Product Pricing Algorithm

Business Science

3/19/2019

Problem Statement

Research and Development wants help to determine new product ideas and pricing using existing product line as a benchmark.

Solution Summary

We've identified several product gaps in the existing product line including:

1. Aluminum Over Mountain
2. Aluminum Triathalon

The Data Science Team has developed a pricing model that uses predictive analytics to estimate the price of the two new bicycle models based on the existing fleet. This ensures the new models are priced comparatively to other similar bicycles.

New product prediction for 2 new models:

1. Trigger, Over Mountain with Aluminum Frame: $2,695
2. Slice, Triathalon with Aluminum Frame: $2,057

Next Steps: Integrate the model into a proof-of-concept web application that can be deployed to the R&D department.

Gap Analysis

Bike List

Our current product portfolio consists of 97 bike models that were analyzed.

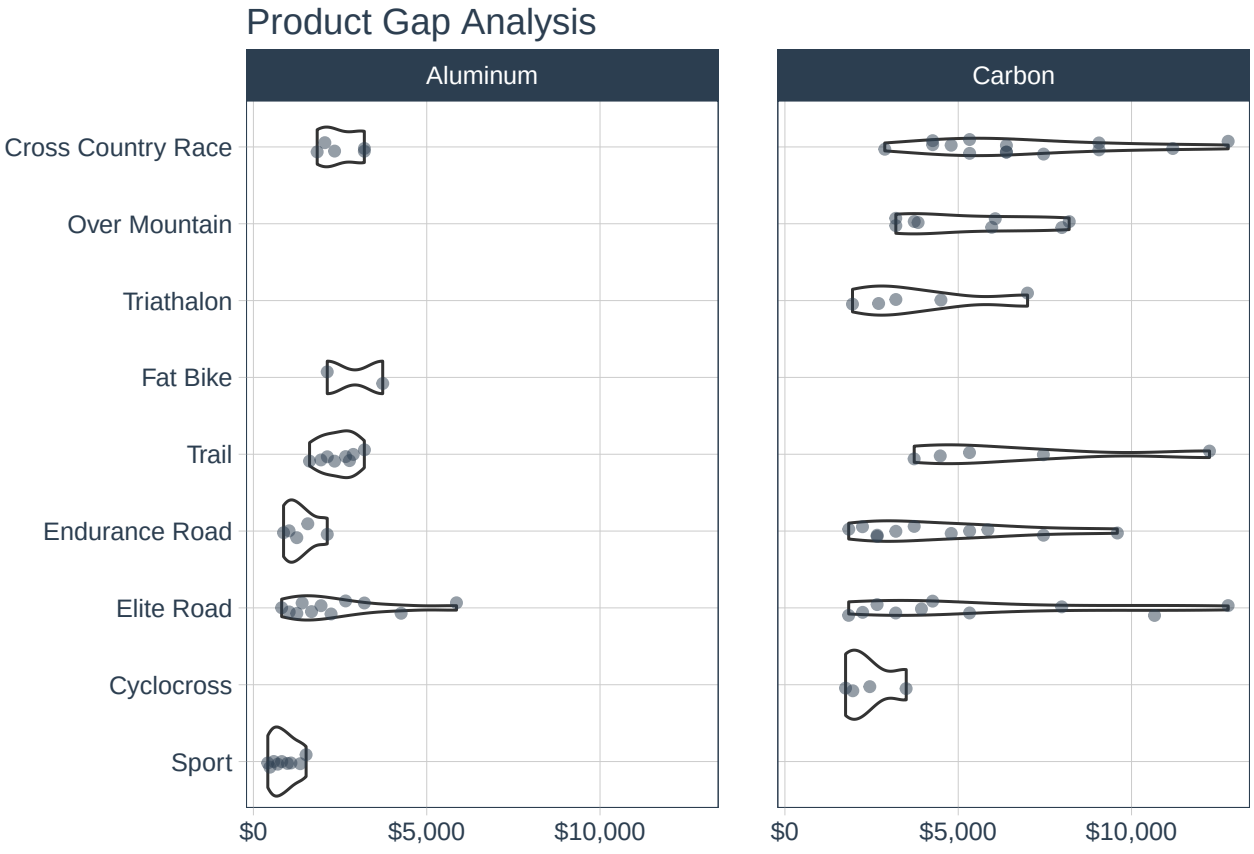
```
## # A tibble: 97 x 15
##       id price model  category_1 category_2 frame_material model_base model_tier
##    <int> <dbl> <chr>  <chr>      <chr>      <chr>          <chr>      <chr>
##  1     1  6070 Jekyl~ Mountain   Over Moun~ Carbon         Jekyll     Carbon 2
##  2     2  5970 Trigg~ Mountain   Over Moun~ Carbon         Trigger    Carbon 2
##  3     3  2770 Beast~ Mountain   Trail      Aluminum       Beast of ~ 1
##  4     4 10660 Super~ Road       Elite Road Carbon         Supersix ~ Hi-Mod Te~
##  5     5  3200 Jekyl~ Mountain   Over Moun~ Carbon         Jekyll     Carbon 4
```

```
##  6     6 12790 Super~ Road       Elite Road Carbon         Supersix ~ Black Inc.
##  7     7  5330 Super~ Road       Elite Road Carbon         Supersix ~ Hi-Mod Du~
##  8     8  1570 Synap~ Road       Endurance~ Aluminum       Synapse    Disc 105
##  9     9  4800 Synap~ Road       Endurance~ Carbon         Synapse    Carbon Di~
## 10    10   480 Catal~ Mountain   Sport      Aluminum       Catalyst   3
## # ... with 87 more rows, and 7 more variables: black <dbl>, hi_mod <dbl>,
## #   team <dbl>, red <dbl>, ultegra <dbl>, dura_ace <dbl>, disc <dbl>
```

Gaps

The visualization segments the full bicycle product line by category and frame material. This exposes two product gaps:

1. New **Aluminum** line of bikes in the **Over Mountain Category**
2. New **Aluminum** line of bikes in the **Triathlon Category**



Price Prediction

New product prediction for 2 new models:

1. Trigger, Over Mountain with Aluminum Frame: $2,695
2. Slice, Triathalon with Aluminum Frame: $2,057

New Model Attribute	Slice Al 1	Trigger Al 1
.pred	$2,057	$2,679
frame_material	Aluminum	Aluminum
category_2	Triathalon	Over Mountain
model_base	Slice	Trigger
model_tier	Ultegra	Aluminum 1
black	0	0
hi_mod	0	0
team	0	0
red	0	0
ultegra	0	0
dura_ace	0	0
disc	0	0