Capstone 2: Project Proposal
Springboard Data Science Career Path
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Harris County Appraisal District (HCAD)

Every year Harris County, the county in Texas containing much of Houston's metropolitan area, reappraises the value of nearly 1.2 million residential properties (2020 Mass Appraisal Report). The appraisal values are calibrated based on sales data from the previous year in each of the counties Independent School Districts (ISDs). Despite the appraisal district's assertion that they have appropriately valued the properties, over ⅓ of the properties in Harris County were appealed last year and the number of appeals has been growing consistently the past several years (Community Impact). Harris County residents are motivated to appeal an increase in their property values because these are used to calculate the property taxes owed. Based on appeal data 68% of these appeals are managed by consultants (Community Impact). Most of these consultants charge a fee from 20-50% of the taxes saved through appraisal reduction. Assuming the average charge of $200 per appeal (I received several flat rate offers of this price to represent me) Harris County residents likely spent $56 million fighting their appraisal value.

HCAD would ideally like to avoid appeals because not only is there an expense to the property owners, the reduced property values from successful appeals decrease the funding available for public services in Harris County. Residents of Harris County would prefer to not undergo the expense of appealing their property values. If HCAD could identify what triggers seem to predict when an appeal is likely both parties could have a better result from the yearly appraisal. In addition it would be useful to know if the successfully appealed properties still fall within the original population (is the new value within error?). For Harris county residents it would also be worth evaluating if there is a financial incentive to the property owner to invest in a consultant managed appeal.

This project will utilize the Harris County Appraisal District property value database (Property Downloads (hcad.org)). This data is available from 2005-2020, with both initial values and final values. Initial values are also available for 2021. This analysis will consider the 4 datasets available for Real Property in 2020. Included in this data are information about the

property including descriptions of the structures on a property. These characteristics along with the neighborhood breakdowns that HCAD provides will provide the basis for a model to predict the initial appraisal value. This data will also be used to predict the likelihood that an initial appraisal will trigger an appeal. Finally the statistics of the appeals will be studied, specifically focused on the differences between areas of Harris County and who the representative is for the appeal.

This project will be considered successful if by utilizing the property data provided a predictor for appeal can be established. In addition, a predicted value of a consultant managed appeal will be created and compared to the self appealed properties. These evaluations will be limited to the publicly available data that would be utilized by HCAD. The results of this evaluation will be of most use to the residents of Harris County as it will inform the appraisal process and provide a recommendation on the value of utilizing a consultant for appeal. HCAD could also potentially utilize this study to decrease the number of appeals triggered.

References:
2020 Mass Appraisal Report,
https://hcad.org/assets/uploads/pdf/Reports/2020-Mass-Appraisal-Report.pdf, Accessed 6/1/21

Community Impact,
https://communityimpact.com/houston/katy/housing-real-estate/2021/05/20/more-than-ever-harris-countys-appraisals-draw-protests/, Accessed 6/1/21

Property Downloads (hcad.org), https://hcad.org/pdata/pdata-property-downloads.html#, Accessed 6/1/21