**Capstone Project 1 Proposal**

A house price evaluation system

**Overview**

This project predicts the prices of houses in Burlington, Vermont . An unbiased and objective evaluation of home prices based on big data is beneficial to both buyers and sellers of houses. This project can be furthered improved by taking relevant economic factors (e.g. interest rates, average income, rents) into investigation to produce more accurate evaluation results for different housing markets. Potentially, this project can offer helpful suggestions for local real-estate companies or individual home buyers or owners.

**Method**

While values of house properties are based on supply and demand which in turn could be an outcome of various intangible and hard-to-measure factors, we will look into the most direct factors of house values: various properties of a house. We will unveil how the value of a house depends on its various of properties such as its location, its year-of-built, its size etc. based on various machine learning and statistical models.

This approach is reasonable on its own right since the effects of various properties of a house on its value is subjected to the current economic environment. By modelling the relation between the properties of houses and house values, various economic factors that take effect on supply and demand actually play roles in our evaluation system even though in an implicit way.

**Data**

The main data set to be used is the “City of Burlington Property Details” data, which is open to public in <https://data-burlingtonvt.opendata.arcgis.com/datasets/276ccff527454496ac940b60a2641dda_0>

This data set contains 10832 records on taxable house property details including “Number of Units”, “Number of Rooms”, “Heat Type”, “Building Type”, “Current Building Value” etc.

One other relevant dataset is the “City Property Sales History” data which provides information on a list of properties sold in the City of Burlington. This dataset can be found in

<https://data-burlingtonvt.opendata.arcgis.com/datasets/f906a4f4403f41afbef5617e1efaecd0_0>

**Goal**

While the current values of house properties are given in the “City of Burlington Property Details” data, it is not clear how various aspects of a house is related to its current value. We attempt to establish a predictive model to demonstrate the effect of various features of a building on its value. The “Current Building Value” information in the “City of Burlington Property Details” data set instead will be used to test the accuracy of our predictive model.

The usage of the model is to give an estimated value or a range of estimated values based on the information on a house. Interested home buyers/sellers can use our established model of a house price evaluation system as a reference before making a decision. This project can be developed into a house transaction recommendation system.