Product Pricing Algorithm

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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 Triathlon

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

New product prediction for two new models:

1. Trigger, Over Mountain with Aluminum Frame: $3,265
2. Slice, Triathlon with Aluminum Frame: $2, 677

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

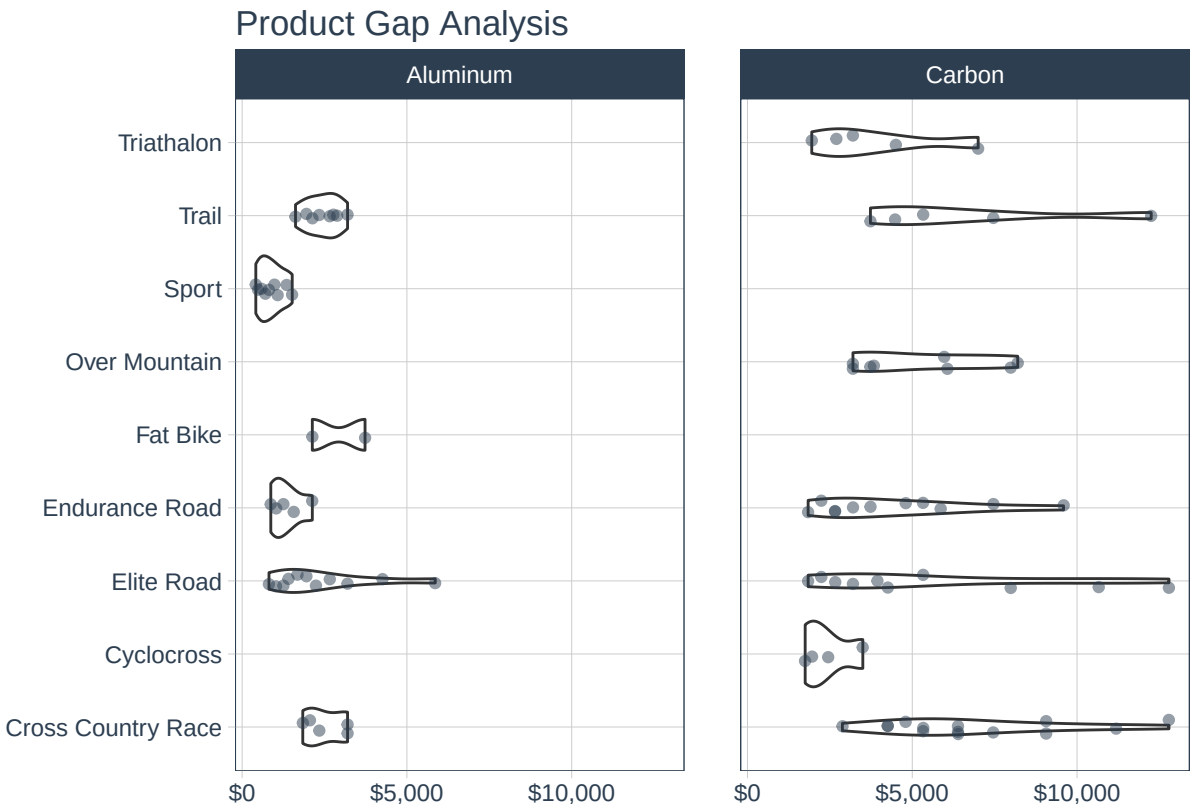
Our current product portfolio consists of 97 bike models that were analysed.

```
## # A tibble: 97 x 15
##       id price model  categ~1 categ~2 frame~3 model~4 model~5 black hi_mod  team
##    <int> <dbl> <chr>  <chr>   <chr>   <chr>   <chr>   <chr>   <dbl>  <dbl> <dbl>
##  1     1  6070 Jekyl~ Mounta~ Over M~ Carbon  Jekyll  Carbon~     0      0     0
##  2     2  5970 Trigg~ Mounta~ Over M~ Carbon  Trigger Carbon~     0      0     0
##  3     3  2770 Beast~ Mounta~ Trail   Alumin~ Beast ~ 1           0      0     0
##  4     4 10660 Super~ Road    Elite ~ Carbon  Supers~ Hi-Mod~     0      1     1
##  5     5  3200 Jekyl~ Mounta~ Over M~ Carbon  Jekyll  Carbon~     0      0     0
##  6     6 12790 Super~ Road    Elite ~ Carbon  Supers~ Black ~     1      0     0
##  7     7  5330 Super~ Road    Elite ~ Carbon  Supers~ Hi-Mod~     0      1     0
##  8     8  1570 Synap~ Road    Endura~ Alumin~ Synapse Disc 1~     0      0     0
##  9     9  4800 Synap~ Road    Endura~ Carbon  Synapse Carbon~     0      0     0
## 10    10   480 Catal~ Mounta~ Sport   Alumin~ Cataly~ 3           0      0     0
## # ... with 87 more rows, 4 more variables: red <dbl>, ultegra <dbl>,
## #   dura_ace <dbl>, disc <dbl>, and abbreviated variable names 1: category_1,
## #   2: category_2, 3: frame_material, 4: model_base, 5: model_tier
```

Gaps

The visualisation segments the full bicycle product line by category and frame material. This exposes two product gaps or opportunities for new products:

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 the two new models:

1. Trigger, Over Mountain with Aluminum Frame: $3,265;
2. Slice, Triathlon with Aluminum Frame: $2, 677.

Table 1: Price Prediction

New Model Attribute	Trigger Al 1	Slice Al 1
prediction	$3,265	$2,677
frame_material	Aluminum	Aluminum
category_2	Over Mountain	Triathalon
model_base	Trigger	Slice
model_tier	Aluminum 1	Ultegra
black	0	0
hi_mod	0	0
team	0	0
red	0	0
ultegra	0	0
dura_ace	0	0
disc	0	0