Customer Segmentation

Data Science Consulting

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Problem Statement

Marketing would like to increase email campaign engagement by segmenting the customer-base using their buying habbits.

Solution Summary

The data science team has identified 4 customer segments. The 4 customer segments were given descriptions based on the customer's top product purchases.
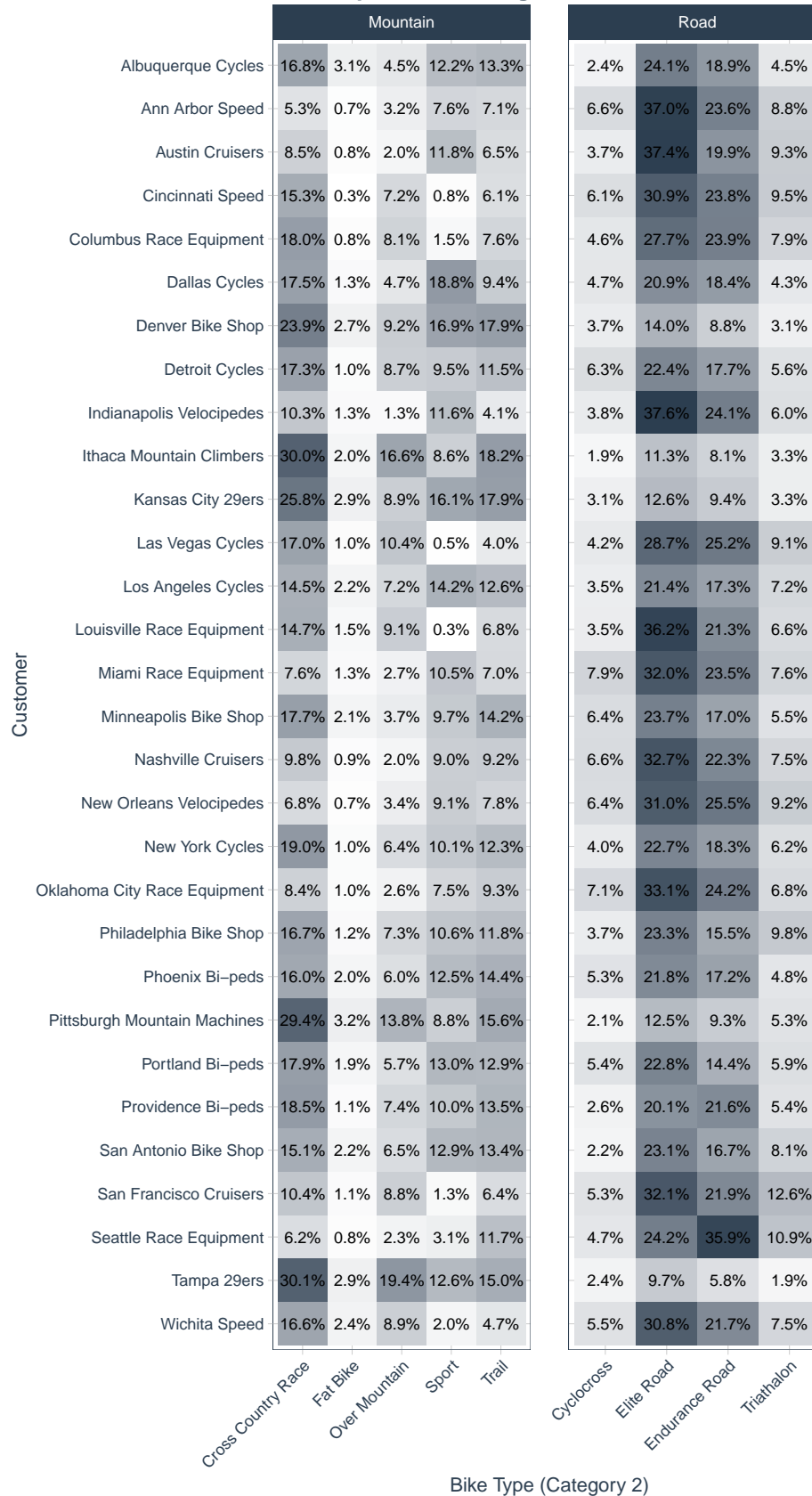
1. **Segment 1 Preferences:** Mountain Bikes, Above $3200 (Premium Models)

2. **Segment 2 Preferences:** Road Bikes, Above $3200 (Premium Models)

3. **Segment 3 Preferences:** Road Bikes, Below $3200 (Economical Models)

4. **Segment 4 Preferences:** Both Road and Mountain Bikes, Below $3200 (Economical Models)
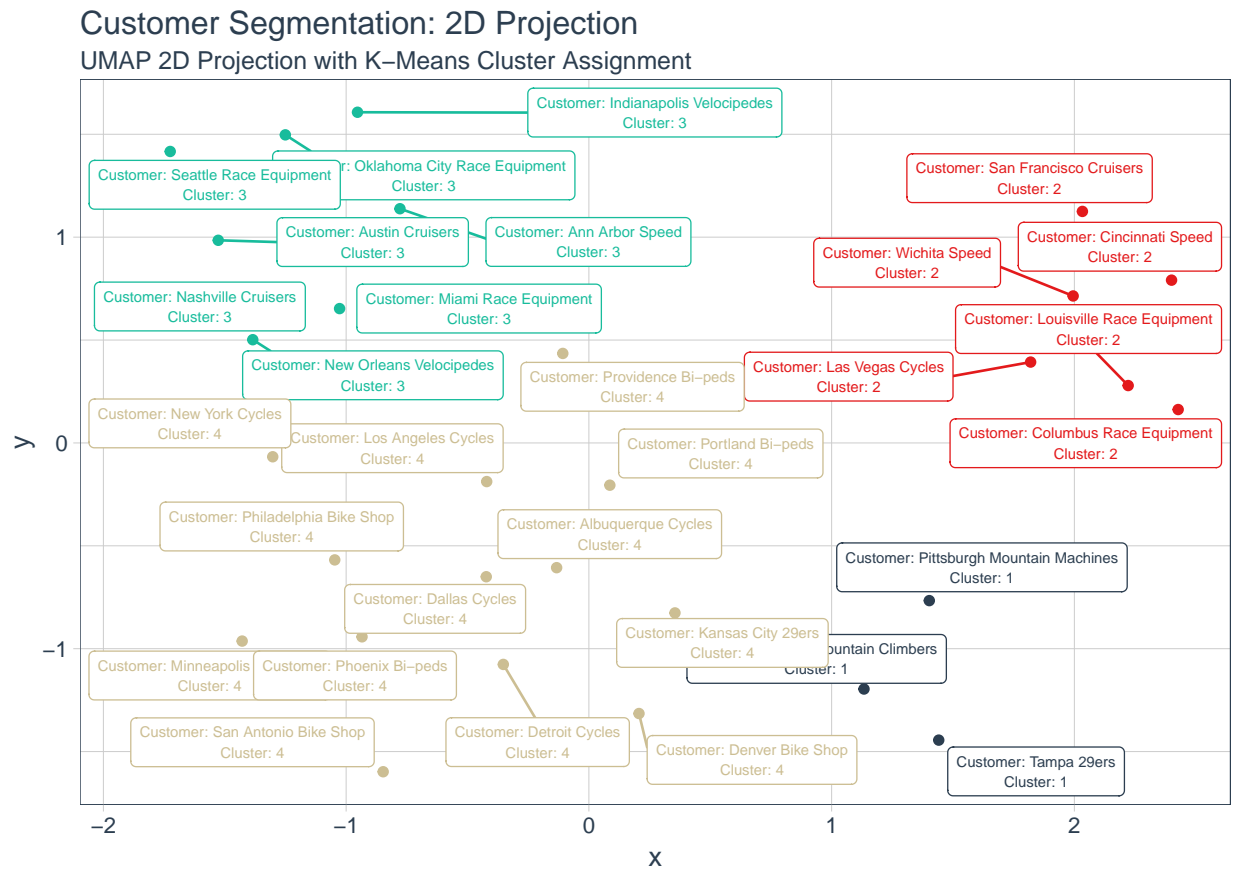
Customer Preferences

Heat Map

Out customer-base consists of 30 bike shops. Several customers have purchasing preferences for Road or Mountain Bikes based on the proportion of bikes purchased by **category_1** and **category_2**

Heatmap of Purchasing Habits

Customer	Mountain					Road			
	Cross Country Race	Fat Bike	Over Mountain	Sport	Trail	Cyclocross	Elite Road	Endurance Road	Triathalon
Albuquerque Cycles	16.8%	3.1%	4.5%	12.2%	13.3%	2.4%	24.1%	18.9%	4.5%
Ann Arbor Speed	5.3%	0.7%	3.2%	7.6%	7.1%	6.6%	37.0%	23.6%	8.8%
Austin Cruisers	8.5%	0.8%	2.0%	11.8%	6.5%	3.7%	37.4%	19.9%	9.3%
Cincinnati Speed	15.3%	0.3%	7.2%	0.8%	6.1%	6.1%	30.9%	23.8%	9.5%
Columbus Race Equipment	18.0%	0.8%	8.1%	1.5%	7.6%	4.6%	27.7%	23.9%	7.9%
Dallas Cycles	17.5%	1.3%	4.7%	18.8%	9.4%	4.7%	20.9%	18.4%	4.3%
Denver Bike Shop	23.9%	2.7%	9.2%	16.9%	17.9%	3.7%	14.0%	8.8%	3.1%
Detroit Cycles	17.3%	1.0%	8.7%	9.5%	11.5%	6.3%	22.4%	17.7%	5.6%
Indianapolis Velocipedes	10.3%	1.3%	1.3%	11.6%	4.1%	3.8%	37.6%	24.1%	6.0%
Ithaca Mountain Climbers	30.0%	2.0%	16.6%	8.6%	18.2%	1.9%	11.3%	8.1%	3.3%
Kansas City 29ers	25.8%	2.9%	8.9%	16.1%	17.9%	3.1%	12.6%	9.4%	3.3%
Las Vegas Cycles	17.0%	1.0%	10.4%	0.5%	4.0%	4.2%	28.7%	25.2%	9.1%
Los Angeles Cycles	14.5%	2.2%	7.2%	14.2%	12.6%	3.5%	21.4%	17.3%	7.2%
Louisville Race Equipment	14.7%	1.5%	9.1%	0.3%	6.8%	3.5%	36.2%	21.3%	6.6%
Miami Race Equipment	7.6%	1.3%	2.7%	10.5%	7.0%	7.9%	32.0%	23.5%	7.6%
Minneapolis Bike Shop	17.7%	2.1%	3.7%	9.7%	14.2%	6.4%	23.7%	17.0%	5.5%
Nashville Cruisers	9.8%	0.9%	2.0%	9.0%	9.2%	6.6%	32.7%	22.3%	7.5%
New Orleans Velocipedes	6.8%	0.7%	3.4%	9.1%	7.8%	6.4%	31.0%	25.5%	9.2%
New York Cycles	19.0%	1.0%	6.4%	10.1%	12.3%	4.0%	22.7%	18.3%	6.2%
Oklahoma City Race Equipment	8.4%	1.0%	2.6%	7.5%	9.3%	7.1%	33.1%	24.2%	6.8%
Philadelphia Bike Shop	16.7%	1.2%	7.3%	10.6%	11.8%	3.7%	23.3%	15.5%	9.8%
Phoenix Bi–peds	16.0%	2.0%	6.0%	12.5%	14.4%	5.3%	21.8%	17.2%	4.8%
Pittsburgh Mountain Machines	29.4%	3.2%	13.8%	8.8%	15.6%	2.1%	12.5%	9.3%	5.3%
Portland Bi–peds	17.9%	1.9%	5.7%	13.0%	12.9%	5.4%	22.8%	14.4%	5.9%
Providence Bi–peds	18.5%	1.1%	7.4%	10.0%	13.5%	2.6%	20.1%	21.6%	5.4%
San Antonio Bike Shop	15.1%	2.2%	6.5%	12.9%	13.4%	2.2%	23.1%	16.7%	8.1%
San Francisco Cruisers	10.4%	1.1%	8.8%	1.3%	6.4%	5.3%	32.1%	21.9%	12.6%
Seattle Race Equipment	6.2%	0.8%	2.3%	3.1%	11.7%	4.7%	24.2%	35.9%	10.9%
Tampa 29ers	30.1%	2.9%	19.4%	12.6%	15.0%	2.4%	9.7%	5.8%	1.9%
Wichita Speed	16.6%	2.4%	8.9%	2.0%	4.7%	5.5%	30.8%	21.7%	7.5%

Bike Type (Category 2)

2

Customer Segmentation

This is a 2D Projection based on customer similarity that exposes 4 clusters, which are key segments in the customer base.

Customer Segmentation: 2D Projection
UMAP 2D Projection with K–Means Cluster Assignment

Customer Preferences By Segment

The 4 customer segments were given descriptions based on the customer's top product purchases.

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Top 5 Bike Models by Customer and Cluster