



Price Prediction in Skincare

With advanced machine
learning

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- 1. Overview*
 - 2. Business*
 - 3. Understanding*
 - 4. Modeling*
 - 5. Recommendations*
 - 6. Next Steps*

OVERVIEW

Skincare is a growing industry. Inner Beauty Inc. wants to learn how to price their products to be competitive



Business Understanding

Inner Beauty Inc. should try to dupe the overpriced brands' products with prices that are on average higher than the underpriced ones

Using neural networks for regression we can predict prices and dupe products.

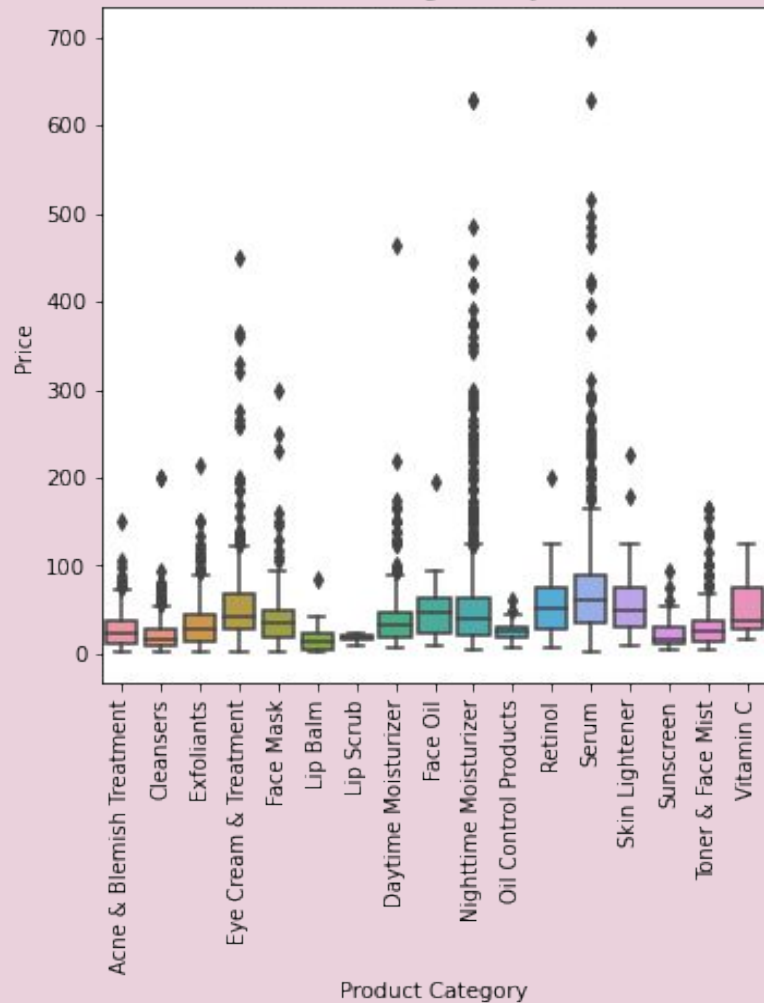


Data Overview

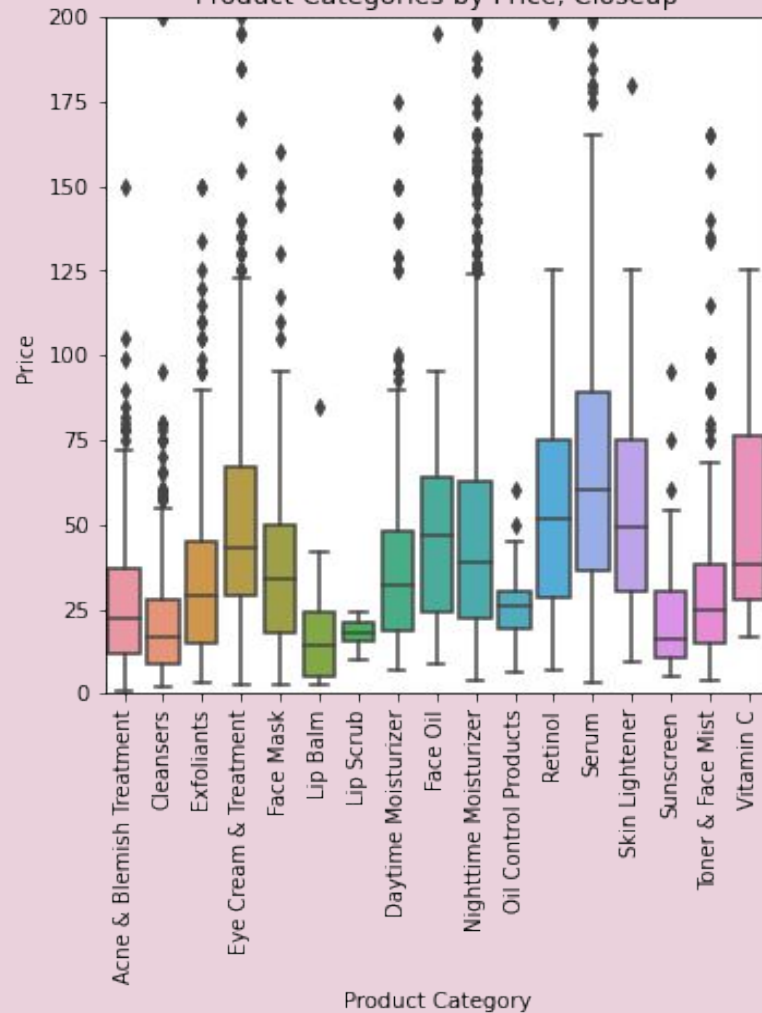
The data was scraped from Beautypedia, Paula's Choice, and the Dermstore, Collected by NoxMoon and myself.

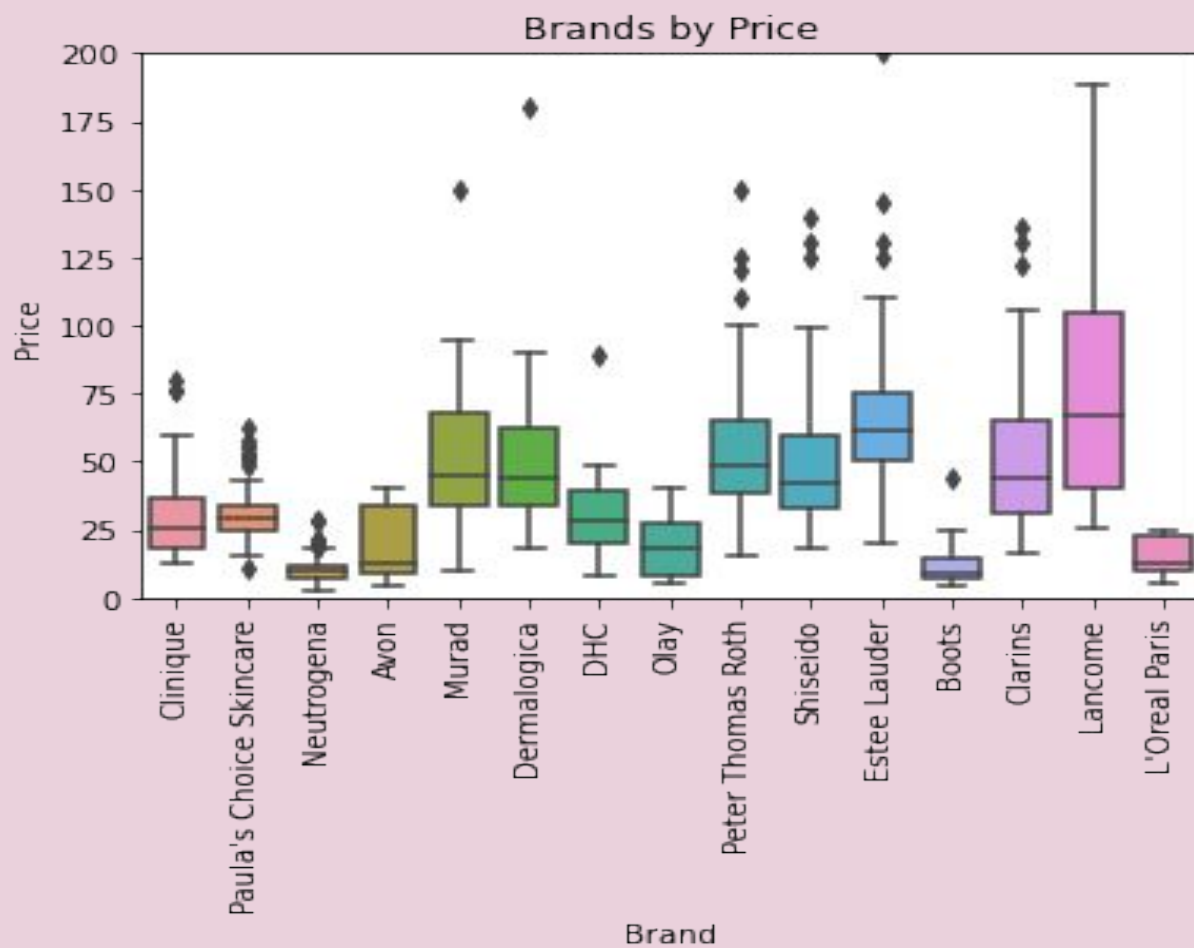
Datasets included price, brand, product name, category, and ingredients.

Product Categories by Price



Product Categories by Price, Closeup





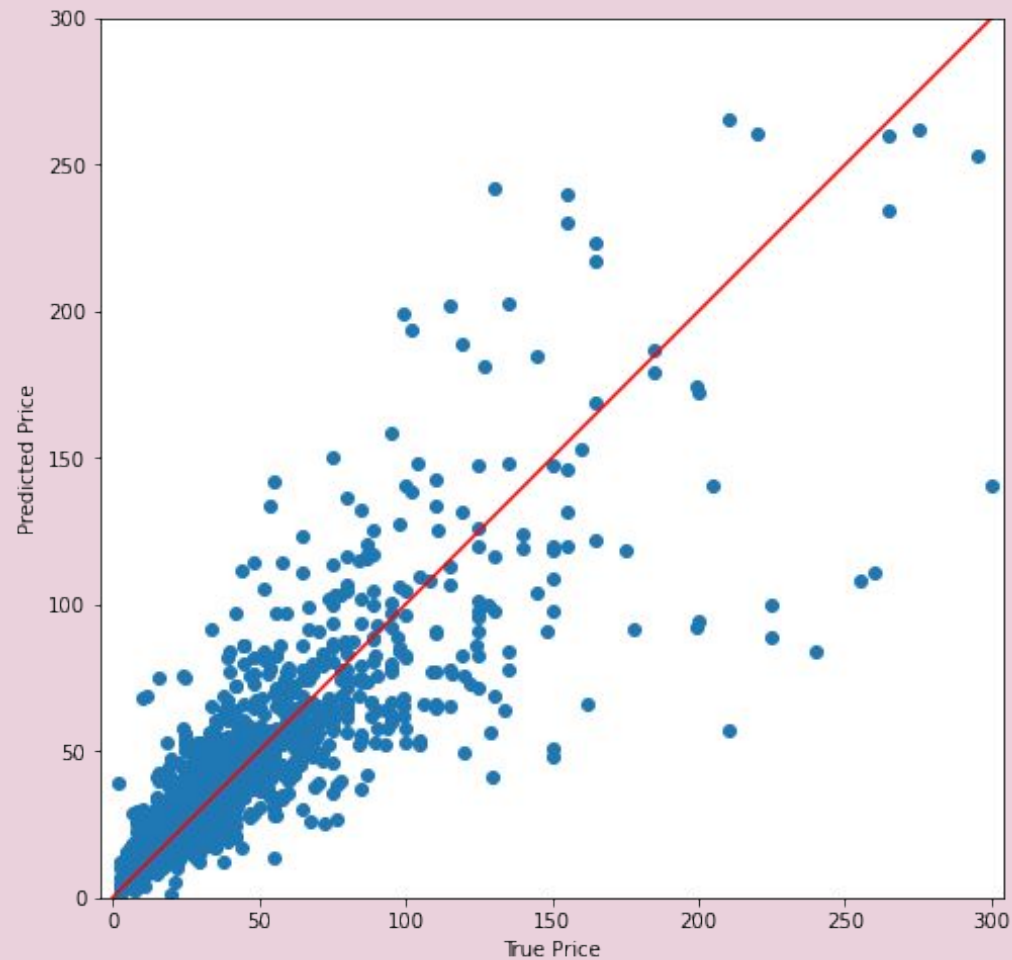
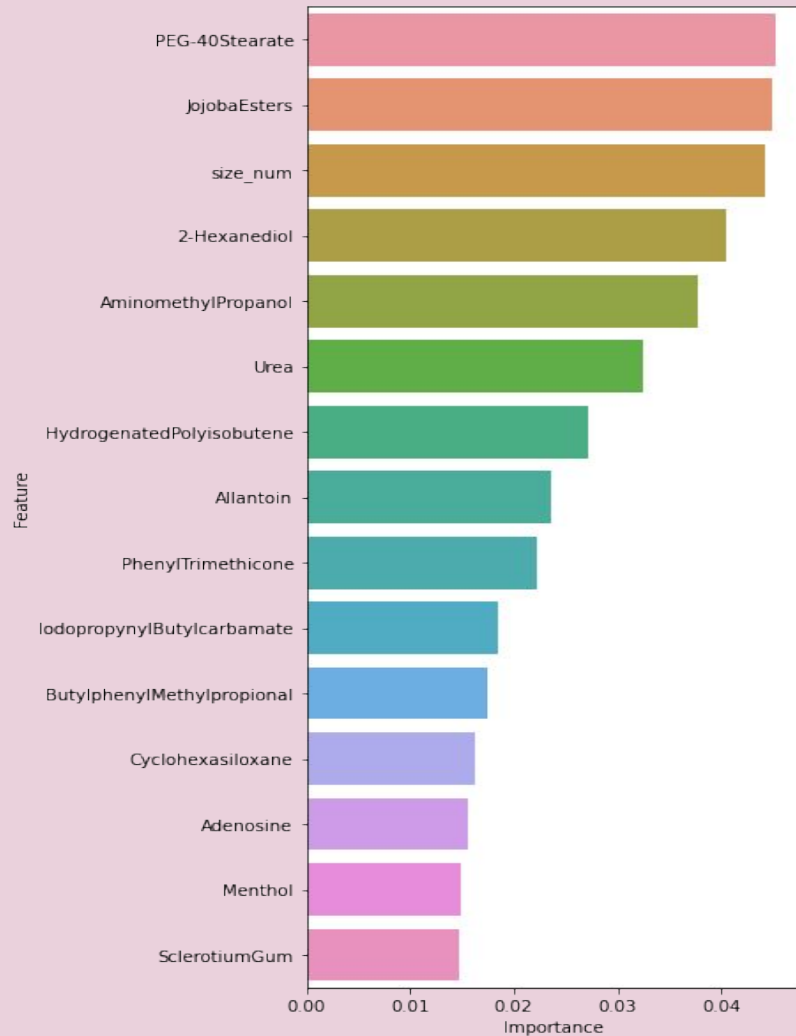
Modeling



- XGBoost
- GridSearch tuned XGboost
- Stacked Random Forest, SVR, XGBoost
- Neural Networks with 3,5 and 7 hidden layers

Results:

\$13 test MAE from untuned XGBoost



Recommendations

Most overpriced brands: La Prairie, Elizabeth Arden, Chanel

Most underpriced brands: Neutrogena, Shiseido and Lancome

Dupe the overpriced, keep prices higher than underpriced.





Next Steps

- Determine which product categories to focus on
- Bring packaging into analysis
- Go deeper on ingredients

THANK YOU

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