



Price Prediction in Skincare

With advanced machine
learning

Mahum Abid . May 2023

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Data Scientist

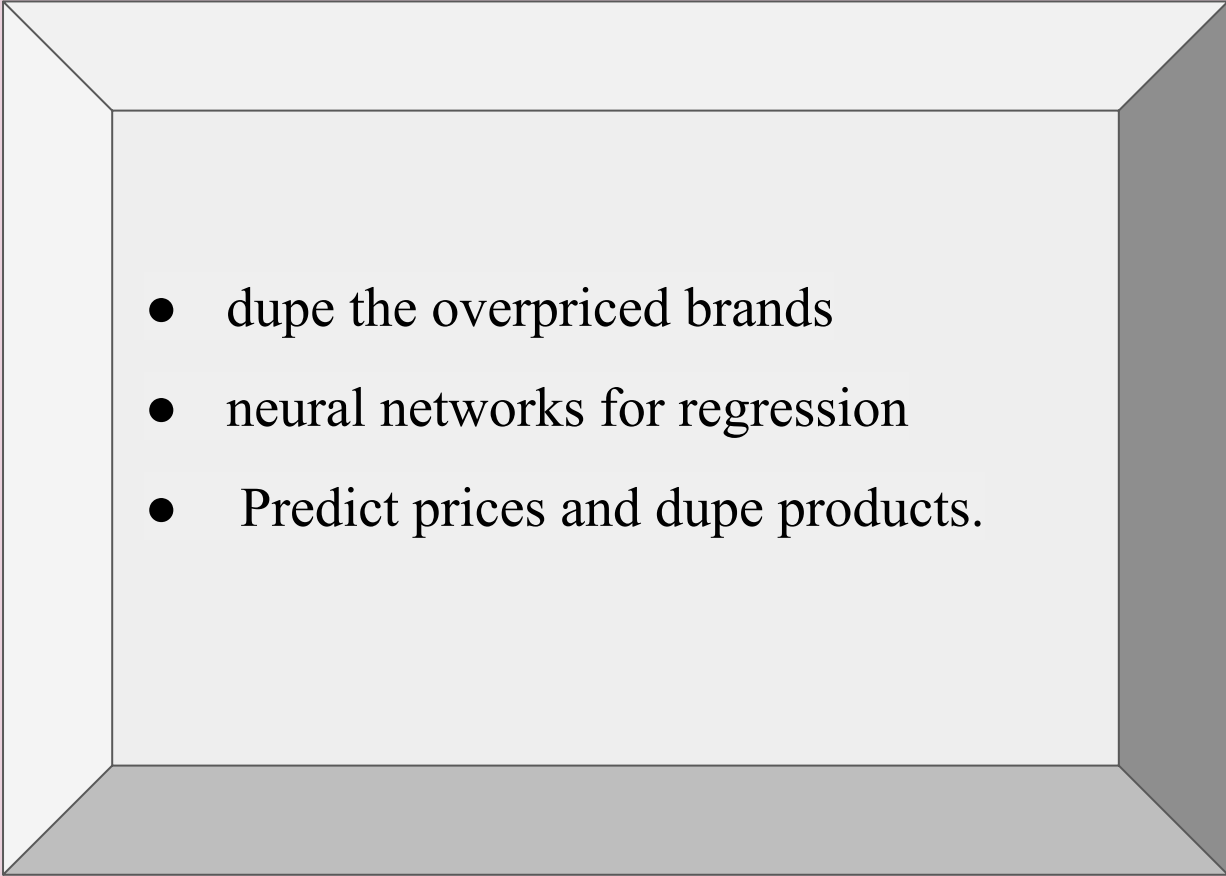
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- 1. Overview*
 - 2. Business*
 - 3. Understanding*
 - 4. Modeling*
 - 5. Recommendations*
 - 6. Next Steps*

OVERVIEW

- *Skincare a growing industry.*
- *How to price their products to be competitive?*



Business Understanding

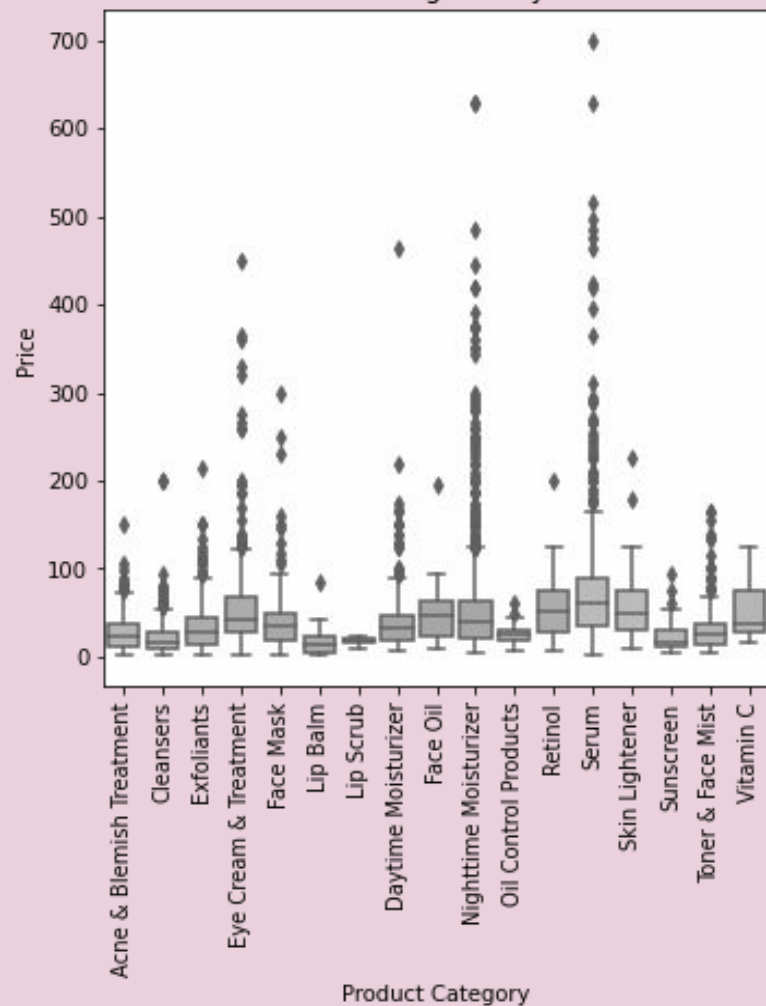
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- dupe the overpriced brands
 - neural networks for regression
 - Predict prices and dupe products.



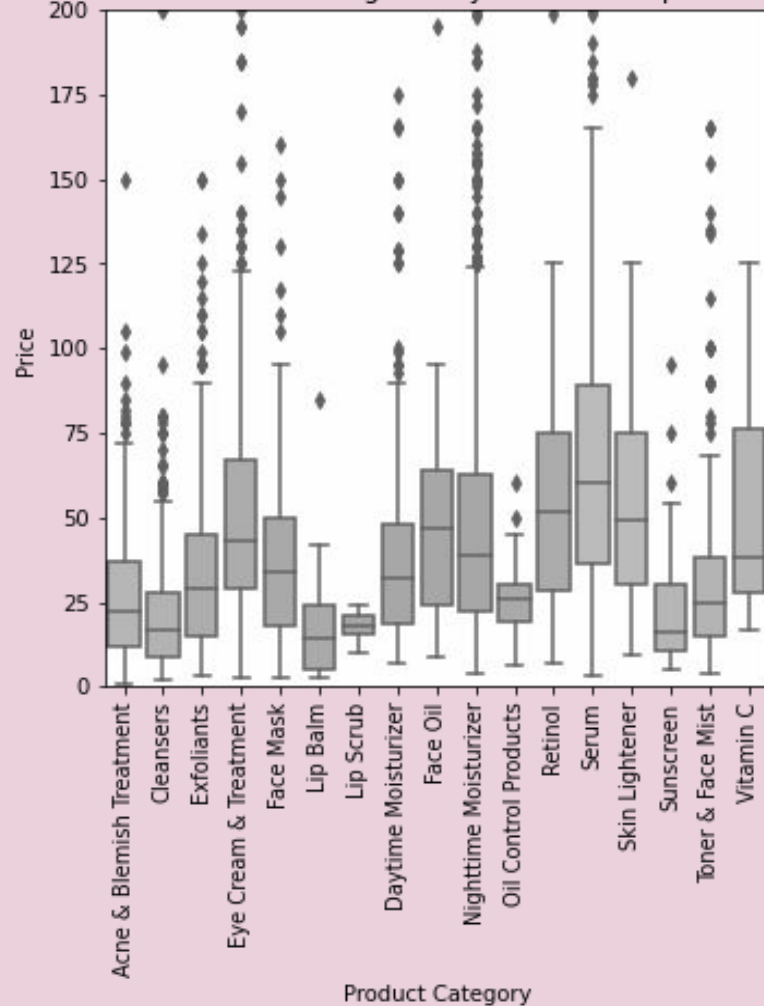
Data Overview

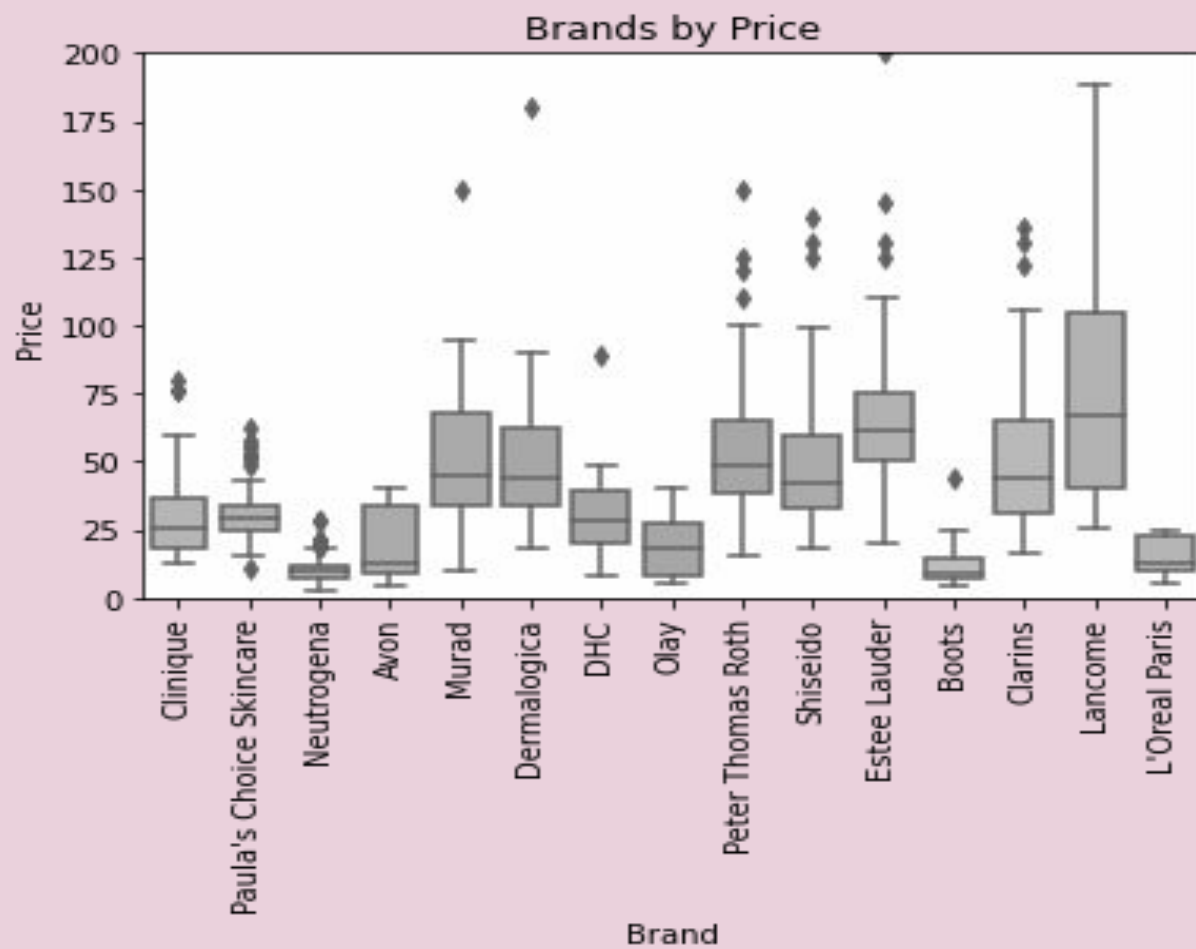
- Beautypedia, Paula's Choice,
- Dermstore
- Collected by NoxMoon and myself.

Product Categories by Price



Product Categories by Price, Closeup





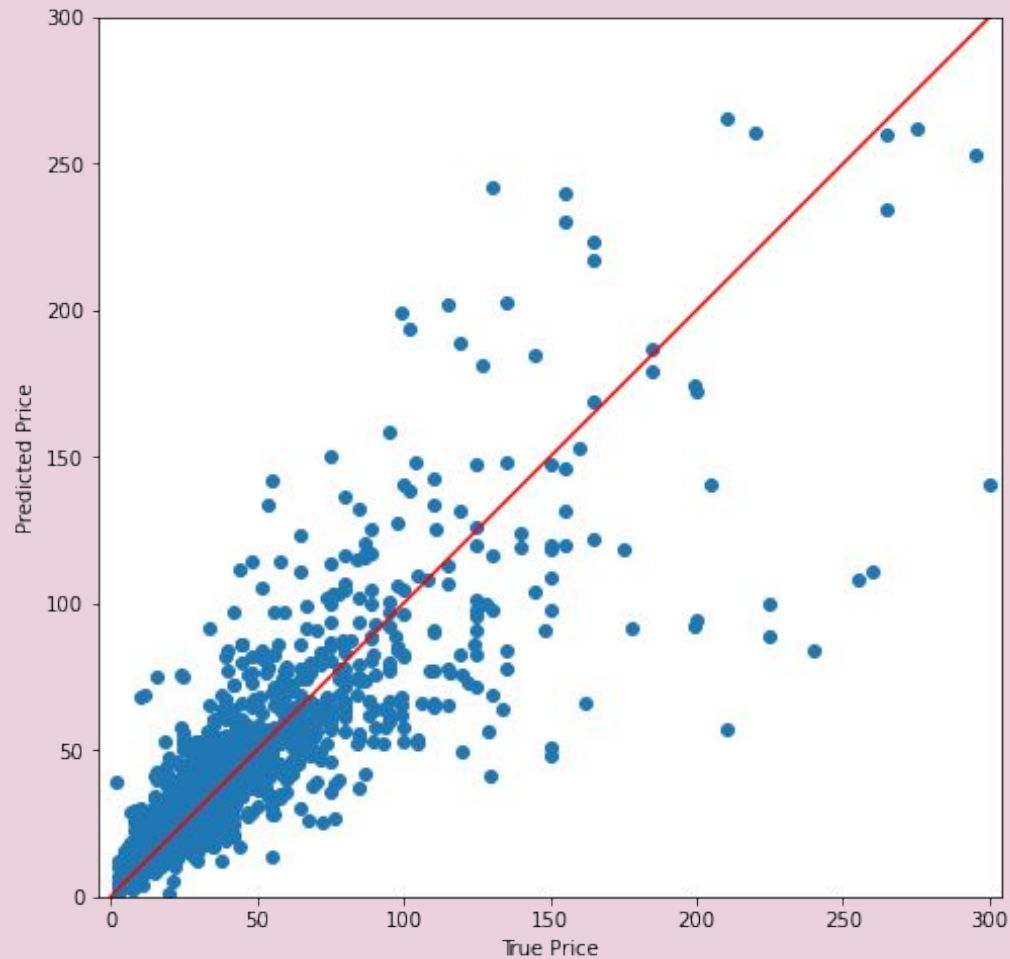
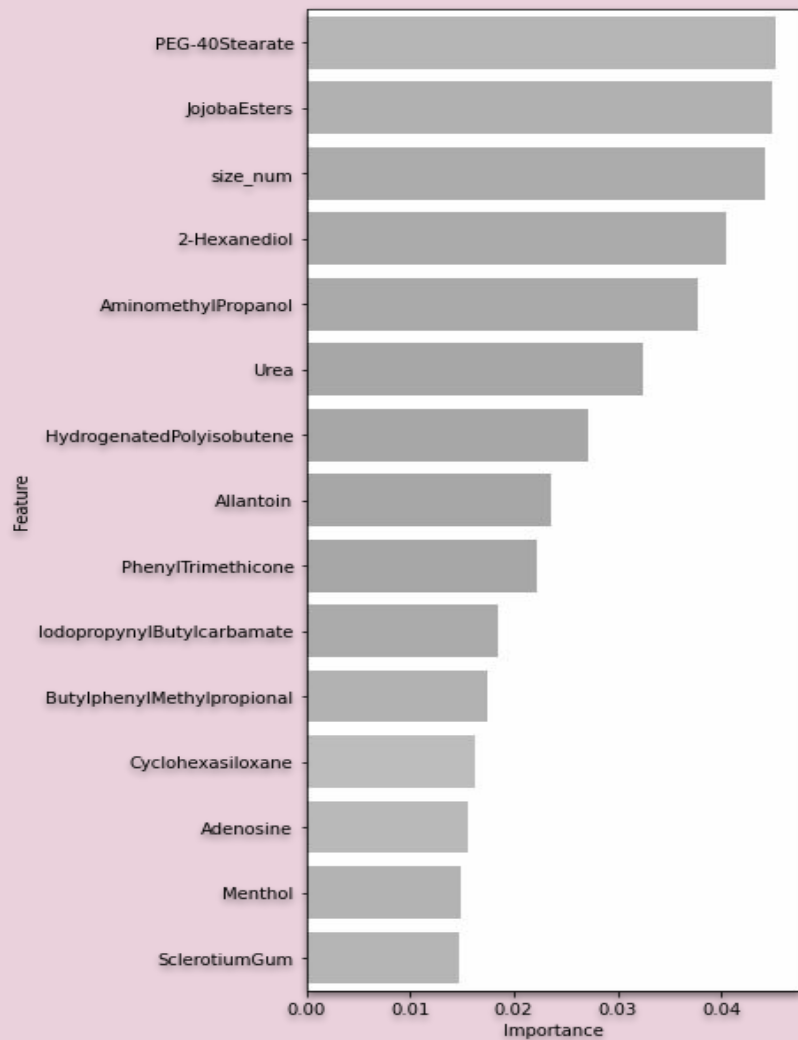
Modeling



- 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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