Second-Hand Car Valuation Software User Manual

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GitHub Link:

https://github.com/RecepSamiOzdemir/software-engineering-project/tree/main/Second%20Hand%20Car%20Validation

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1 Introduction

- Brief Overview: This software allows users to collect, analyze, and manage data for second-hand car valuations by scraping websites like Arabam.com.

- Objectives and Goals: Provide a tool to fetch real-time car data, apply filters, and analyze trends through graphs.

- Scope: Focuses on data collection, cleaning, visualization, and saving for car pricing trends.

2 System Requirements

- Software Requirements

    o Python 3.8+

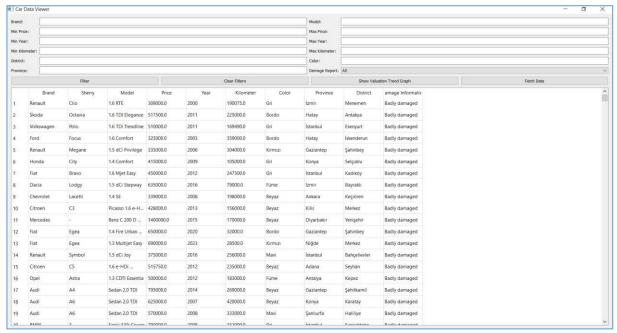   o Libraries: requests, bs4, pandas, lru_cache. You can download the libraries as shown below:

```
pip install requests beautifulsoup4 pandas
```

3 Installation Guide

- Prerequisites: Ensure Python and required libraries are installed Configuration settings if necessary

- Download: Visit the GitHub Repository and download the project.

- Setup: Place interface.py, main.py, and data.csv in the same folder. Update configuration in main.py if needed.
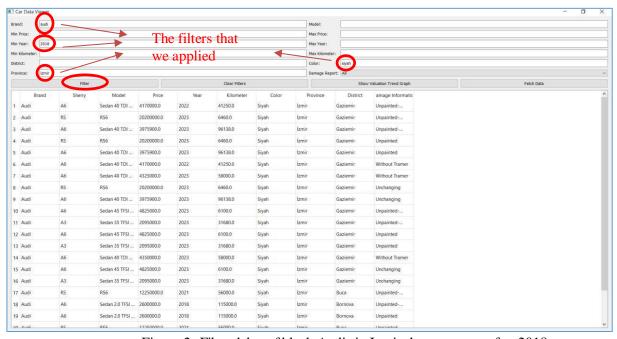
4 User Interface Overview

- Main Screens:

    o Filters: Search by brand, model, price range, and more.

    o Buttons:

        ▪ Fetch Data: Start data scraping.
        ▪ Filter: Refine displayed data.
        ▪ Clear Filters: Reset selections.
        ▪ Show Valuation Trend Graph: View pricing trends.

    o Data Table: Displays fetched and filtered data. Let's look at Figure 1:
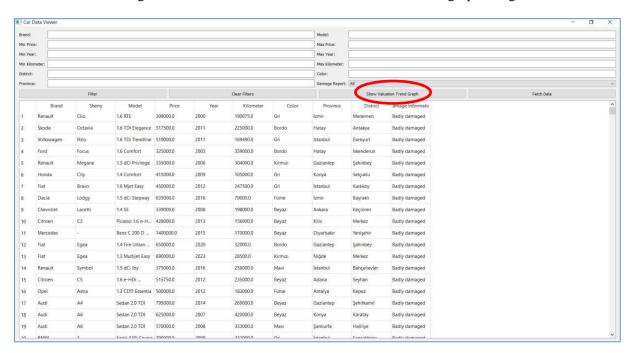
Figure 1: The general appearance of the interface and data table

- Let's filter the black Audis in Izmir that came out after 2018. Let's look at Figure 2:

Figure 2 : Filtered data of black Audis in Izmir that came out after 2018.

- Looking at the data in filter 2, let's show the valuation trend graph in figure 3:
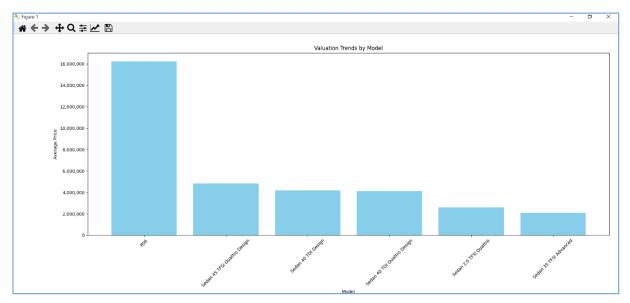

- Figure 3 : The valuation trend graph according to the models

5   Features and Functionalities

- Data Collection: Scrapes details like brand, model, year, mileage, price, and crash reports.
- Data Cleaning: Removes duplicates and invalid entries.
- Data Visualization: Shows valuation trends in graphical form.
- Data Saving: Combines newly fetched data with data.csv.

6   Usage Instructions
- Launch the software via terminal.


```
python interface.py
```

- Use the **Fetch Data** button to retrieve listings.
- Apply filters (e.g., brand, price range) to refine data.
- View valuation trends using the graph feature.

7   Troubleshooting and Maintenance
- Common Issues:
  - Missing libraries: Ensure dependencies are installed.
  - No data displayed: Ensure filters are valid and data is fetched.
- Error Resolution: Check terminal logs or main.py configuration.

8   References
- https://medium.com/%40datajournal/how-to-make-pythons-beautiful-soup-faster-2d508660486f#%3A~%3Atext%3DSolution%3A%20Use%20the%20find()%2Cunnecessary%20parts%20of%20the%20HTML.%26text%3DBy%20reducing%20the%20search%20scope%2Cespecially%20for%20large%20HTML%20documents

- https://medium.com/%40datajournal/web-scraping-with-python-guide-e54d87166c29

- https://stackoverflow.com/questions/48402780/web-scraping-a-forum-post-in-python-using-beautiful-soup-and-lxml-saving-result