

# Price Prediction in Skincare

with Advanced  
Machine Learning

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A close-up photograph of a person's face, focusing on the eye, nose, and mouth. The skin is a warm, medium-brown tone and appears to have a dewy or glowing finish, possibly from a skincare product. The person's eyes are closed, and their lips are slightly parted, showing a hint of red lipstick. The image is framed with rounded corners and a white border.

## Overview:

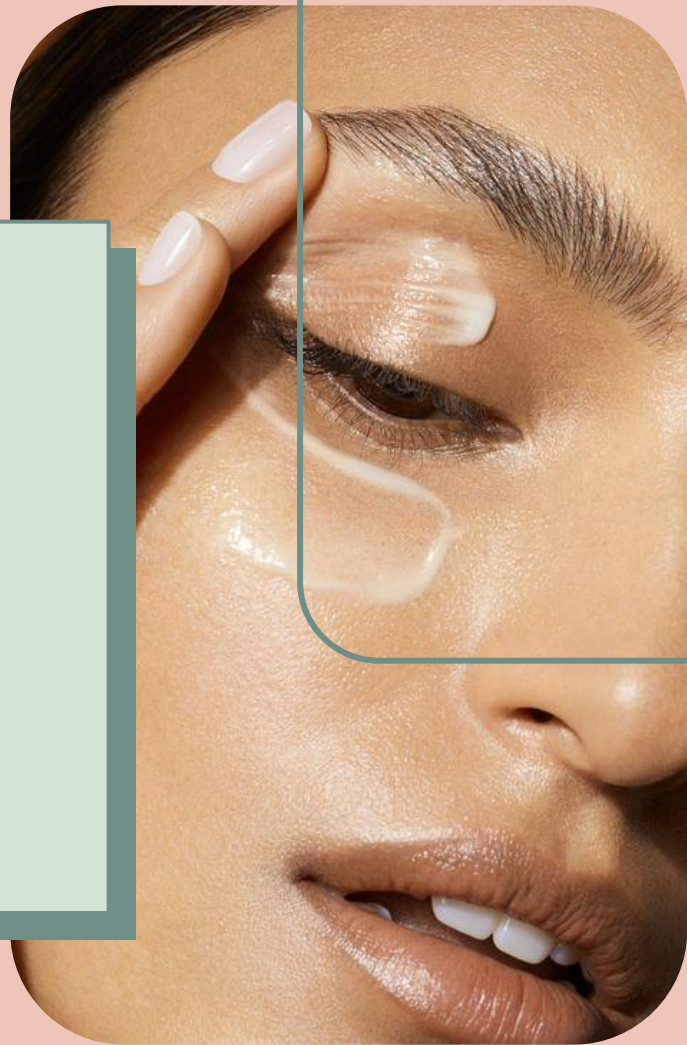
Skincare is a growing industry. Inner Beauty Inc. wants to learn how to price their products to be competitive.

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

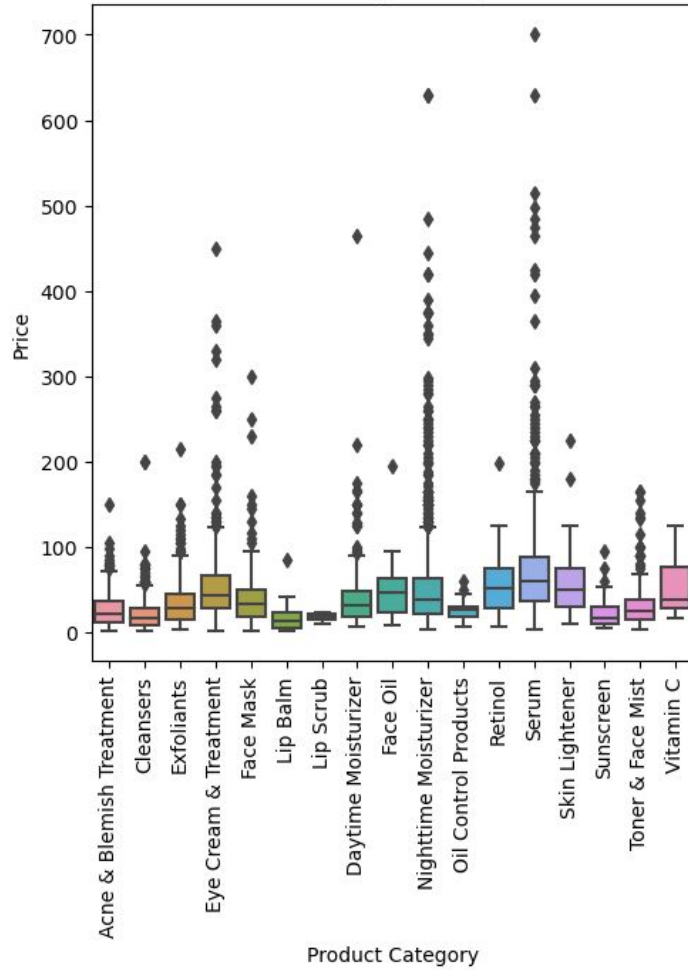
## Data:

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

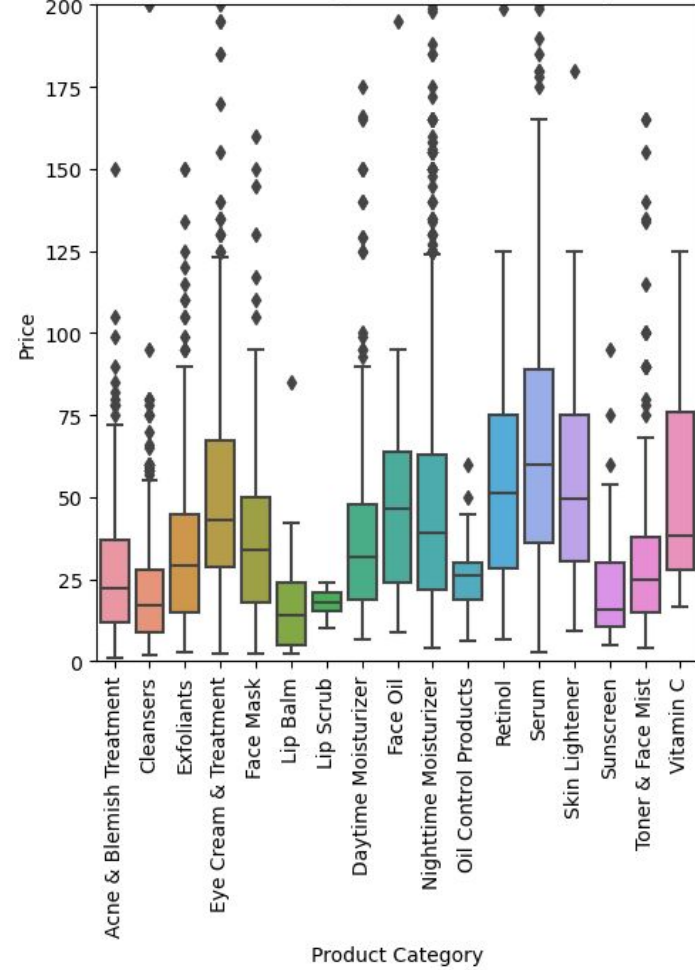
Datasets included price, brand, product name, category, and ingredients.

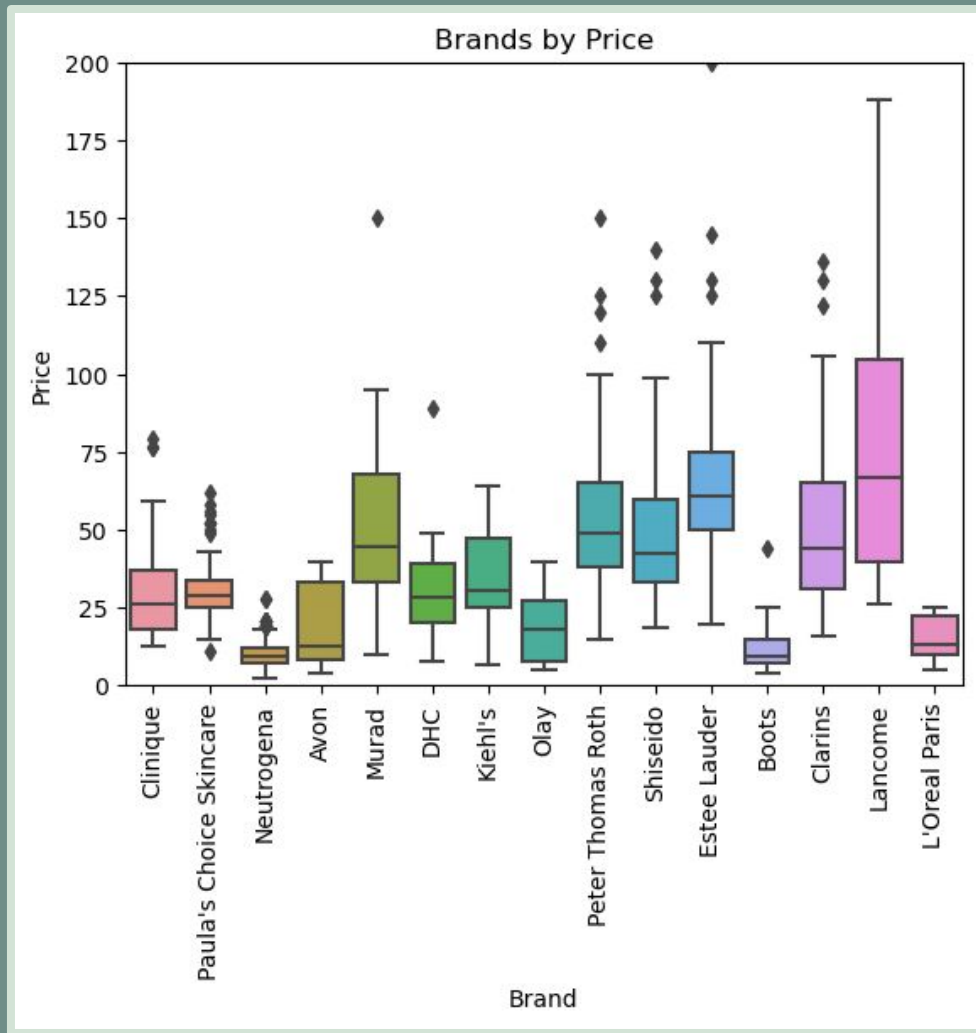


Product Categories by Price



Product Categories by Price, Closeup







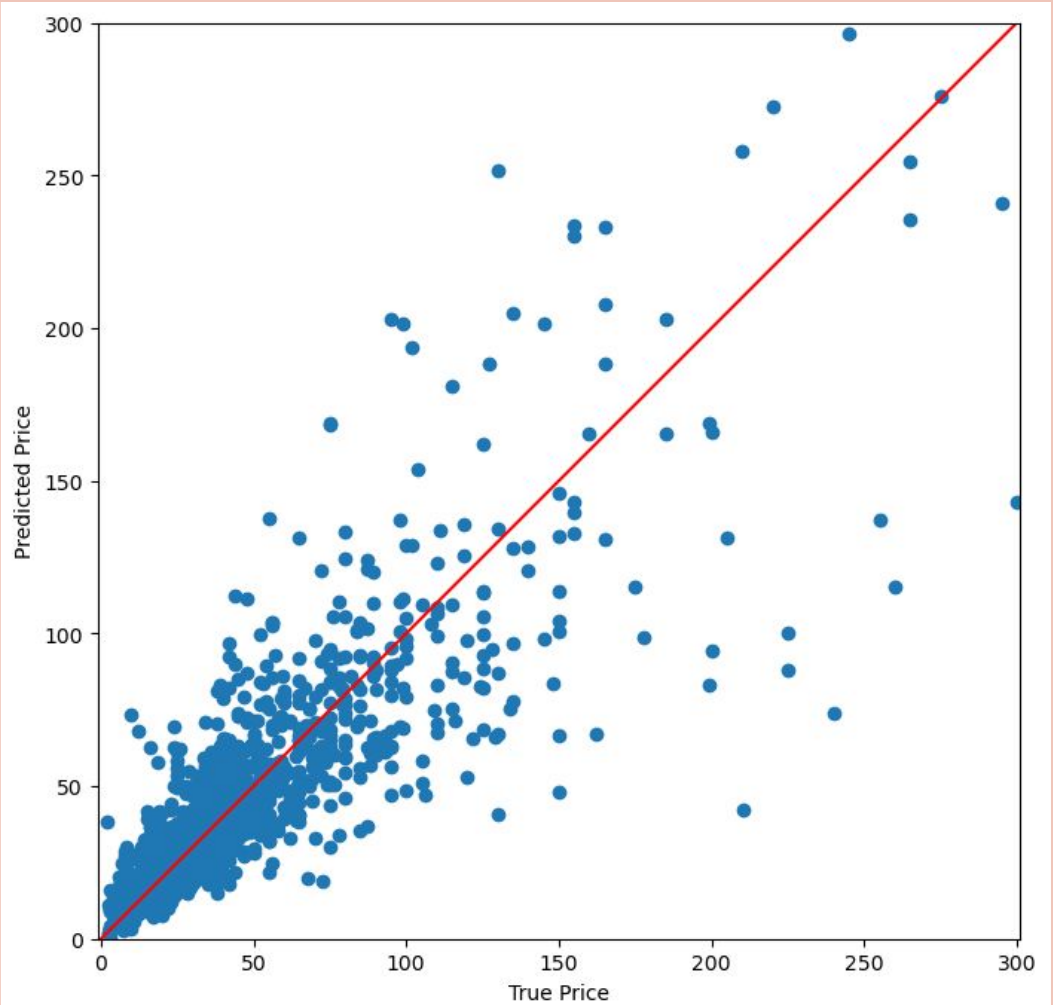
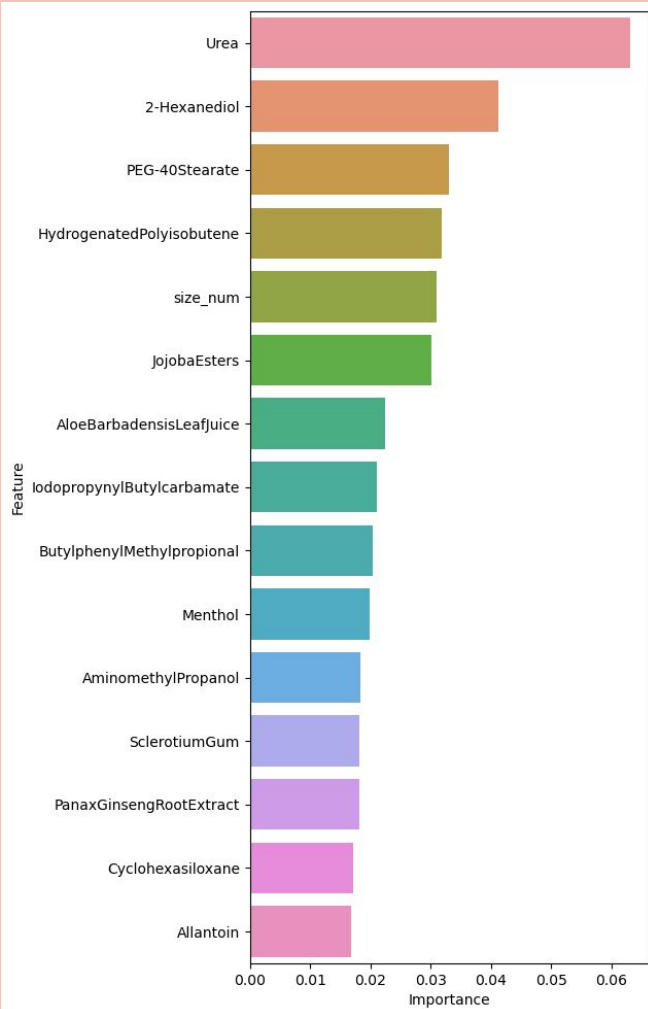
# Modeling

A close-up photograph of a person's face, focusing on the cheek and eye area. A thick, white, irregularly shaped patch of cream or ointment is applied to the cheek. The person has dark skin and dark hair.

- 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

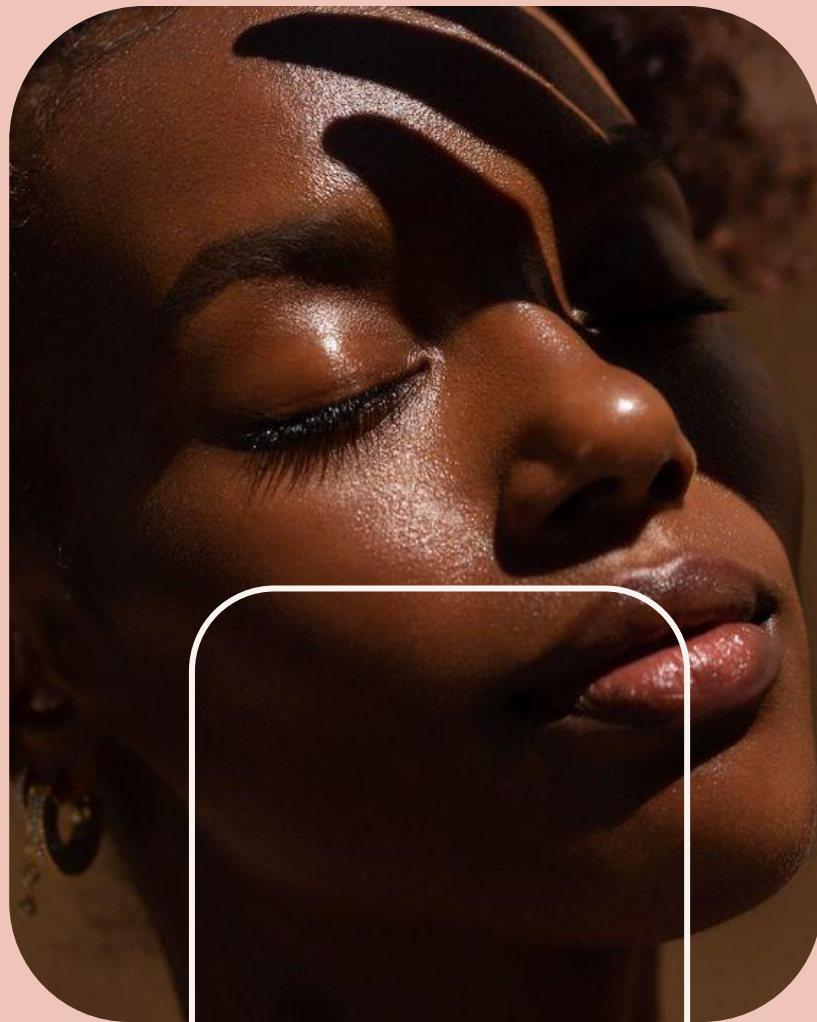
Most overpriced brands: La Prairie, Dr. Brandt, and Shiseido.

Most underpriced: Neutrogena, Shiseido, and Mary Kay.

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



# SuperDuper App

CLICK  
HERE

## SuperDuper

A duping app for your favorite overpriced skincare product! 🕯



Choose a brand

100% Pure

Now pick a product

100 Pure Green Tea EGCG Concentrate Cream 1.4 fl. oz.

You already found the cheapest product! Well done, you.

# Thank You.

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