of data required for accurate property valuations ranging from historical sales data to market trends. The app will require a robust cloud-based infrastructure. This infrastructure must be scalable to handle increasing data volumes as the user base grows.

- **Processing Power:** The app will need significant computational resources to process large datasets and run complex machine-learning models. Cloud platforms like AWS, Google Cloud, or Microsoft Azure offer scalable solutions that can support these requirements, but they also come with costs and configuration complexities.

- **Data Security**: Storing sensitive data, such as user information and property details, in the cloud requires strong security measures to protect against data breaches.

8.2   Budget

8.2.1 Initial Development Costs

- **Software Development:** Building a sophisticated app like LoftyValue will require investment in software development, including the design of user interfaces, backend systems, and the integration of machine learning algorithms.

- **Licensing Fees:** Depending on the technology stack chosen (e.g., proprietary software, third-party APIs), there may be licensing fees that need to be accounted for in the budget.

- **Cloud Service Fees:** As the app grows in usage, ongoing costs for cloud storage, data processing, and other services will increase. It's important to consider these costs for budgeting purposes, especially if the app operates on a subscription-based model.

- **Updates and Enhancements:** Regular updates to the app, including software patches, feature enhancements, and machine learning model improvements, will incur continuous costs. This also includes costs related to testing and quality assurance.

- **Customer Support:** Providing ongoing customer support, including troubleshooting, user training, and responding to user feedback, will require dedicated personnel, adding to the budget constraints.

8.3 Expertise

8.3.1 Data Scientists

- **Role:** Data scientists are crucial for developing the machine learning models that will power LoftyValue. They will be responsible for data cleaning, feature engineering, model selection, and continuous model training to improve accuracy.

- **Availability:** Sourcing skilled data scientists with expertise in real estate data and machine learning can be challenging and costly. The competition for such talent is high, and salaries in this field can be significant.

8.3.2 Machine Learning Engineers

- **Role:** These professionals will focus on deploying machine learning models into production, optimizing them for performance, and ensuring they work efficiently in real-time scenarios. They will also handle the integration of models with the backend systems and cloud infrastructure.

- **Expertise Required:** Proficiency in machine learning frameworks (e.g., TensorFlow, PyTorch) and cloud platforms is essential. The app's success depends on its ability to implement models that are both accurate and scalable.

8.3.3 Real Estate Experts

- **Role:** Real estate experts will provide domain-specific knowledge, helping to ensure that the app's valuation models reflect real-world conditions. They will be involved in defining the criteria for valuations, understanding market dynamics, and providing insights into regulatory requirements.

- **Collaboration:** Collaboration between real estate experts and data scientists is key to developing an app that is both technically sound and practically relevant. The challenge lies in translating real estate knowledge into quantifiable inputs for the AI models.

9.0 Business Model

The business model for **LoftyValue** is designed to ensure that the tool is both accessible to a wide range of users and financially sustainable. The monetization strategies focus on flexibility, allowing users to choose the payment model that best suits their needs while ensuring a steady revenue stream for the company.

9.1 Monetization Idea

9.1.1 Subscription-Based Model

- **Overview:** Users can subscribe to LoftyValue on a monthly or yearly basis. This model provides consistent revenue and encourages long-term engagement with the app.

- **Tiered Pricing:** The Basic Plan Includes standard features such as property valuation and access to basic market trends. Targeted at individual users like homeowners or small real estate agents. The Professional Plan Offers advanced features such as detailed market analysis, investment recommendations, and customizable valuation reports. Aimed at real estate professionals, property managers, and medium-sized agencies.

- **Enterprise Plan:** Includes all features plus additional benefits like priority support, API access for integration with other apps, and bulk valuation requests. Designed for larger real estate firms and property developers.

- **Benefits:** Encourages customer retention and loyalty through continuous access to updates and new features. It also provides a predictable revenue stream, aiding in financial planning and business growth.

9.1.2 Pay-Per-Use

- **Overview:** This model allows users to pay for individual property valuation requests. It's ideal for occasional users who do not require regular access to the app.

- **Pricing Strategy:** Charge a fixed fee for each valuation request. The fee may vary depending on the complexity of the valuation or the depth of the analysis required. Offer discounts for users who purchase multiple valuations at once. This is particularly appealing to small real estate agencies or investors managing multiple properties.

- **Benefits:** Lowers the barrier to entry for new users, allowing them to test the tool without committing to a subscription. It also captures revenue from users who need the tool infrequently but still value its capabilities.

9.1.3 Freemium Model

- **Overview:** The freemium model allows users to access LoftyValue's basic features for free, while advanced features are locked behind a paywall. This model helps attract a large user base and converts free users into paying customers over time.

- **Free Features:** It provides basic property valuations with limited data inputs, access to a simplified market trends dashboard, and basic customer support.

- **Premium Features:** It provides advanced property valuation with detailed analytics. It also provides full access to market trends, including historical data and future predictions, customizable reports, investment advice, and priority customer support.

- **Benefits:** The freemium model increases user acquisition by offering value upfront. It also allows users to experience the app's capabilities before deciding to upgrade to a paid plan, thereby increasing the conversion rate.

10.0 Concept Generation

The concept generation process for LoftyValue involved a systematic approach to identify, validate, and develop an AI-driven property valuation app that meets the needs of the real estate industry. This process ensured that the final concept was grounded in market needs, technically feasible, and financially viable.

10.1 Market Research

10.1.1 Identify Gaps in Current Valuation Methods and Tools

- **Objective:** The first step in generating the concept for LoftyValue was to thoroughly research the existing property valuation methods and tools available in the market, especially within the Indian real estate sector.

- **Approach:** Analyzed existing apps like NoBroker, PropTiger, and local alternatives to understand their strengths and weaknesses. Reviewed industry

reports and market studies to identify common pain points faced by real estate professionals and investors, such as inaccuracies in valuations, lack of real-time data, and high costs associated with sophisticated apps. Identified key areas where current tools fall short, including their inability to capture dynamic market changes, lack of customization for local markets, and accessibility issues for small and medium-sized businesses.

10.1.2 Customer Feedback

- **Objective:** To ensure that LoftyValue meets the real-world needs of its target users, direct feedback was sought from professionals within the industry.

- **Approach:** Conducted surveys and interviews with real estate agents, investors, property managers, and small/medium-sized real estate agencies to understand their specific challenges with property valuations. Organized focus groups with potential users to discuss their valuation needs, desired features, and expectations from an AI-driven app. Collected feedback on the difficulties users face with current valuation methods, including the time-consuming nature of manual analyses, lack of access to real-time market data, and high costs of existing tools and apps.

11.0 Concept Development

LoftyValue is designed to revolutionize the real estate industry by providing accurate, real-time property valuations through advanced machine learning algorithms. It analyzes a combination of historical sales data, current market trends, and specific property features to deliver precise valuations, helping users make informed decisions quickly. Tailored for real estate professionals, investors, and small to medium-sized agencies, the app offers a user-friendly interface, scalable cloud-based infrastructure, and cost-effective solutions. LoftyValue's customizable features and real-time insights make it an essential tool for navigating the dynamic real estate market.

12.0 Final Product Prototype (abstract) with Schematic Diagram

Abstract

The final product prototype for LoftyValue will be a sophisticated app designed to deliver instant, accurate property valuations to users. Upon accessing the app, users can input specific property details, such as location, size, age, and unique features, into a straightforward input form. The app's backend will employ powerful machine learning models, which are meticulously trained on a vast dataset encompassing historical real estate transactions, current market trends, and other relevant factors. These models will process the input data and generate real-time property valuations, providing users with reliable, data-driven insights into the property's value.

12.1 Schematic Diagram

- **User Interface:** A user-friendly form where users enter key property attributes such as address, square footage, number of rooms, year built, and additional features like amenities or renovations. The form may include dropdown menus, text fields, and checkboxes to ensure that users can provide comprehensive and accurate information.

- **Backend:** Once the property details are submitted, the backend system initiates data processing, where the input information is cleaned, normalized, and prepared for analysis. The backend also checks for any missing or inconsistent data, prompting users to correct or provide additional details, if necessary. The processed data is then fed into the machine learning models that have been trained on extensive real estate datasets. These models, utilizing algorithms like linear regression, decision trees, and neural networks, analyze the input data in conjunction with market trends and historical sales data to predict the property's value accurately. The models are designed to adapt to various market conditions, ensuring that the valuations remain relevant and precise over time.

- **Database:** The app's database stores a wealth of historical sales data, including past transactions, property characteristics, and price trends across different regions. In addition, it continuously updates with real-time market data, including current listings, economic indicators, and regional market trends, ensuring that the valuation models have the most up-to-date information.

- **Output:** After the machine learning models have processed the data, the app generates a real-time valuation report that includes the estimated property value, a breakdown of contributing factors, and insights into the current market conditions. Users can view these results immediately on the platform, download detailed reports, or receive additional insights into potential market movements, comparative property analysis, and recommendations for property improvements.
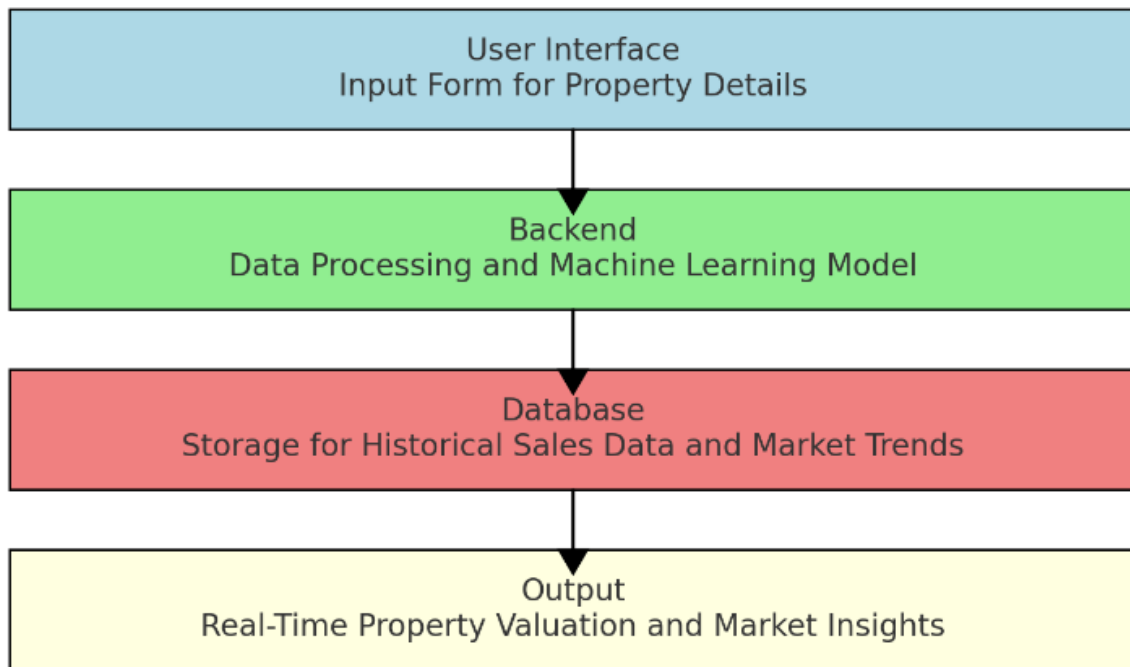

Figure 1. Schematic Diagram

13.0 Product Details

13.1 How Does It Work?

13.1.1 User Input

- Users, including real estate professionals and investors, begin by entering key property details into the system. This can include parameters such as property size, location, number of rooms, age of the property, amenities, and other relevant features.

- The input form is designed to be intuitive, guiding the user to provide all necessary information without requiring specialized knowledge.

13.1.2 Data Processing & Machine Learning Models

- Once the user inputs the property details, the backend system processes this information. This involves data cleaning, feature extraction, and formatting the data for analysis.

- The processed data is then fed into pre-trained machine-learning models. These models have been trained on vast datasets that include historical sales data, market trends, economic indicators, and property-specific characteristics.

- The models use algorithms like regression models or ensemble methods (e.g., Random Forests, Gradient Boosting) to predict the property's value.

- The app also incorporates real-time data on market conditions, ensuring that valuations are current and reflective of ongoing trends.

13.1.3 Real-Time Valuation Output

- The system generates a property valuation based on the processed data and the predictive capabilities of the machine learning models.

- The output includes not only the estimated value but also additional insights such as market trends, similar properties in the area, and potential future value estimations.

- This information is then presented to the user in an easy-to-understand format, which could include visualizations such as charts or graphs, as well as detailed numerical data.

13.2 Data Sources

13.2.1 Historical Sales Data

- Extensive datasets containing information on past property sales, including prices, dates of sale, and property characteristics.

- These datasets are crucial for training the machine learning models to understand how various factors influence property values over time.

13.2.2 Market Trend Reports

- Real-time and historical data on economic indicators, housing market trends, interest rates, and other factors that impact real estate prices.

- These reports ensure that the valuations are reflective of current market conditions and can predict future trends.

13.2.3 Property Features

- Data regarding specific characteristics of properties, such as size, location, number of rooms, type of construction, amenities, proximity to essential services, etc.

- These features are integral to generating accurate valuations as they directly affect a property's worth.

13.3 Algorithms, Frameworks, Software

13.3.1 Machine Learning Algorithms

- **Regression Models:** Linear and nonlinear regression techniques used to predict property values based on input features.

- **Ensemble Methods:** Advanced techniques like Random Forests or Gradient Boosting, which combine multiple models to improve accuracy and reduce overfitting.

13.3.2 Frameworks

- **TensorFlow:** An open-source machine learning framework by Google, ideal for building and deploying machine learning models.

- **Scikit-learn:** A Python library for simple and efficient tools for data mining and data analysis, providing various algorithms for classification, regression, and clustering.

13.3.3 Software

- **Python:** The primary programming language used for developing machine learning models and processing data.

- **AWS (Amazon Web Services):** Cloud computing services used for hosting the application, storing large datasets, and providing the computational power required for running machine learning models.

13.4 Team Required

- **Data Scientists:** Responsible for collecting, processing, and analyzing the data. They also play a critical role in developing and refining the machine learning models.

- **Machine Learning Engineers:** Tasked with implementing the machine learning models into the system, ensuring they are optimized for performance and accuracy. They also manage the integration of these models with the backend systems.

- **Real Estate Experts:** Provide domain expertise, ensuring that the model outputs are realistic and aligned with market expectations. They help fine-tune the models by incorporating industry-specific knowledge.

- **Software Developers:** Develop and maintain the front end and back end of the application. They ensure a seamless user experience and handle the integration of various system components.

13.5 Cost

13.5.1 Development Costs

- **Software Development:** Includes the cost of hiring developers, purchasing necessary software licenses, and creating the application.

- **Machine Learning Model Training:** Costs associated with collecting data, training models, and optimizing them for accuracy. This may also include the purchase of additional computational resources, such as GPUs or cloud-based processing power.

13.5.2 Operational Costs

- **Cloud Storage and Processing Fees:** Ongoing costs for storing data and running machine learning models on cloud platforms like AWS.

- **Maintenance:** Regular updates, bug fixes, and enhancements to keep the platform running smoothly. This also includes potential costs for scaling the system as the user base grows.

14.0 Code Implementation / Validation

14.1 Loading the Sample Data

```
import pandas as pd
import numpy as np
from matplotlib import pyplot as plt
%matplotlib inline
import matplotlib
matplotlib.rcParams["figure.figsize"] = (20,10)
```

Data Load: Load banglore home prices into a dataframe

```
df1 = pd.read_csv("bengaluru_house_prices.csv")
df1.head()
```

	area_type	availability	location	size	society	total_sqft	bath	balcony	price
0	Super built-up Area	19-Dec	Electronic City Phase II	2 BHK	Coomee	1056	2.0	1.0	39.07
1	Plot Area	Ready To Move	Chikka Tirupathi	4 Bedroom	Theanmp	2600	5.0	3.0	120.00
2	Built-up Area	Ready To Move	Uttarahalli	3 BHK	NaN	1440	2.0	3.0	62.00
3	Super built-up Area	Ready To Move	Lingadheeranahalli	3 BHK	Soiewre	1521	3.0	1.0	95.00
4	Super built-up Area	Ready To Move	Kothanur	2 BHK	NaN	1200	2.0	1.0	51.00

Figure 2. Loading the Sample Data

14.2   Exploratory Data Analysis (EDA)

```
df1.shape
```

```
(13320, 9)
```

```
df1.columns
```

```
Index(['area_type', 'availability', 'location', 'size', 'society',
       'total_sqft', 'bath', 'balcony', 'price'],
      dtype='object')
```

```
df1['area_type'].unique()
```

```
array(['Super built-up  Area', 'Plot  Area', 'Built-up  Area',
       'Carpet  Area'], dtype=object)
```

```
df1['area_type'].value_counts()
```

```
Super built-up  Area    8790
Built-up  Area          2418
Plot  Area              2025
Carpet  Area              87
Name: area_type, dtype: int64
```

Figure 3. Exploratory Data Analysis

14.3 Data Preprocessing

```
df2.isnull().sum()
```

```
location        1
size           16
total_sqft      0
bath           73
price           0
dtype: int64
```

```
df2.shape
```

```
(13320, 5)
```

```
df3 = df2.dropna()
df3.isnull().sum()
```

```
location        0
size            0
total_sqft      0
bath            0
price           0
dtype: int64
```

```
df3.shape
```

```
(13246, 5)
```

Figure 4. Data Preprocessing

14.4 Visualization

```python
import matplotlib
matplotlib.rcParams["figure.figsize"] = (20,10)
plt.hist(df8.price_per_sqft,rwidth=0.8)
plt.xlabel("Price Per Square Feet")
plt.ylabel("Count")
```
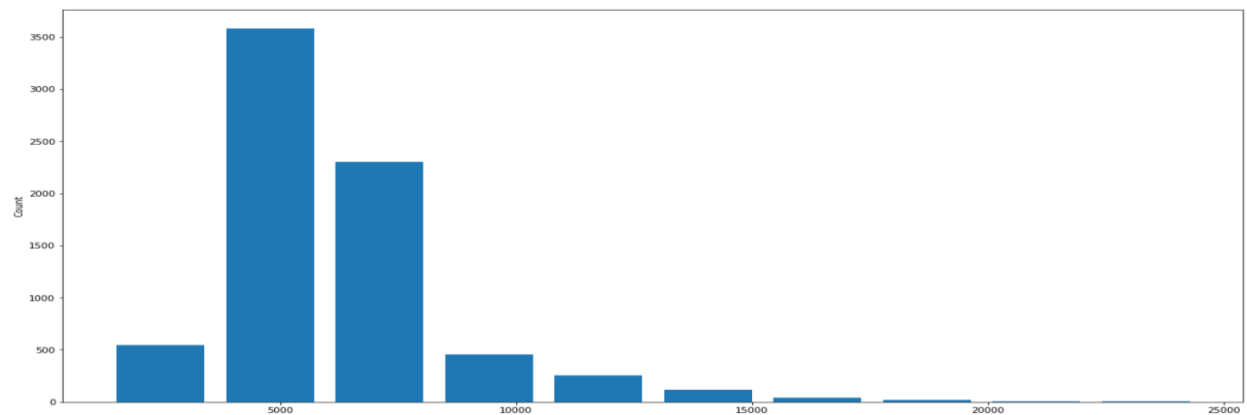

Figure 5. Visualization

14.5   ML Modelling

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X,y,test_size=0.2,random_state=10)
```

```
from sklearn.linear_model import LinearRegression
lr_clf = LinearRegression()
lr_clf.fit(X_train,y_train)
lr_clf.score(X_test,y_test)
```

```
0.8629132245229449
```

Figure 6. ML modelling

14.6   GitHub Link

Click on the link to view the full Code Implementation: GitHub Repo Link

15.0   Conclusion

The AI-Powered Property Valuation Tool represents a significant innovation in the real estate industry, effectively addressing the critical need for precise and real-time property valuations. Traditional valuation methods often fail to capture the complexities of market dynamics and property-specific characteristics, leading to inaccuracies that can impact investment decisions and business strategies. This tool, powered by advanced machine learning algorithms, offers a robust solution by analyzing vast datasets, including historical sales data, current market trends, and property features, to deliver accurate and insightful valuations.

16.0 References

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