2019-12-31, Rafael Moreira Silveira

Project Proposal: **Making Houses More Appealing to Buyers**

**Background**

The housing market is the target of several studies and the reasons are simple to understand: it affects an important part of the society and it involves large amounts of money. A house in the market may be just another asset of an investor or a family’s entire life worth of savings.

Regardless of the profile, every owner wants to make a good deal when selling their properties. The most significant actions an owner can take to get a better evaluation of their houses are performing house upgrades. But there are so many possible enhancements available, wouldn’t it be great if we could identify which services would impact the selling price the most?

**Proposal**

This study is the first two parts of a more ambitious study that would recommend homeowners and home brokers which home improvements would greatly impact the selling price. The outcome of the complete version of the study would be a “portfolio” of possible home upgrades, alongside with the cost and duration of the project, and the estimated increase in the selling price. This would be presented to homeowners and home brokers, giving them the opportunity to either sell a “harder-to-sell” house faster or to maximize their profits.

As far as this study is concerned, the first part would be to identify which house features are immutable, like location, type of dwelling, etc. and which features can be affected by house projects. The immutable features will be used in the future as a way to classify a house, therefore they will be called “classifying variables”. The second group are the ones that the owners can act upon with house projects, therefore they are the “affectable variables”.

In the second part of this study, Data Science techniques will be used to identify which “affectable variables” have the most positive impact on the selling price. For this study, this will be the final deliverable.

Out of the scope of this study, but vital to the success of this business, is to identify which home project will affect one or more of the “studied variables”. The next step would be to get quotes and time estimates for these home projects. For that, services from a company like [Homestars](https://homestars.com/) can be used, where home professionals are easily found, as well as quotes and time estimates for home projects.

Some of the “classifying variables” can be used for acquiring the estimates. Once this part is done, the portfolio will be complete and it will be possible to recommend which home improvement will better impact the selling price of a house, taking the time and resources available for home projects into consideration. This is the reason why this part is crucial: it is possible to find that the cost of the upgrade may be greater than the impact on the selling price, voiding the findings of this study.

**Dataset**

The dataset used for this study is the Ames Housing Dataset, which presents 79 explanatory variables describing several aspects of residential homes in Ames, Iowa, United States. The dataset can be found following the link below:

<https://www.kaggle.com/c/house-prices-advanced-regression-techniques/overview>

Once this study is finalized, with minor adjustments, the algorithms generated may be applied for different regions.

**Objectives**

· Identify the “classifying variables” and “affectable variables”.

· Use Data Science tools to classify the “affectable variables” according to their impact on the selling price

**Deliverable**

List of variables that are possible to be manipulated via home improvement projects, classified by the impact that changes to these variables may have on the selling price of a house.

**Key Stakeholders**

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| Client | Homeowners and Home Brokers |
| Sponsor | Kenneth Gil-Pasquel |
| Project manager | Rafael Silveira |

**Approval Signatures**

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| To be defined, Project Client |  | Kenneth Gil-Pasquel, Project Sponsor |  | Rafael Silveira, Project Manager |

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