Amazon Dog Food Brand WOOF Score Analysis

Pro Team:

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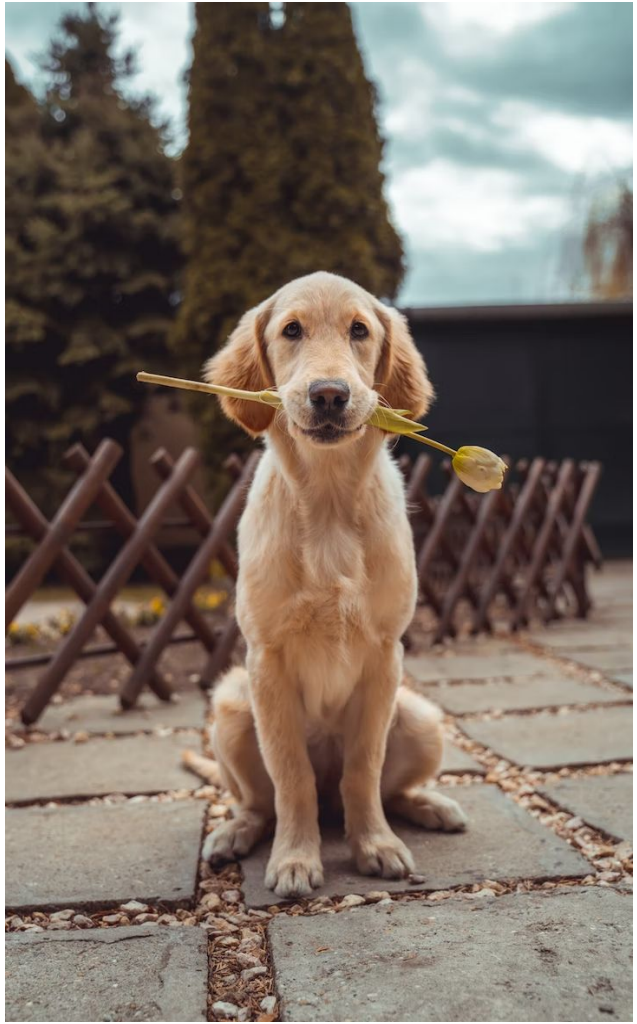


Agenda

01 Why Amazon Ads

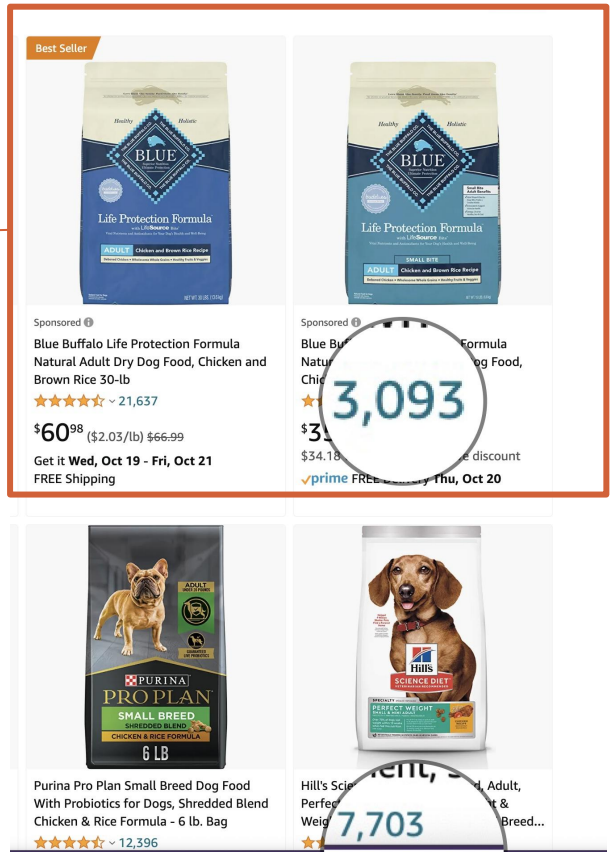
02 Data Insights

03 WOOF Modeling

01 Why Amazon Ads?

How Amazon Ads Display on the Website and How It Adds Value to Brands

Sponsored Ads are more attractive to customers



Result a Win-Win Situation

Benefit Brands

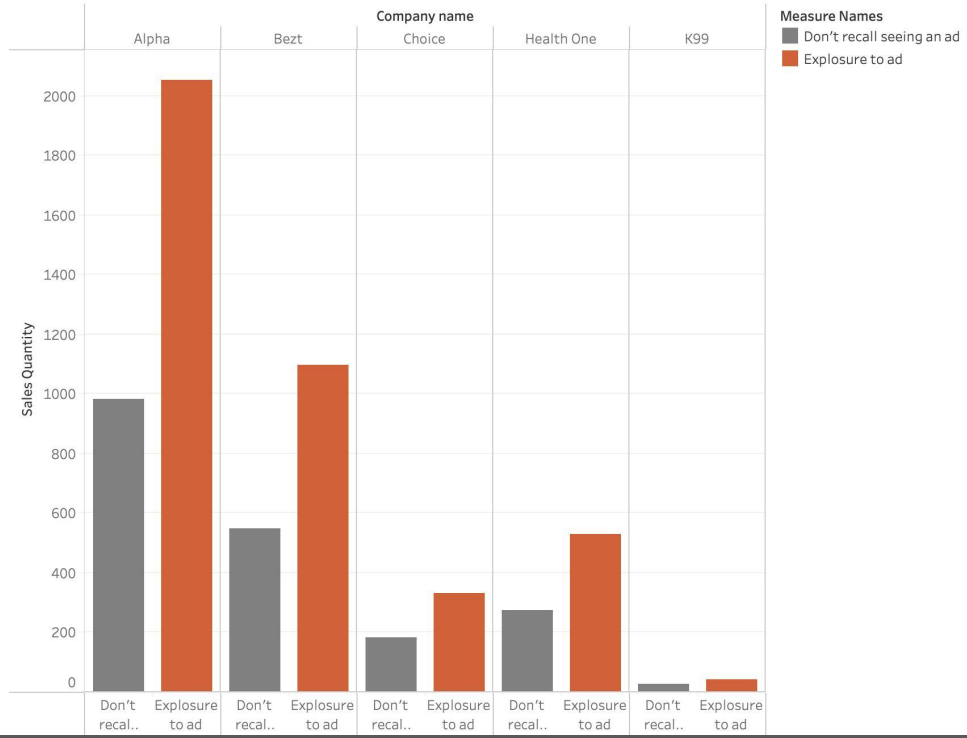
- Provide consumer insights
- Give valuable ads investment suggestions

Benefit Amazon

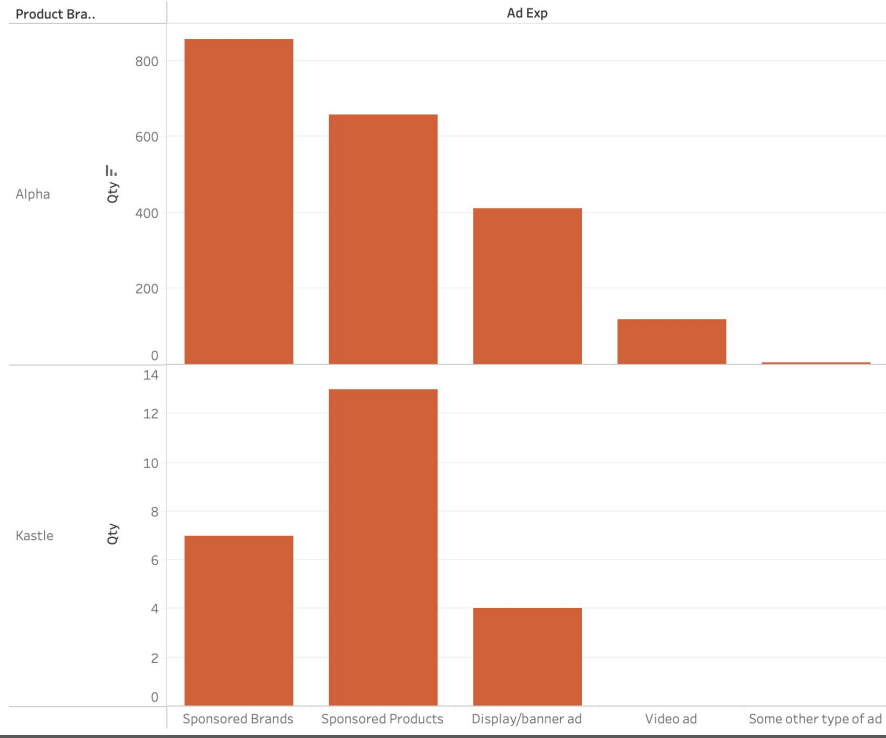
- Recommend right product to the right consumers
- Attract more brands

Sponsored Ads Help Brands Increase Sales

Dog Food Brands Sales Quantity with Ads Experience



Brand Demand with Different Advertising Experimence



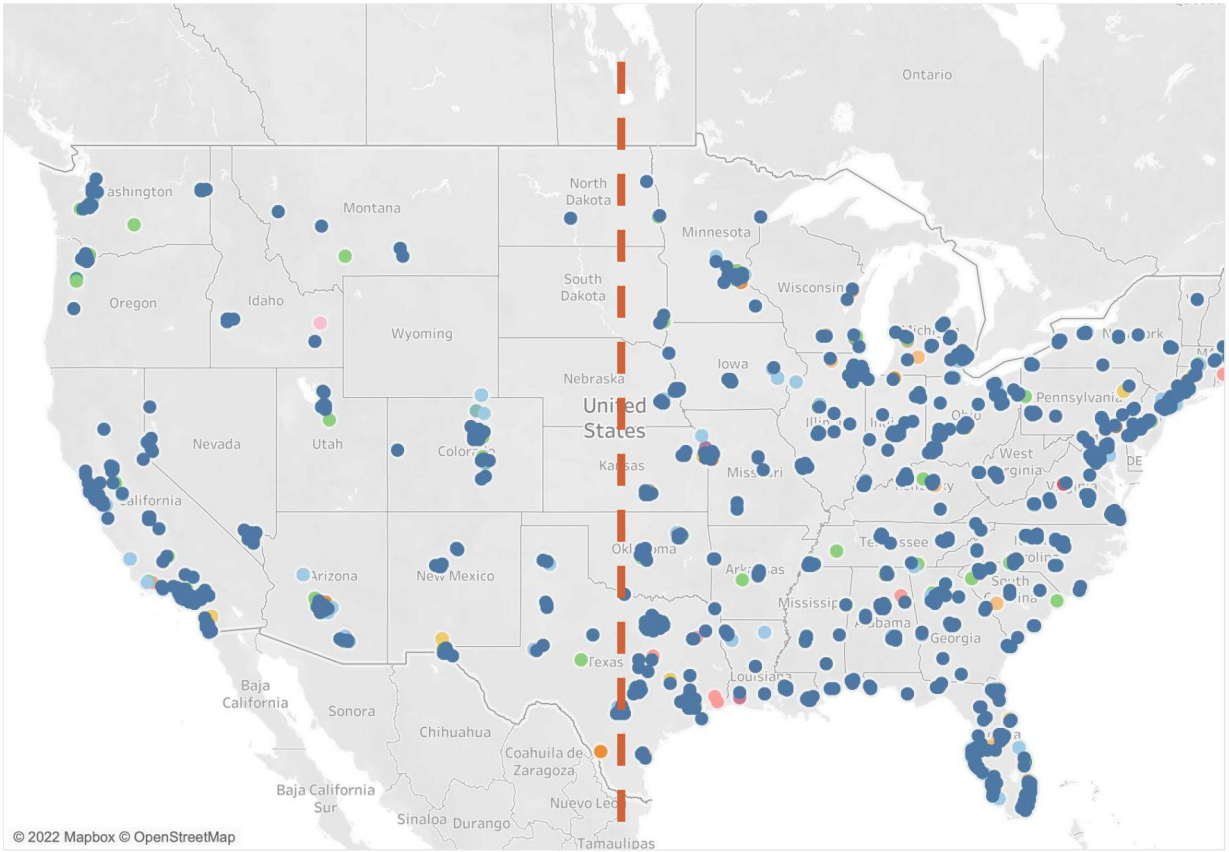
People who are exposed to ads are more likely to make the purchase, and different ad channels contribute to each brand differently. Thus, brands need a method to how to promote in a most effective way.

02

Data Insights

Customers on East Coast Have More Purchase Behaviors

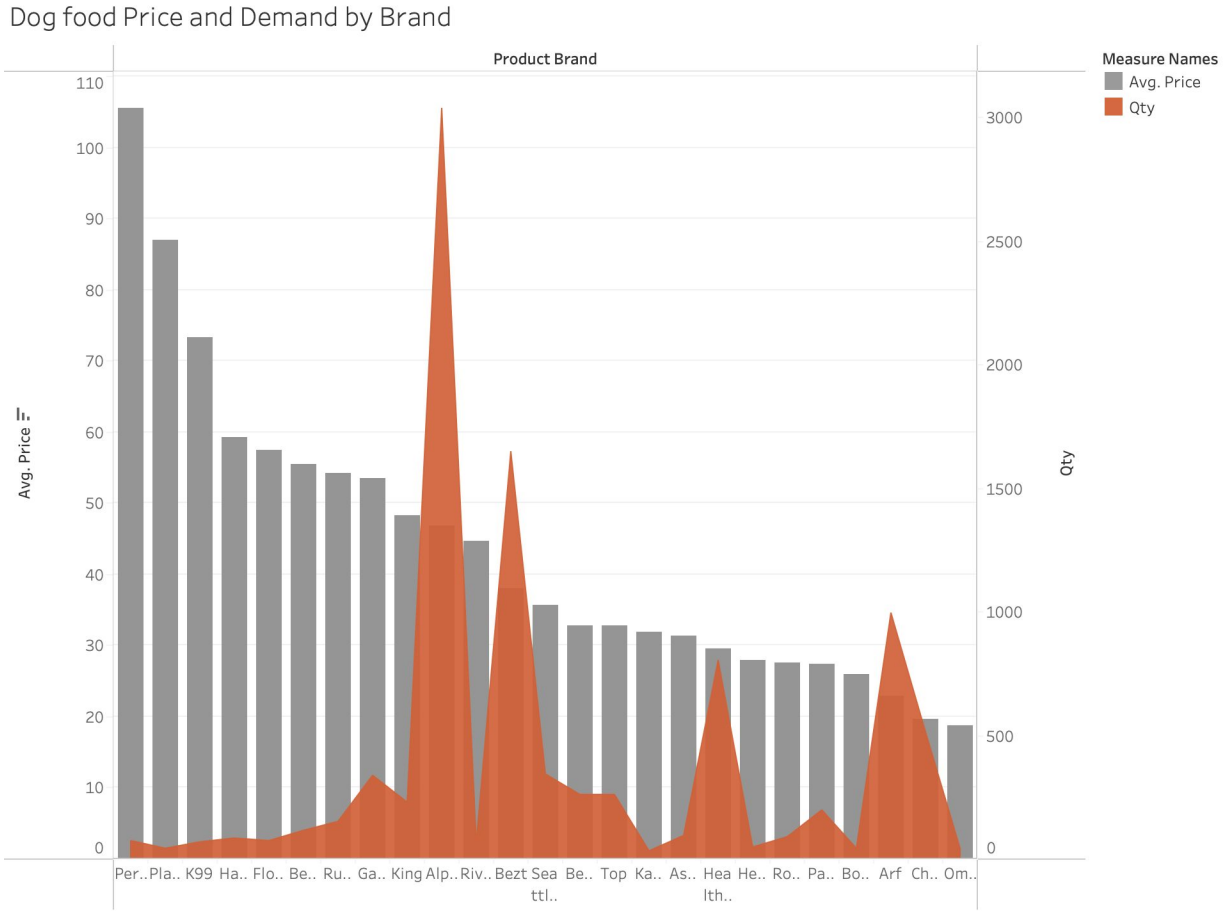
Distribution of Cosumption of Dog Food Product Brands



Product Brand
- Alpha
- Arf
- Astro
- Beam
- Beethoven
- Bezt
- Bones
- Choice
- Flora
- Garland
- Hanover
- Health One
- Hearth
- K99
- Kastle
- King
- Omaha
- Paws
- Perro
- Playtime
- Rivera
- Romero
- Ruby
- Seattle Gourmet
- Top

Map based on Longitude (generated) and Latitude (generated). Color shows details about Product Brand. Details are shown for Zip.

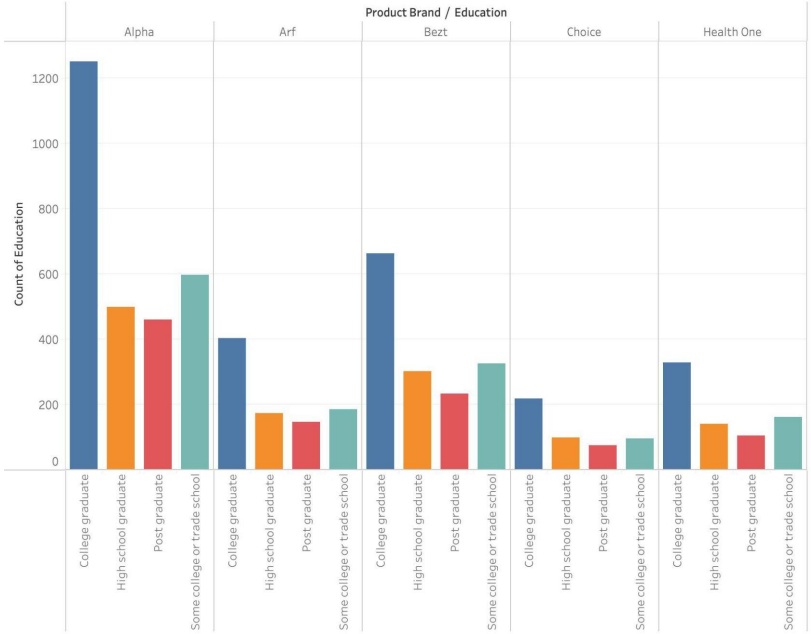
Mid-price Brands Are More Attractive to the Consumers



Avg. Price and Qty for each Product Brand. Color shows details about Avg. Price and Qty.

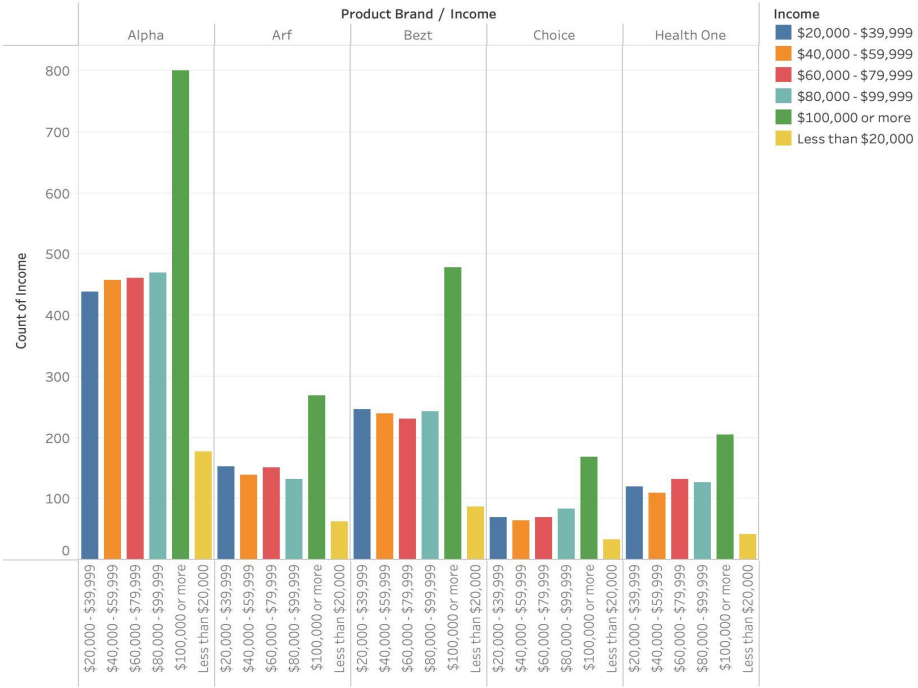
Visualization of Customers' Education Status and Income Range

Product Brands v.s. Customer Education Status



Count of Education for each Education broken down by Product Brand. Color shows details about Education. The view is filtered on Product Brand, which keeps Alpha, Arf, Bezt, Choice and Health One.

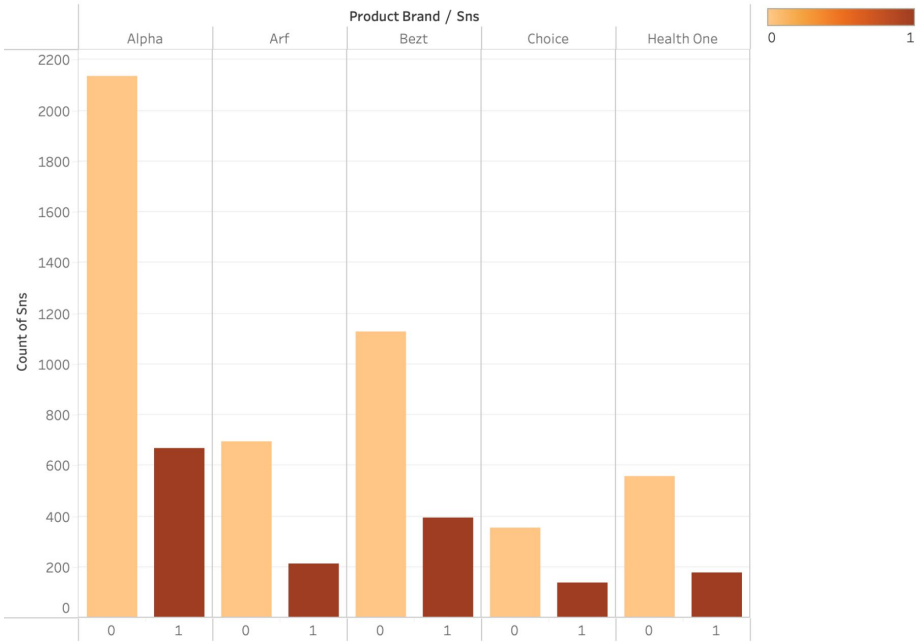
Product Brand v.s. Customer Income Range



Count of Income for each Income broken down by Product Brand. Color shows details about Income. The view is filtered on Product Brand, which keeps Alpha, Arf, Bezt, Choice and Health One.

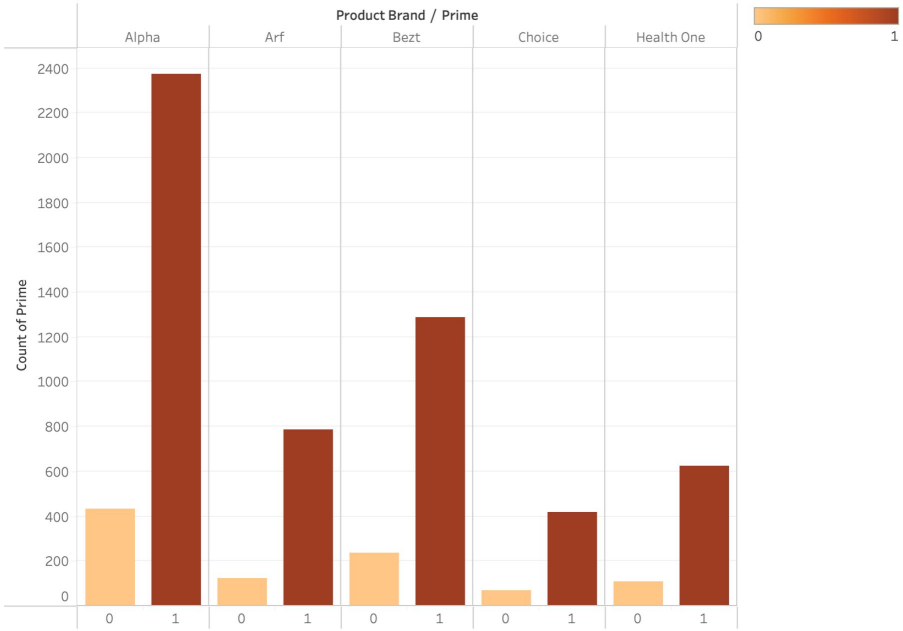
Visualization of Customers' Consuming Behaviors Prime, Subscription and Save

Brand vs. Subscription and Save



Count of Sns for each Sns broken down by Product Brand. Color shows details about SNS_List. The view is filtered on Product Brand, which keeps Alpha, Arf, Bezt, Choice and Health One.

Brand vs. Prime



Count of Prime for each Prime broken down by Product Brand. Color shows details about Prime List. The view is filtered on Product Brand, which keeps Alpha, Arf, Bezt, Choice and Health One.

03

WOOF Modeling

Before building the model...

Let's thinking about the real Scenario:

Customer A search “dog food” on Amazon → Amazon runs WOOF model immediately

↓

WOOF Model returns a list contains each brand’s name and the corresponding WOOF score. → Amazon web page shows dog food brand with a descending order of WOOF scores

↓

look like this!

Customer	Brand A	Brand B	Brand C	…	Brand Z
A	0.4	0.2	0.1	…	0.1

Essential features of the WOOF Model

Features:

1. Advertise Experience (ad_ex)
2. Subscribed or not (sns)
3. Price
4. Purchased Quantity (qty)
5. Gender
6. Marital
7. Education
8. Income
9. Age
10. Prime member or not (prime)
11. Geography (Western/Eastern)

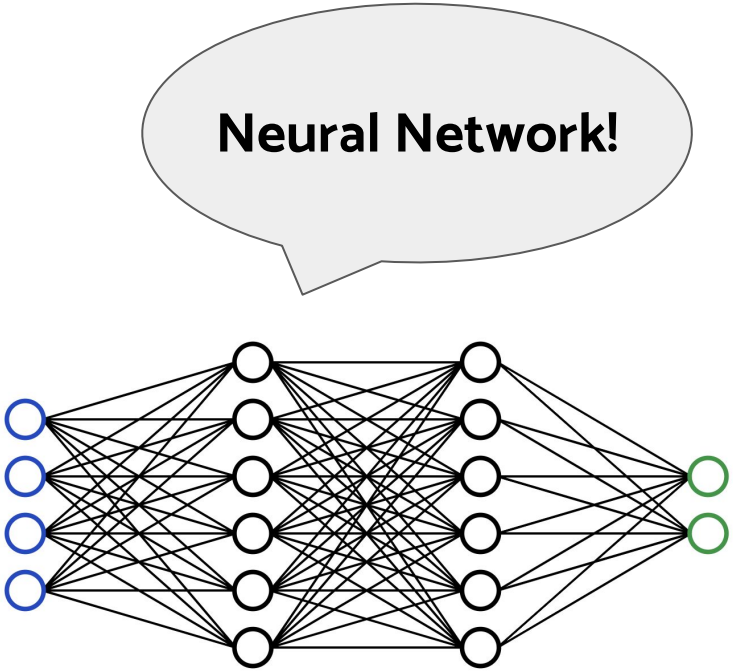
WOOF Modeling

Challenges:

1. **Multiclass classification problem**
2. **Most features are categorical**
3. **For each datapoint, the model should predict WOOF score for each brand**

Assumptions:

unseen customers should has all the feature informations in the dataset



WOOF Modeling

Process:

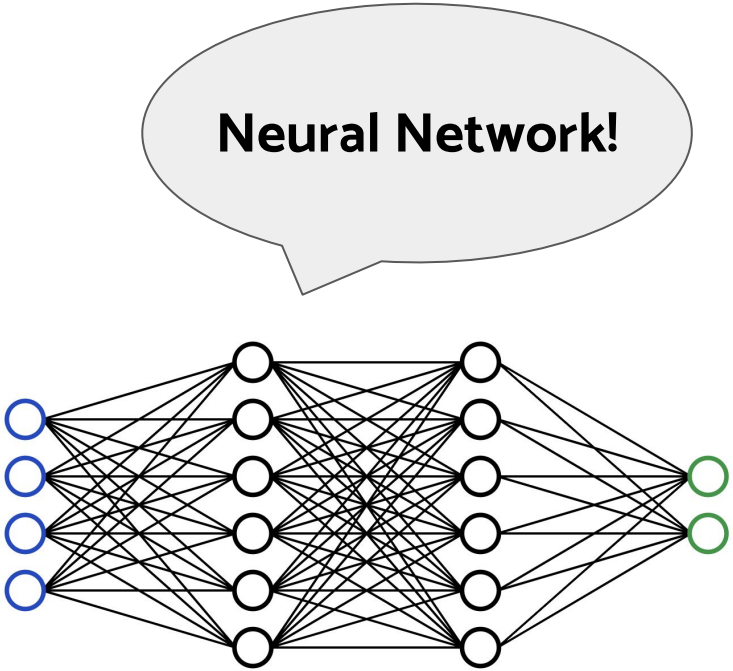
One-hot-encoding for all categorical features

standardized numerical features

label encoding the brand names

Apply Keras package training the model

(regularization , K-fold Cross validation ..)



Model Results:

Accuracy: around 57% (Seems too low? Actually it is OK!)

Model Sample Output:

Those are exactly the WOOF score!!

	Customer	Alpha	Arf	Astro	Beam	Beethoven	Bezt	Bones	Choice	Flora	...
0	1	0.206	0.006	0.000	0.0	0.022	0.509	0.0	0.0	0.054	...
1	2	0.808	0.000	0.009	0.0	0.000	0.000	0.0	0.0	0.000	...
2	3	0.224	0.000	0.000	0.0	0.000	0.672	0.0	0.0	0.000	...

Thanks for Listening