RacquetChecker

What is it?

RacquetChecker is an app that utilizes eBay's api to check for new listings of specific tennis racquets in a given price range. Its main purpose is to scrape data on recently sold racquets. Data scraped includes the average price, the highest price, and the quantity/amount sold in a certain time period. The app also allows you to view the top-selling racquets (most popular/most sold). Furthermore, you can view the top daily/weekly sellers and profit margins. Then we plan on incorporating AI to predict price trends/changes for different seasons.

Why is it?

I am a big tennis fanatic; I live and breathe tennis. I started my tennis journey junior year of high school and have developed an extreme passion for tennis racquets. I love collecting and trading various racquets; at one point, I had 12 different tennis racquet models in my collection! Throughout the last few years, I have spent a significant amount of time browsing marketplaces like Facebook and eBay to look for racquets that I wanted. I also had to do a ton of research to learn the prices of all the different models. Then I thought to myself, "What if there were an app that did everything for me?" Thus, this is how this app came to be.

Models

1. User
    a. Password hash
    b. Id
    c. Email
    d. Searches saved
    e. notifcations
2. Racquet
    a. id
    b. Brand
    c. Model
    d. Specs
    e. Image
3. Listing
    a. Id
    b. Ebay id
    c. Price
    d. Condition
    e. Time listed
    f. Brand & model
4. Price trend
    a. Racquet id

    b. Date
    c. Predicted price
    d. Current price
5. Sales
    a. Racquet id
    b. Period
    c. Total sold
    d. Average price
    e. Highest sold price
6. Notification
    a. User id
    b. Listing id
    c. Date/Time

Requirements

1. Find eBay listing using eBay api for tennis racquets that fit the criteria that the user defines (brand, model, price, date listed)
    a. The system should store racquet data in the db, including average price and demand
2. The system should analyze recently sold racquets and calculate
    a. Average price
    b. Highest price
    c. Quantity sold over a period of time (demand)
    d. Rank them from best-selling to worst-selling
3. AI incorporation
    a. Predict future trends and future racquet prices based on sales history and time of year
4. Notifications
    a. Done through websockets
    b. Notify users of new listings that match saved searches and user-defined criteria
    c. Live Sales feed
    d. Trending racquet changes (daily/weekly/yearly)
5. User management
    a. Allow users to register/sign up, log in, and save preferences/criteria
    b. Allow users to view their saved searches and toggle notifications
6. Listings and predictions should update in near real time
7. User passwords must be securely stored

Technologies

Backend: Java Spring Boot (Vincent Wang)

Frontend: Some web technology (Carter Snook)