

## Part 1: Socio-historical context

1. Who are the major stakeholders in this project? What is your relationship to these stakeholders?
  - a. The findings of our research will mostly impact **sustainable shoppers** who prefer buying second-hand items to reduce waste and promote environmental sustainability, **thrift enthusiasts** who are drawn to second-hand marketplaces for the thrill of finding unique and vintage items at lower prices, and **budget-conscious shoppers** who are on tight budgets but still wish to engage with current trends. Last but not least, our research findings will directly impact anyone who interacts with Craigslist, whether it be the users who engage with the platform by selling or buying items, the moderators and administrators who have to ensure the price predictor is working as intended, or the customer service and support staff who will have an additional responsibility to address the new queries and issues that come with the price predictor feature.
2. Research the socio-historical context of your project to identify a few societal factors that could affect your data, prediction goal, and/or hypothesis. These factors might include current or historical policies, events, social conditions, larger societal systems, and more. Describe a few of the broader societal issues and their relationship to your data, prediction goal, and/or hypothesis.
  - a. Right now, we are only considering a few factors to predict the price of a second-hand item, such as location, the item's current price, its category, its image, and mileage (if it's a vehicle). However, other external factors such as economic conditions, technological advancements, social movements and trends significantly influence these prices as well.
    - i. **Economic conditions:**
      1. The interest rates, inflation rates and employment policies all have an impact on the price of the item. For example, When the economy is thriving, people are more likely to buy new items, reducing demand for used items. On the contrary, during economic downturns, consumers may be more likely to purchase second-hand items
    - ii. **Technological advancements:**
      1. The release of new technologies, like the launch of a new iPhone, can increase the demand for the item as people rush to get their hands on it, leading to higher prices. This also drastically reduces the demand and price for the older models.
    - iii. **Social Movements and Trends**
      1. Social movements and trends like sustainability can greatly affect the second hand market. As people become more aware of the environmental issues, they're more likely to minimize their carbon footprint.
3. Summarize the most relevant technical or non-technical research that has already been conducted about your project topic. If relevant, what was the societal impact of existing research?
  - a. We found similar research projects that focus on extracting useful visual features from images and textual features from descriptions or titles, such as using a pretrained visual encoder to extract visual features, while using other textual

processing techniques to extract textual information. However, we observe little societal impact from the existing research about specifically second-hand item price prediction. Instead, we do see some societal impacts or well-used products based on a similar topic, which is item price forecasting. Research surrounding this topic is usually focused on predicting the fluctuations in prices, for example whether the price of an item on Amazon would increase or decrease. These culminate in products like [Amazon Forecast](#), which help buyers track when prices of certain products may go up and down in order to time purchases. Therefore, the societal impact is mainly to give buyers more chances to save money.

## Part 2: Ethics

1. What kind of underlying historical or societal biases might your data contain?
  - a. **Racism:** The color of people's skin that can be seen from pictures they take can affect sales - people are less likely to buy from someone who is black.
    - i. <https://venturebeat.com/business/sellers-of-color-this-craigslist-experiment-reveals-americas-latent-racism/>
  - b. **Historical bias:** Craigslist has existed for decades and its historical listings (if included in the dataset) might show patterns that reflect past societal biases. These could include discriminatory pricing or the availability of certain items linked to specific demographics.
2. Is data being used in a manner agreed to by the individuals who provided the data?
  - a. Individuals who post on Craigslist are looking to sell and buy items. They upload a photo, include a price, and wait for their products' offers. So in this sense, the data in this project is not being used as intended by users since we are not helping them sell their items, but making observations and analysis on the posts they have made. However, as the data is publicly available, we are not violating the privacy of Craigslist users in any way.
3. How could an individual or particular community's privacy be affected by the aggregation or analysis of your data?
  - a. The aggregated data can be used to create detailed profiles of the buyers and sellers, revealing sensitive information like their spending habits, their locations, their health concerns, preferences and more.
  - b. Analyzing the data could reveal patterns, such as recurring lists or frequently sold items, which could lead to targeted marketing or discrimination.
4. What are possible misinterpretations or misuses of your project results and what can be done to prevent them?
  - a. **Misinterpretation of Mileage-Price Relationship:**
    - i. We found that there is no linear relationship between mileage and price which could lead to the belief that mileage is not relevant at all in pricing. To prevent this, we need to clarify that even though there is no linear relationship between price and mileage, there could exist more complex, non-linear relationship between mileage and price
  - b. **Correlation is not causation**
    - i. We found that there are significant differences in mean prices across locations and categories. These findings may lead some to believe that locations and categories cause the prices to differ, which might not be true

without more comprehensive analysis. To prevent this assumption, we need to make it clear the Kruskal-Wallis test shows correlations and not direct cause-and-effect relationships.

#### Works Cited

Bhasin, Hitesh. "Marketing Mix of Craigslist and 7PS (Updated 2024)." *Marketing91*, 9 Feb. 2024, [www.marketing91.com/marketing-mix-craigslist/](http://www.marketing91.com/marketing-mix-craigslist/).

*Deep End-to-End Learning for Price Prediction of Second-Hand ...*,  
[www.cs.newpaltz.edu/~lik/publications/Ahmed-Fathalla-KIS-2020.pdf](http://www.cs.newpaltz.edu/~lik/publications/Ahmed-Fathalla-KIS-2020.pdf). Accessed 3 May 2024.

Patra, Arkaprava. "Product Resale Price Prediction Using Machine Learning-A Case Study." *Medium*, Medium, 22 Mar. 2021, [arkaprava.medium.com/product-resale-price-prediction-using-machine-learning-a-case-study-6c789f86fee2](https://arkaprava.medium.com/product-resale-price-prediction-using-machine-learning-a-case-study-6c789f86fee2).

*Secondhand Shopping Gets a Boost, Especially with Well-off Shoppers*,  
[www.conference-board.org/topics/multicultural-consumer/secondhand-shopping](http://www.conference-board.org/topics/multicultural-consumer/secondhand-shopping). Accessed 3 May 2024.

"Secondhandai (Price Forecast for Secondhand Marketplaces)." *UC Berkeley School of Information*,  
[www.ischool.berkeley.edu/projects/2023/secondhandai-price-forecast-secondhand-marketplaces](http://www.ischool.berkeley.edu/projects/2023/secondhandai-price-forecast-secondhand-marketplaces). Accessed 3 May 2024.

*Sellers of Color: This Craigslist Experiment Reveals America's Latent Racism* | *Venturebeat*,  
[venturebeat.com/business/sellers-of-color-this-craigslist-experiment-reveals-americas-latent-racism/](https://venturebeat.com/business/sellers-of-color-this-craigslist-experiment-reveals-americas-latent-racism/). Accessed 7 May 2024.