A

Synopsis/Project Report

On

**REAL ESTATE PRICE PRIDICTION**

Submitted in partial fulfillment of the requirement for the V semester

**Bachelor of Technology**

By

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**Under the Guidance of**

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**GRAPHIC ERA HILL UNIVERSITY, BHIMTAL CAMPUS**

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**2021 – 2022**

**STUDENT’S DECLARATION**

I, **Aman Rautela**, here by declare the work, which is being presented in the project, entitled “**Real Estate Price Prediction**” in partial fulfillment of the requirement for the award of the degree **B.Tech** in the session **2021-2022**, is an authentic record of my own work carried out under the supervision of Dr. Ankur Bist, Graphic Era Hill University, Bhimtal Campus.

The matter embodied in this project has not been submitted by me for the award of any other degree.

Date: 15/09/2021 Aman Rautela

**CERTIFICATE**

**The project report entitled “Real Estate Price Prediction” being submitted by Aman Rautela enrollment no PV-B1961011 Roll no 1961011 to Graphic Era Hill University Bhimtal Campus for the award of bonafide work carried out by his. He has worked under my guidance and supervision and fulfilled the requirement for the submission of report.**

**Dr. Ankur Bist Dr. Ankur Bist**

**Project Guide (HOD, CSE Dept.)**

**ACKNOWLEDGEMENT**

I take immense pleasure in thanking Honorable **“Dr. Ankur Bist”** to permit me and carry out this project work with his excellent and optimistic supervision. This has all been possible due to his novel inspiration, able guidance and useful suggestions that helped me to develop as a creative researcher and complete the research work, in time.

Words are inadequate in offering my thanks to GOD for providing me everything that I need. I again want to extend thanks to our President **“Prof. (Dr.) Kamal Ghanshala”** for providing us all infrastructure and facilities to work in need without which this work could not be possible.

Many thanks to Professor **“Dr. Ankur Singh Bist”** (HOD-CS&E, GEHU) and other faculties for their insightful comments, constructive suggestions, valuable advice, and time in reviewing this thesis.

Finally, yet importantly, I would like to express my heartiest thanks to my beloved parents for their moral support, affection and blessings. I would also like to pay my sincere thanks to all my friends and well-wishers for their help and wishes for the successful completion of this research.

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**INTRODUCTION**

Residential real estate may contain either a single family or multifamily structure that is available for occupation or for non-business purposes.

Residences can be classified by and how they are connected to neighbouring residences and land. Different types of housing tenure can be used for the same physical type. For example, connected residences might be owned by a single entity and leased out, or owned separately with an agreement covering the relationship between units and common areas and concerns.

**Major categories**

* Attached / multi-unit dwellings
  + [Apartment](https://en.wikipedia.org/wiki/Apartment) (American English) or [Flat](https://en.wikipedia.org/wiki/Apartment) (British English) – An individual unit in a multi-unit building. The boundaries of the apartment are generally defined by a perimeter of locked or lockable doors. Often seen in multi-story [apartment buildings](https://en.wikipedia.org/wiki/Apartment_building).
  + [Multi-family house](https://en.wikipedia.org/wiki/Multi-family_residential) – Often seen in multi-story detached buildings, where each floor is a separate apartment or unit.
  + [Terraced house](https://en.wikipedia.org/wiki/Terraced_house) (a. k. a. *townhouse* or *rowhouse*) – A number of single or multi-unit buildings in a continuous row with shared walls and no intervening space.
  + [Condominium](https://en.wikipedia.org/wiki/Condominium) (American English) – A building or complex, similar to apartments, owned by individuals. Common grounds and common areas within the complex are owned and shared jointly. In North America, there are *townhouse* or *rowhouse* style condominiums as well. The British equivalent is a block of flats.
  + [Cooperative](https://en.wikipedia.org/wiki/Cooperative) (a. k. a. co-op) – A type of multiple ownership in which the residents of a multi-unit housing complex own shares in the cooperative corporation that owns the property, giving each resident the right to occupy a specific apartment or unit.
* [Semi-detached](https://en.wikipedia.org/wiki/Semi-detached) dwellings
  + [Duplex](https://en.wikipedia.org/wiki/Duplex_(building)) – Two units with one shared wall.
* Detached dwellings
  + [Detached house](https://en.wikipedia.org/wiki/Detached_house) or [single-family detached house](https://en.wikipedia.org/wiki/Single-family_detached_house)
* Portable dwellings
  + [Mobile homes](https://en.wikipedia.org/wiki/Mobile_home) or [residential caravans](https://en.wikipedia.org/wiki/Residential_caravan) – A full-time residence that can be (although might not in practice be) movable on wheels.
  + [Houseboats](https://en.wikipedia.org/wiki/Houseboat) – A floating home
  + [Tents](https://en.wikipedia.org/wiki/Tent) – Usually temporary, with roof and walls consisting only of fabric-like material.

The size of an apartment or house can be described in square feet or meters. In the United States, this includes the area of "living space", excluding the garage and other non-living spaces. The "square meters" figure of a house in Europe may report the total area of the walls enclosing the home, thus including any attached garage and non-living spaces, which makes it important to inquire what kind of surface area definition has been used. It can be described more roughly by the number of rooms. A [studio apartment](https://en.wikipedia.org/wiki/Studio_apartment) has a single bedroom with no living room (possibly a separate kitchen). A one-bedroom apartment has a living or dining room separate from the bedroom. Two bedroom, three bedroom, and larger units are common. (A bedroom is a separate room intended for sleeping. It commonly contains a bed and, in newer dwelling units, a built-in closet for clothes storage.)

Other categories

* [Chawls](https://en.wikipedia.org/wiki/Chawl)
* [Villas](https://en.wikipedia.org/wiki/Villa)
* [Havelis](https://en.wikipedia.org/wiki/Haveli)

The size of these is measured in Gaz (square yards), Quila, Marla, Beegha, and acre.

**Motivations**

Being extremely interested in everything having a relation with the Machine Learning, the independant project was a great occasion to give me the time to learn and confirm my interest for this field. The fact that we can make estimations, predictions and give the ability for machines to learn by themselves is both powerful and limitless in term of application possibilities. We can use Machine Learning in Finance, Medicine, almost everywhere. That’s why I decided to conduct my project around the Machine Learning.

**Idea**

As a first experience, I wanted to make my project as much didactic as possible by approaching every different steps of the machine learning process and trying to understand them deeply. Known as “toy problem” defining the problems that are not immediate scientific interest but useful to illustrate and practice, I chose to take Real Estate Prediction as approach. The goal was to predict the price of a given apartment according to the market prices taking into account different “features” that will be developed in the following sections.

**PROPOSED SYSTEM**

**History**

Real estate investing has become quite popular in recent years due to rising property values and low-interest rates, but where did it start?

The earliest recorded history of the real estate industry has been found in cave drawings. The incorrect “history” of landlords would have you think that caves were “rented out” to tribal Homo Erectus.

While this might not be true, historians do verify that there could have been a sort of currency exchange among ancient peoples for shelter.

The development of property rights for land created the first “defensible property” and marked an important moment in real estate.

The industry may have been conceived by our ancient ancestors, but regarding selling a property for financial gain, the ambition of man was the driving force for this evolution.

The development and marketing of real estate had become a popular method of income and was fairly common throughout the Middle Ages.

Property ownership was a symbol of wealth and was one of the primary ways for the wealthy to ensure their assets. As an established industry, the real estate market flourished, and came with European colonists to the United States.

Mixed with the opportunities of a New World, and the foundation of a free-market system, the seeds were planted for American entrepreneurs to turn the industry into a money-making machine.

As a whole, real estate is sensitive to the ups and downs of the economy. Throughout the 19th and early 20th century, the combination of a capitalist economy and a growing population made the expansion of land-use a hot market.

The economic prosperity of the 1920s brought about a huge surge in real estate, especially in housing, but by the mid-1930s, 16 million people were unemployed and the demand for real estate of all types declined. Soon after, World War II brought technological innovation and a backlog of demand for new construction.

The mortgage stability introduced by federal legislation following the Great Depression and World War II greatly aided the huge expansion of suburban housing that followed the war.

A precursor to the house flipping phenomenon was the enactment of the Federal Real Estate Investment Trust (REIT) legislation. On Sept. 14, 1960, President Dwight D. Eisenhower signed legislation that combined the best attributes of real estate and stock-based investment to create a new way of producing income.

This act made it easier for large investors to pool resources for real estate projects. The legislation has been modified over the years and has led to a much larger real estate industry, and as you may know, expanding industries are always looking for new markets.

As a result, today, there is a much greater opportunity for those looking to pursue property investment.

In the 1980s, television programs such as the PBS feature “This Old House” gave rise to dozens of home improvement programs on cable television. Since then, the entertainment industry has taken the lure of reality TV, combined it with the popularity of REI, and ran with it.

The spike in shows based on home repair, house flipping, and DIY projects, has encouraged thousands of real estate investments in recent years, while such high ratings continue to provide a powerful venue for real estate pros.

**S/W AND H/W REQUIREMENT**

**S/W and H/W requirements**

**Software**

* Vs Code
  + HTML
  + CSS
  + JS
* Anaconda
* Jupyter
* Crome or any other browser for Windows.
* Python
  + Pandas (Library)
  + NumPy (Library)
  + Matplotlib (Library)
  + Scikit-Learn (Library)

**Hardware**

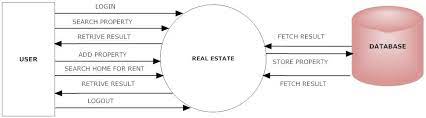
We strongly recommend a computer fewer than 5 years old.

* Processor: Minimum 1 Ghz; Recommended 2 Ghz or more.
* Ethernet connection (LAN) or a wireless adapter (Wi-Fi).
* Hard Drive: Minimum 32 Gb; Recommended 4 Gb or above.
* Memory (RAM): Minimum 1Gb; Recommended 4 Gb or above.

**Security**

Anyone can access this website. There is no security as such.

**DFD**

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