

Predicting Customer Success

**Stephen Smart, Alvaro Gonzalez,
Brian Bombasi, Addison Farber**

How can we identify successful customers?



Profitability

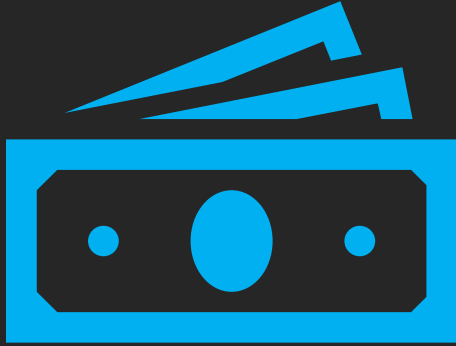


Longevity



Number of
transactions

Target Variable



Projection profit in
3 years



Longevity & Activity in
last 90 days

Profit in 3 years = *Profit per transaction* * *Expected Number of Transactions* * 3

$$\text{Profit in 3 years} = \frac{\text{Total Profit}}{\# \text{transactions}} * \frac{\# \text{transactions}}{\text{MaxPost date} - \text{MinPostdate}} * 3$$

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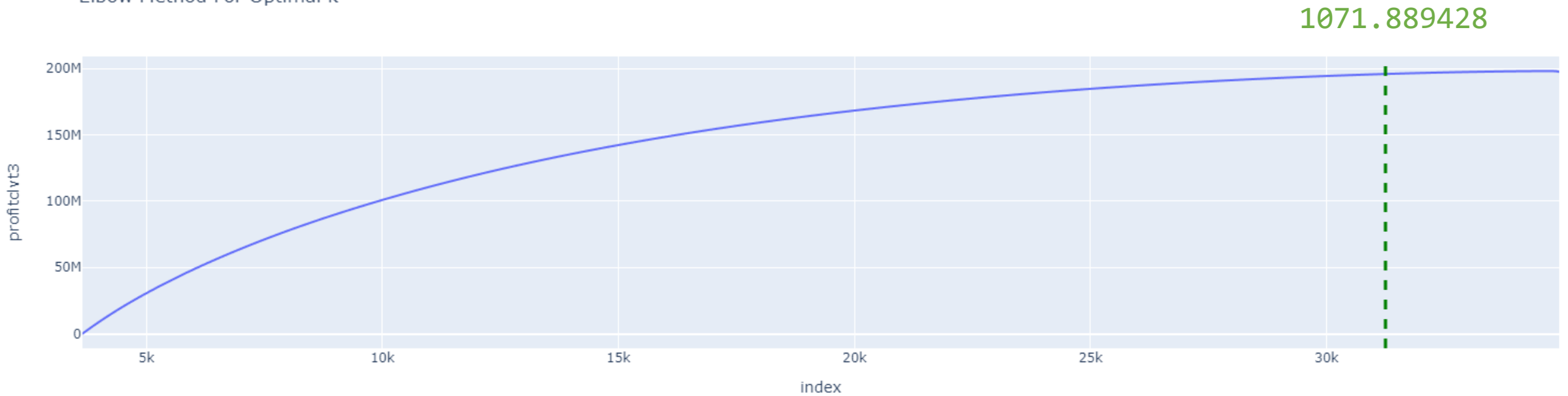
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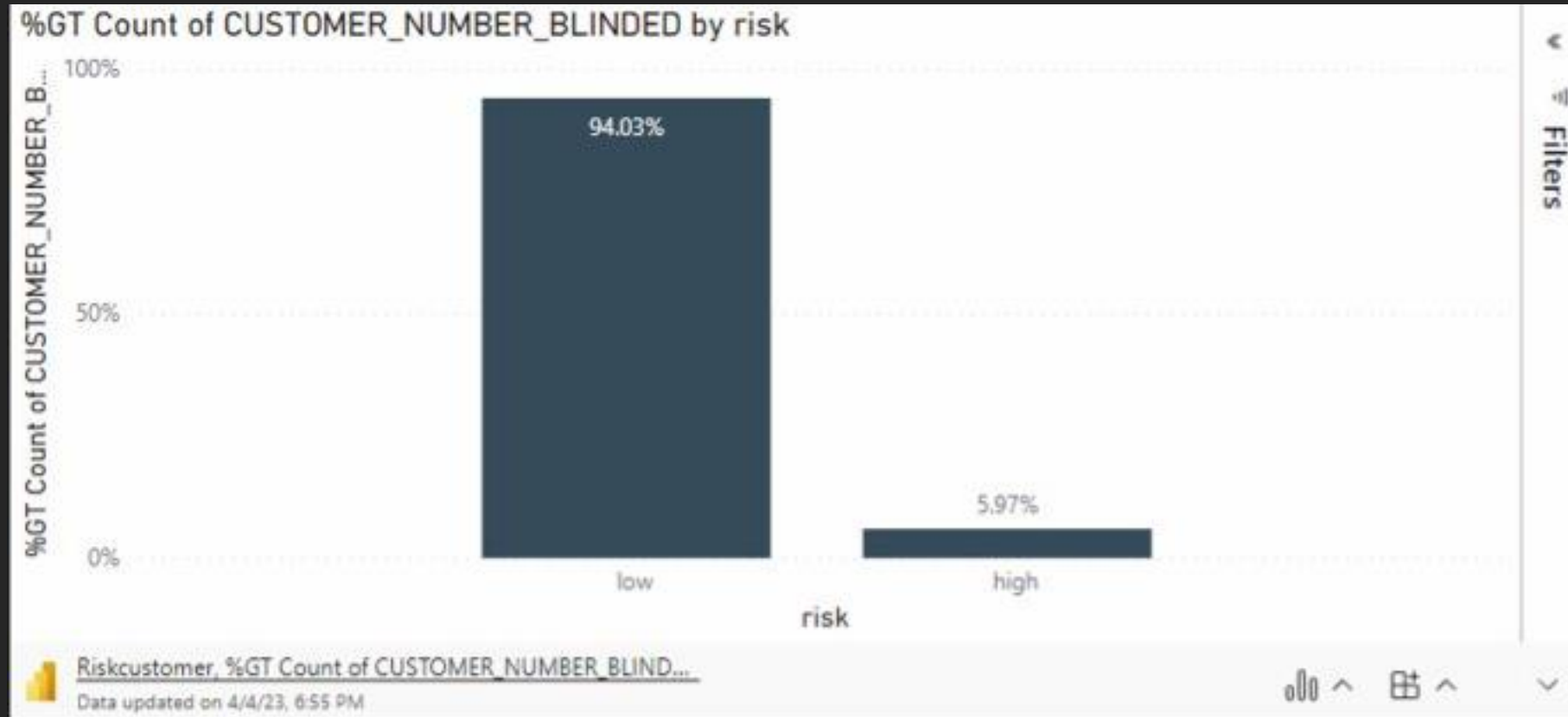
$$\text{Profit in 3 years} = \frac{\text{Total Profit}}{\text{Max Date} - \text{Min Date}} * 3$$

What is a good Profit in 3 years?

Elbow Method For Optimal k



Imbalanced data set



A woman with blonde hair, wearing a blue long-sleeved top, is smiling and gesturing with her right hand while holding a brown paper coffee cup in her left. She is seated at a wooden table. In the foreground, the back of a person's head and shoulders are visible on the left, and another person's shoulder is visible on the right. On the table, there are some papers with charts. The background is a blurred office environment with large windows.

Should we offer a deal?

Profit in 3 yrs Median
4369

High Success Median
5669

Low Success Median
636



Average net benefit of Customer Success

	Predicted low	Predicted High
Actual low	0	-3733
Actual High	-1300	1300

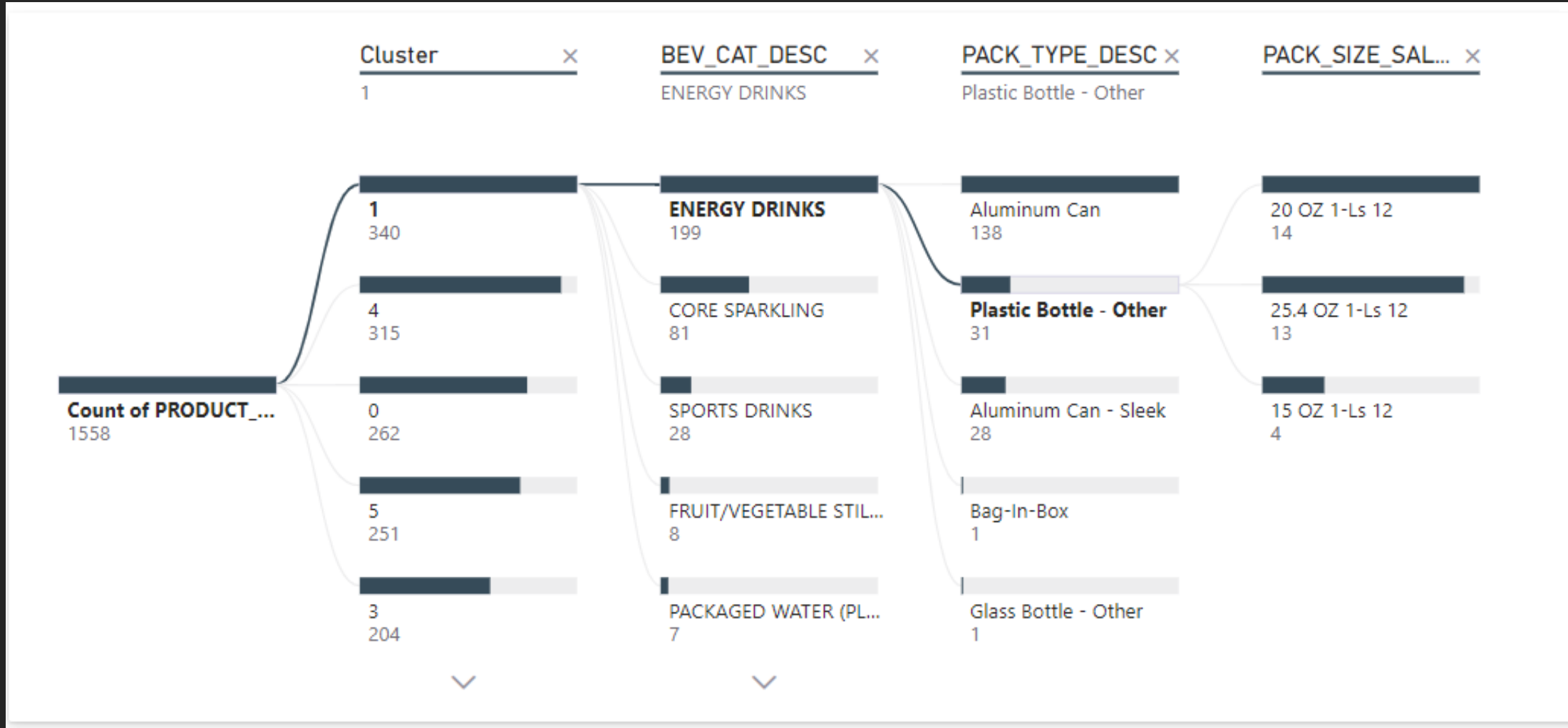
Profit in 3 yrs Median
4369

SVM increases in
average 1087

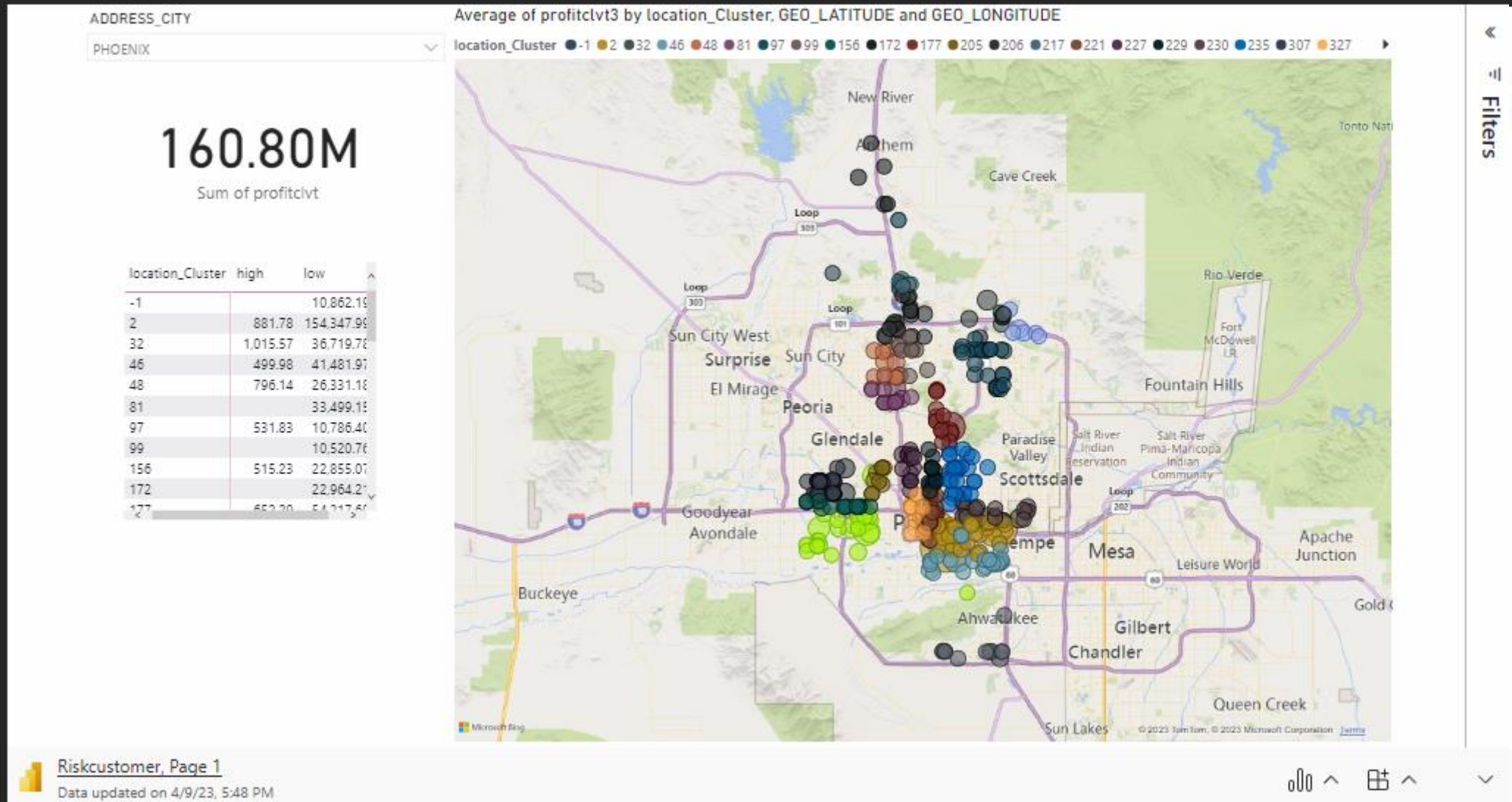
Logistic Regression
weighted increases
1064



Product Clustering



Location Clustering





Future Analysis + Recommendations

1) Improved methods of modeling customer success

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2) Discount Risk Mitigation

Improved Modeling Method

Current Challenges

- Sales predictions are not necessarily based off previous sales

Improved Modeling Method

Current Challenges

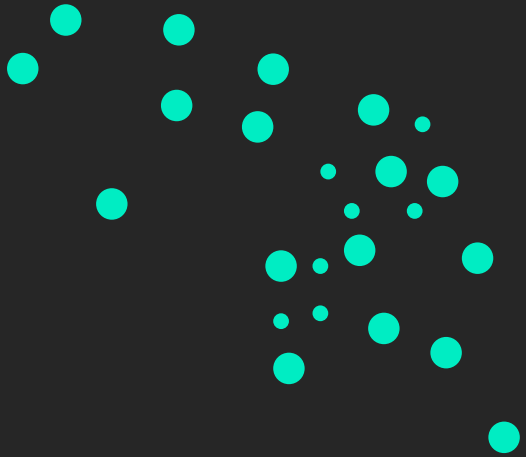
- Sales predictions are not necessarily based off previous sales
- We are actually asking for a prediction of the B2B partner's success

Improved Modeling Method

Current Challenges

- Sales predictions are not necessarily based off previous sales
- We are actually asking for a prediction of the B2B partner's success
- Location plays a much great factor than initially realized

Feature engineering



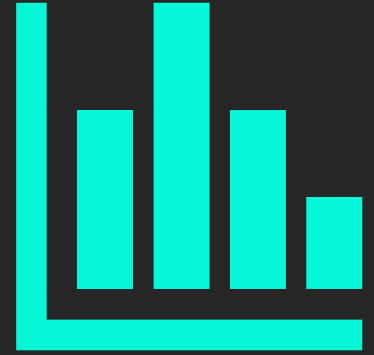
Clustering



Census Data

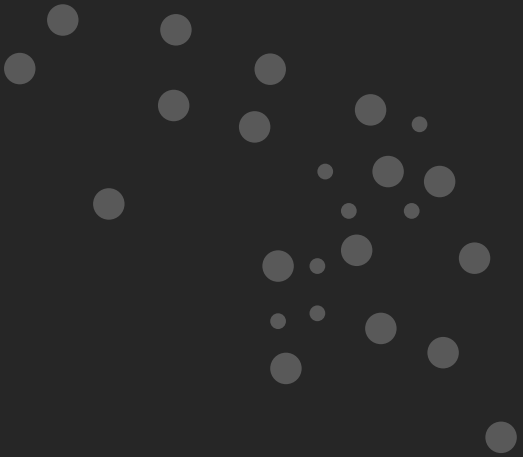


Yelp Data



Google Analytics

Features engineering



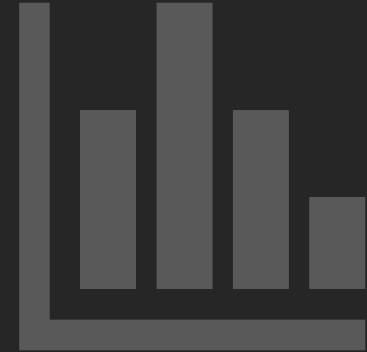
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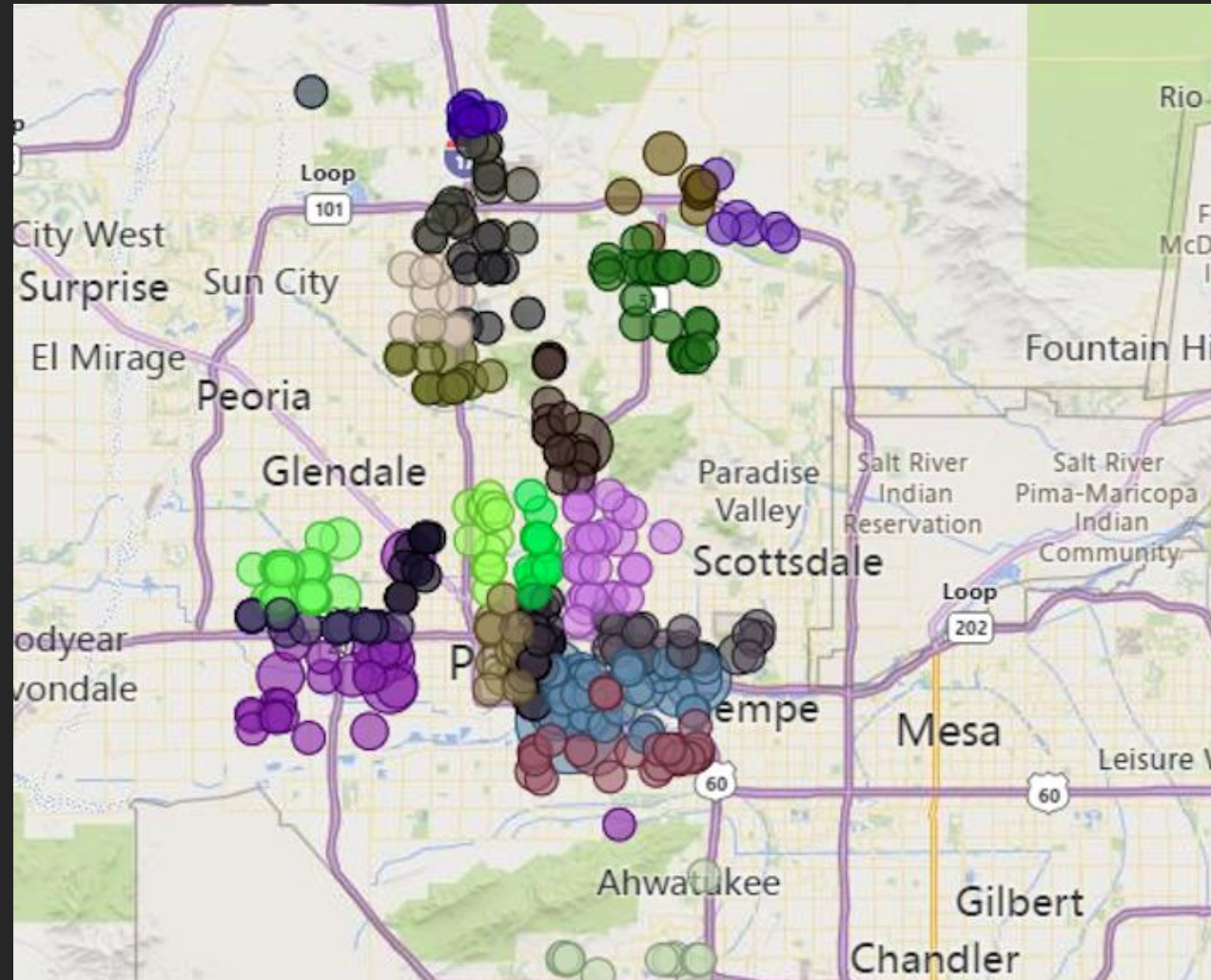
Yelp Data



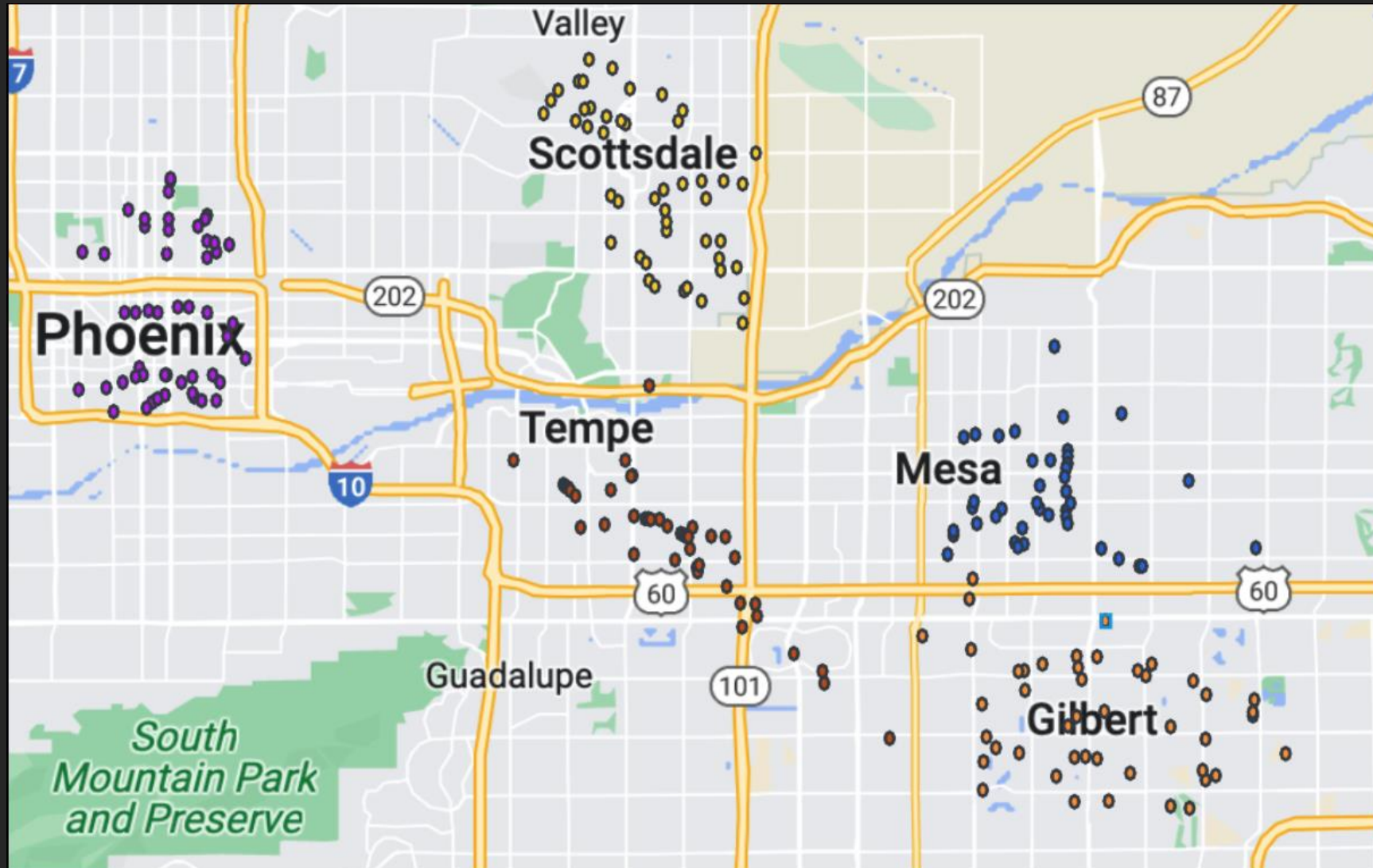
Google Analytics

This strategy provides a tailored analysis for each location and the assigned sales rep

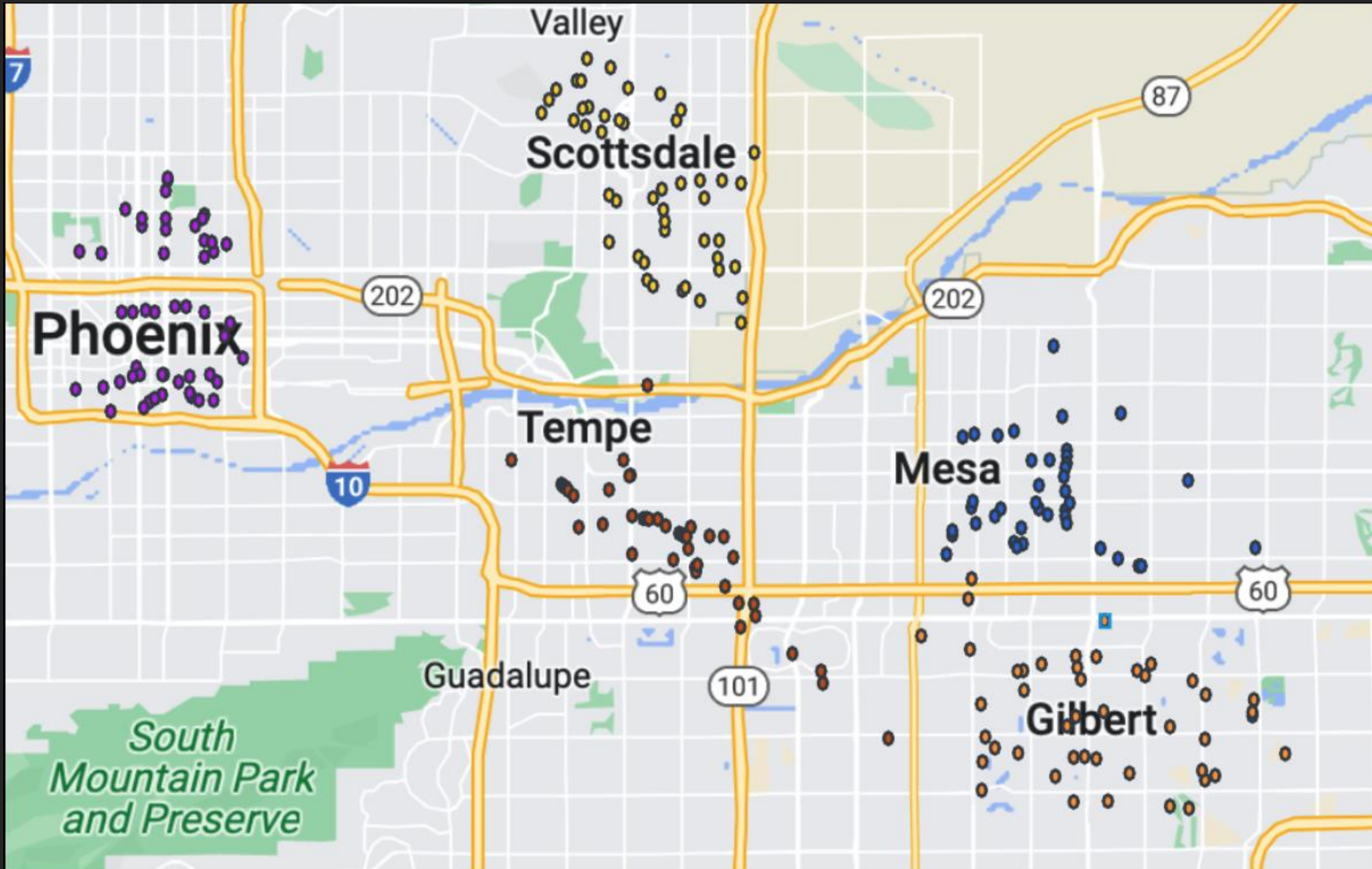
Improved Modeling Method



Improved Modeling Method

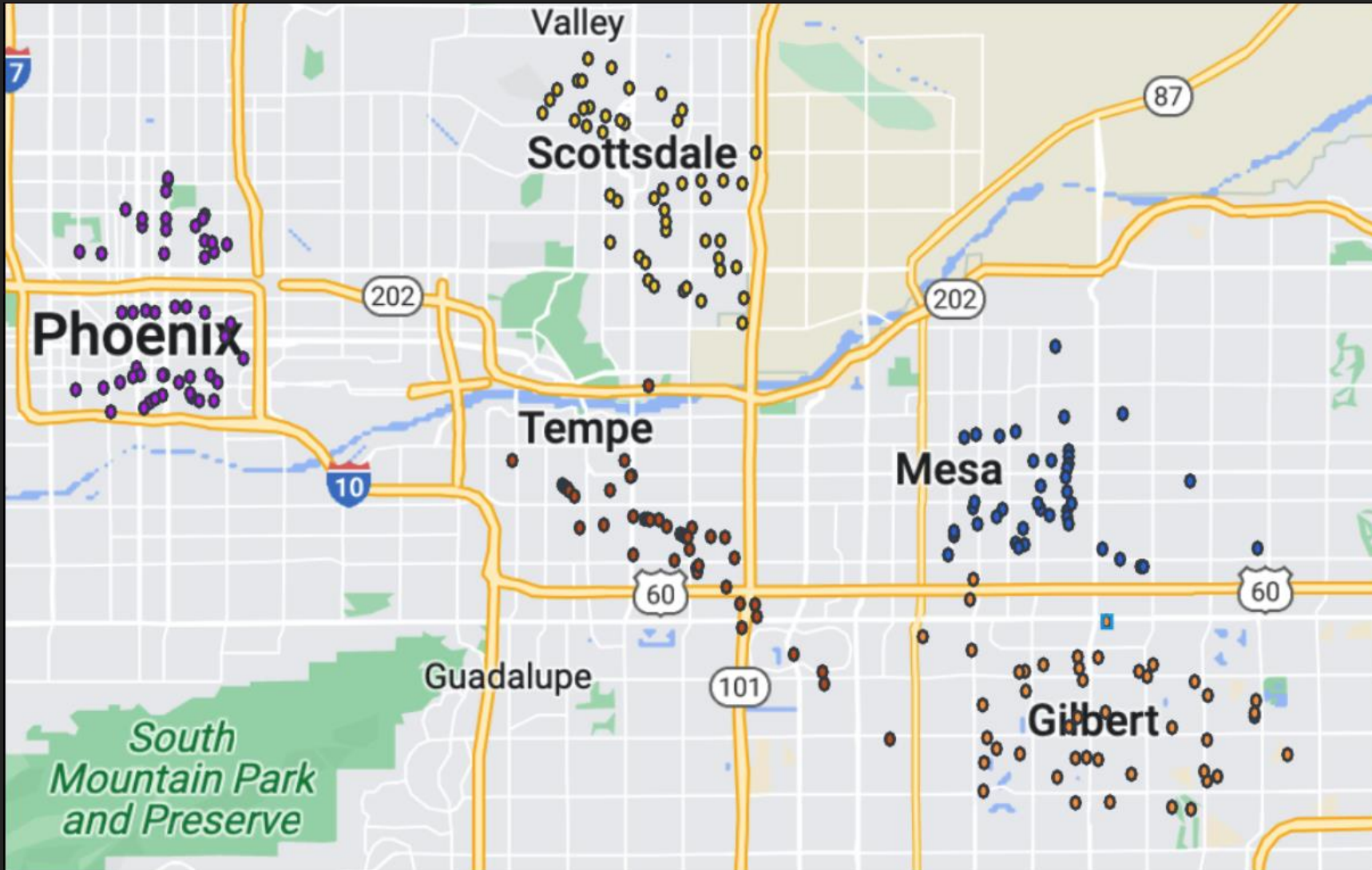


Improved Modeling Method



Mostly businesses:
Customers + working
professionals

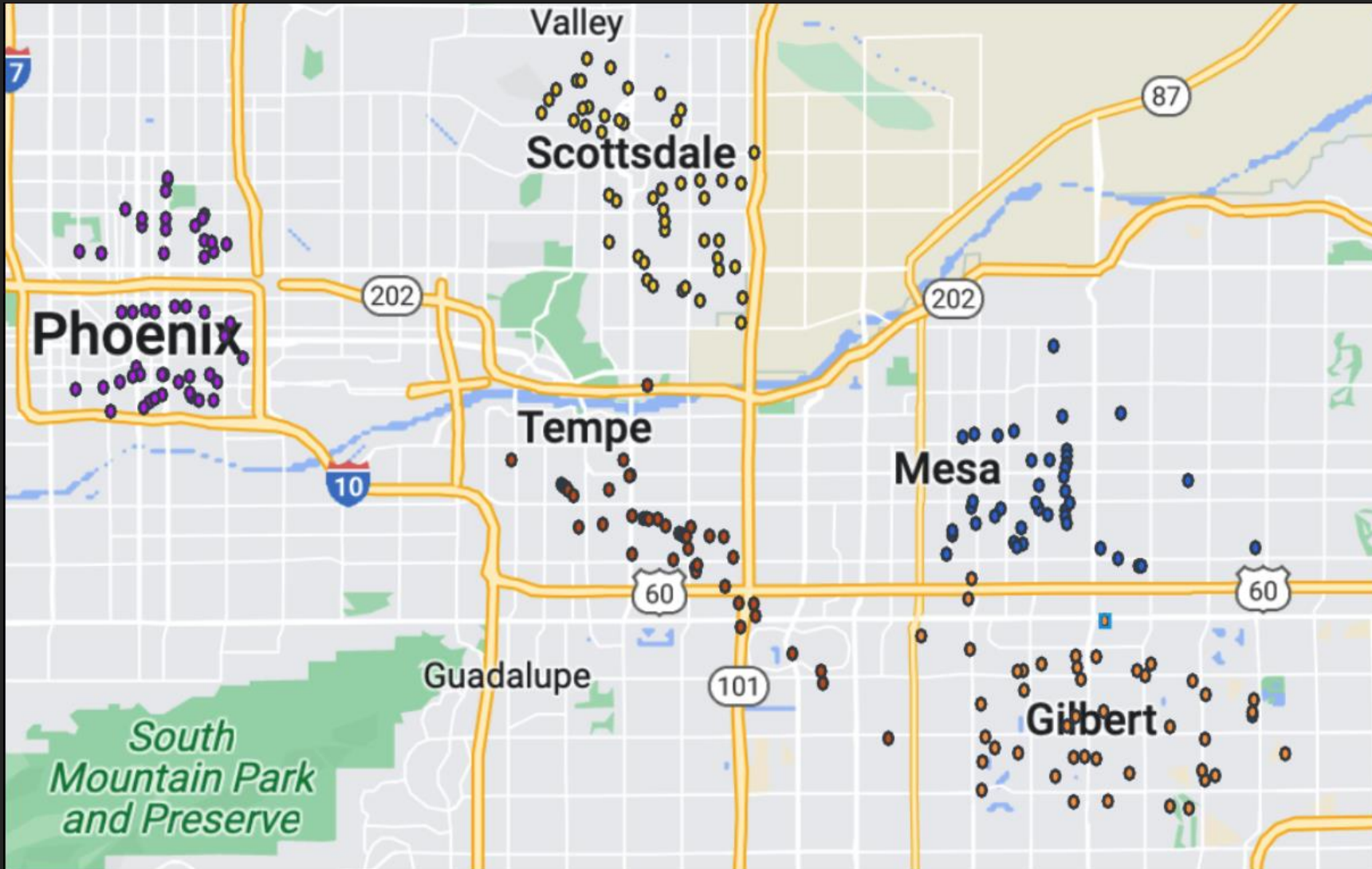
Improved Modeling Method



Mostly businesses:
Customers + working
professionals

Very wealthy area.
Customers would be
affluent

Improved Modeling Method

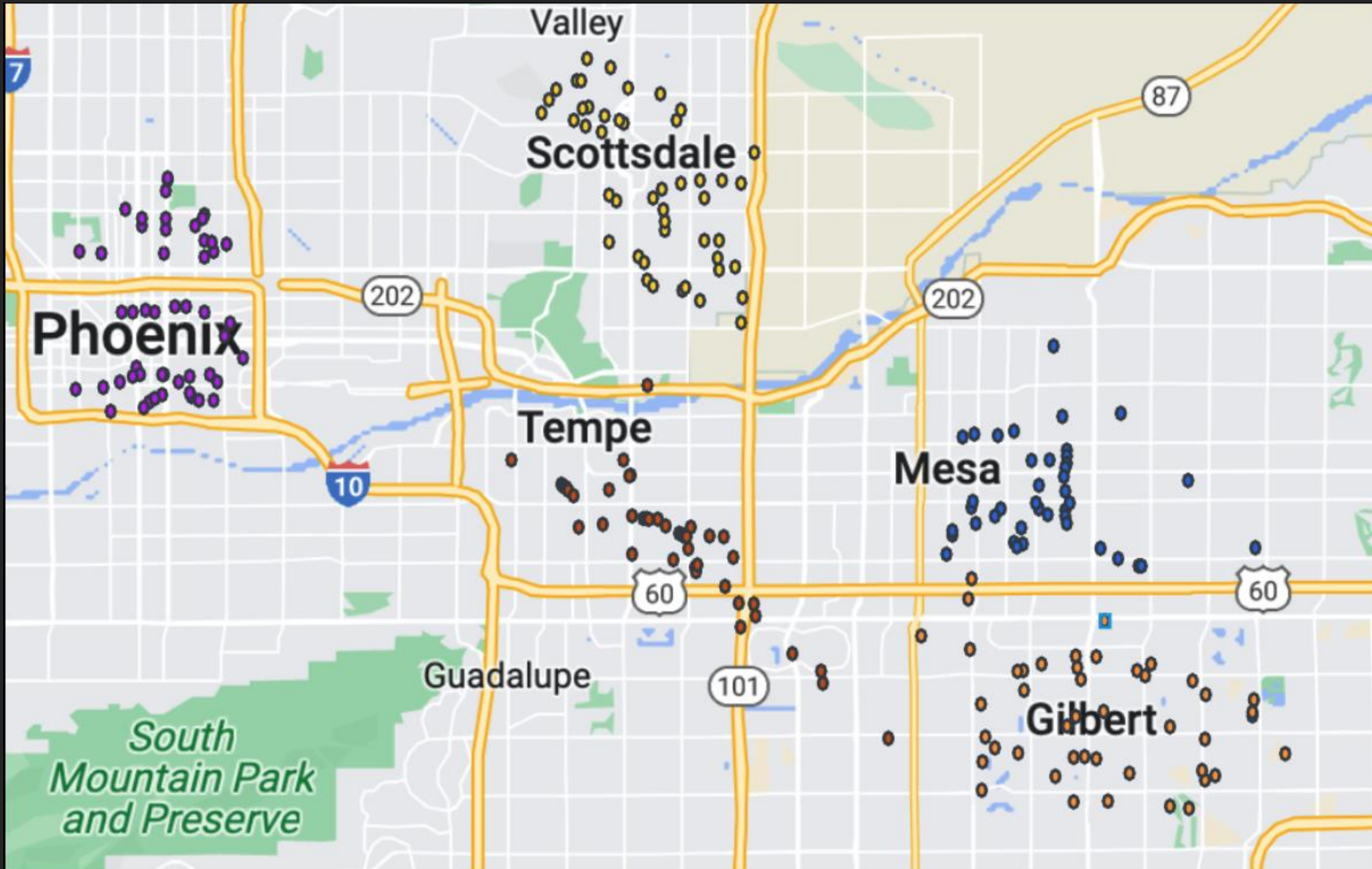


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Customers are middle
class full of suburbs

Improved Modeling Method



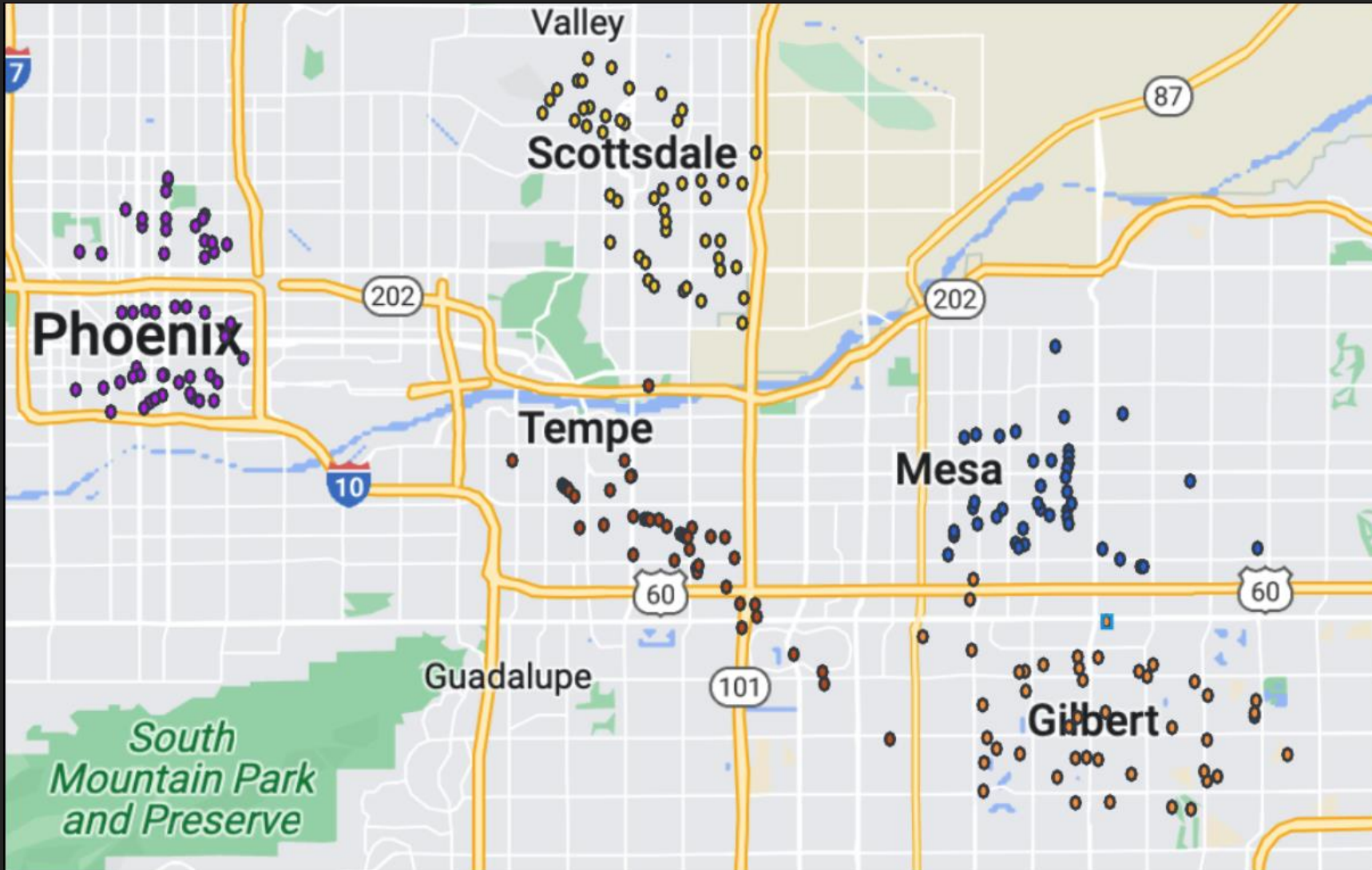
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Popular tourist area as
well as a large amount of
college students and bars

Improved Modeling Method



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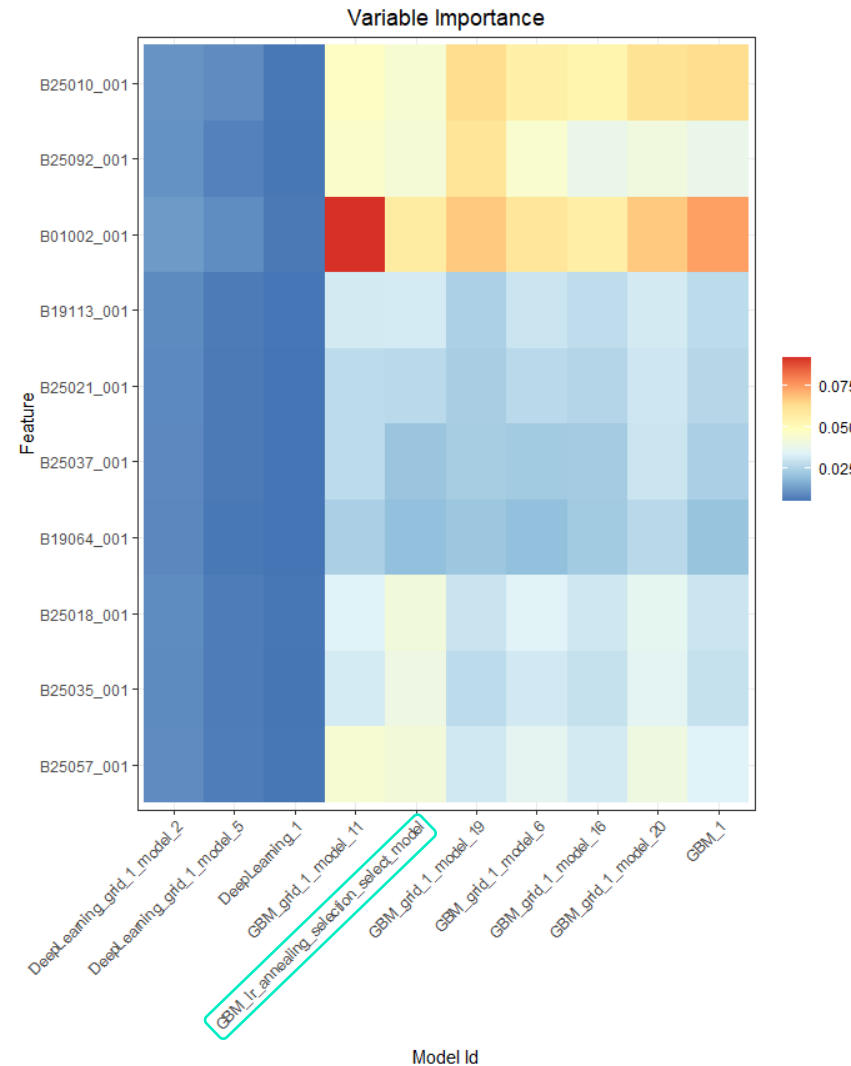
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**Upper-Middle Class. Full
of suburbs**

Total Profit for EATING/DRINKING with Auto ML

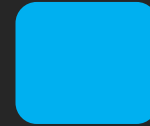


Census Data



- Avg. Household Size
- Median Monthly Owner Costs
- Median Age
- Median Family Income
- Median # of Rooms
- Median Year Structure by rent/own
- Aggregate Interest/Dividends/Rental Income
- Median # of Rooms
- Median Year Structure Built
- Lower Contract Rent Quartile (\$)

Swires's Target Market Demographic



Potential B2B Partner's Demographic



Census Data

AGE

AGE

75% MATCH

GENDER

GENDER

40% MATCH

MEDIUM INCOME

MEDIUM INCOME


90% MATCH

Improved Modeling Method




Yelp Data


All "mexican" results in Gilbert, Arizona



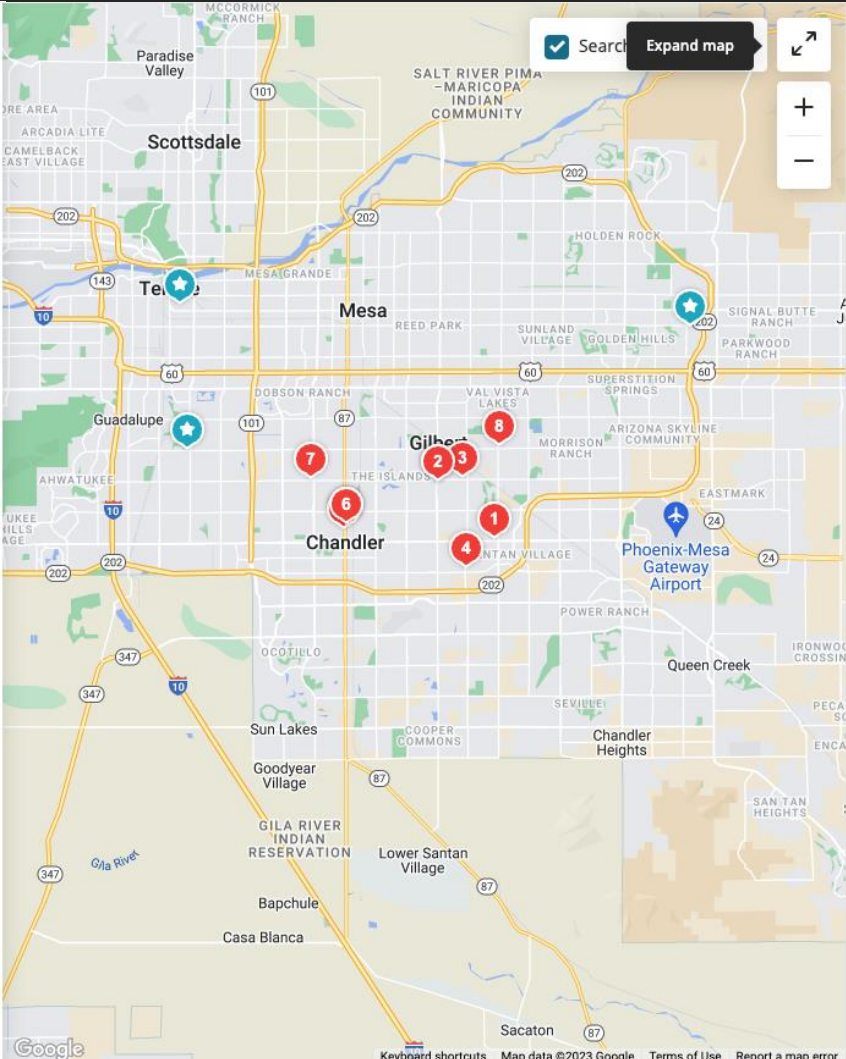
1. Isabel's Amor
★★★★☆ 642
Mexican Bars \$\$
Open until 9:00 PM
"Really really good **Mexican food**! And it is in Gilbert! We are always looking for good Mexican food." [more](#)
✓ Outdoor seating ✓ Delivery ✓ Takeout



2. ZaSon
★★★★☆ 201
Tacos
Open until 9:00 PM
Family-owned & operated • Minority-owned & operated ⓘ
"There are better places to get more authentic **Mexican food** for a better price." [more](#)
✓ Outdoor seating ✓ Delivery ✓ Takeout [Start Order](#)



3. La Ristra
★★★★☆ 901
Mexican New Mexican Cuisine Breakfast & Brunch \$\$
Open until 9:00 PM
Live wait time: 0 mins
"At long last -- GREAT **Mexican Food** in Gilbert! Mexican food, in all its regions, has always been my..." [more](#)
✓ Outdoor seating ✓ Delivery ✓ Takeout [Start Order](#)



Improved Modeling Method



Yelp Data

```
RESPONSE 200 TRY IT
1 {
2   "businesses": [
3     {
4       "id": "niu9aPlwJ9vru00CJw3mpA",
5       "alias": "dominos-pizza-fort-lewis",
6       "name": "Domino's Pizza",
7       "image_url": "https://s3-media1.fl.yelpcdn.com/bphc",
8       "is_closed": false,
9       "url": "https://www.yelp.com/biz/dominos-pizza-fort-lewis",
10      "review_count": 37,
11      "categories": [
12        {
13          "alias": "pizza",
14          "title": "Pizza"
15        },
16        {
17          "alias": "chicken_wings",
18          "title": "Chicken Wings"
19        },
20        {
21          "alias": "sandwiches",
22          "title": "Sandwiches"
23        }
24      ],
25      "rating": 2,
26      "coordinates": {
27        "latitude": 47.085672,
28        "longitude": -122.571218
29      },
30      "transactions": [],
31      "price": "$",
32      "location": {
33        "address1": "3168 2nd Division Dr",
34        "address2": "",
35        "address3": "",
36        "city": "Fort Lewis",
37        "zip_code": "98433",
38        "country": "US",
39        "state": "WA"
40      }
41    }
42  ]
43 }
```

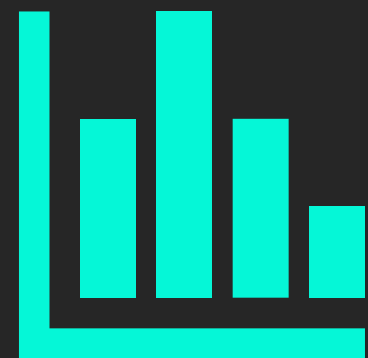
SEO

- What is a business doing to promote itself, rank higher in searches?

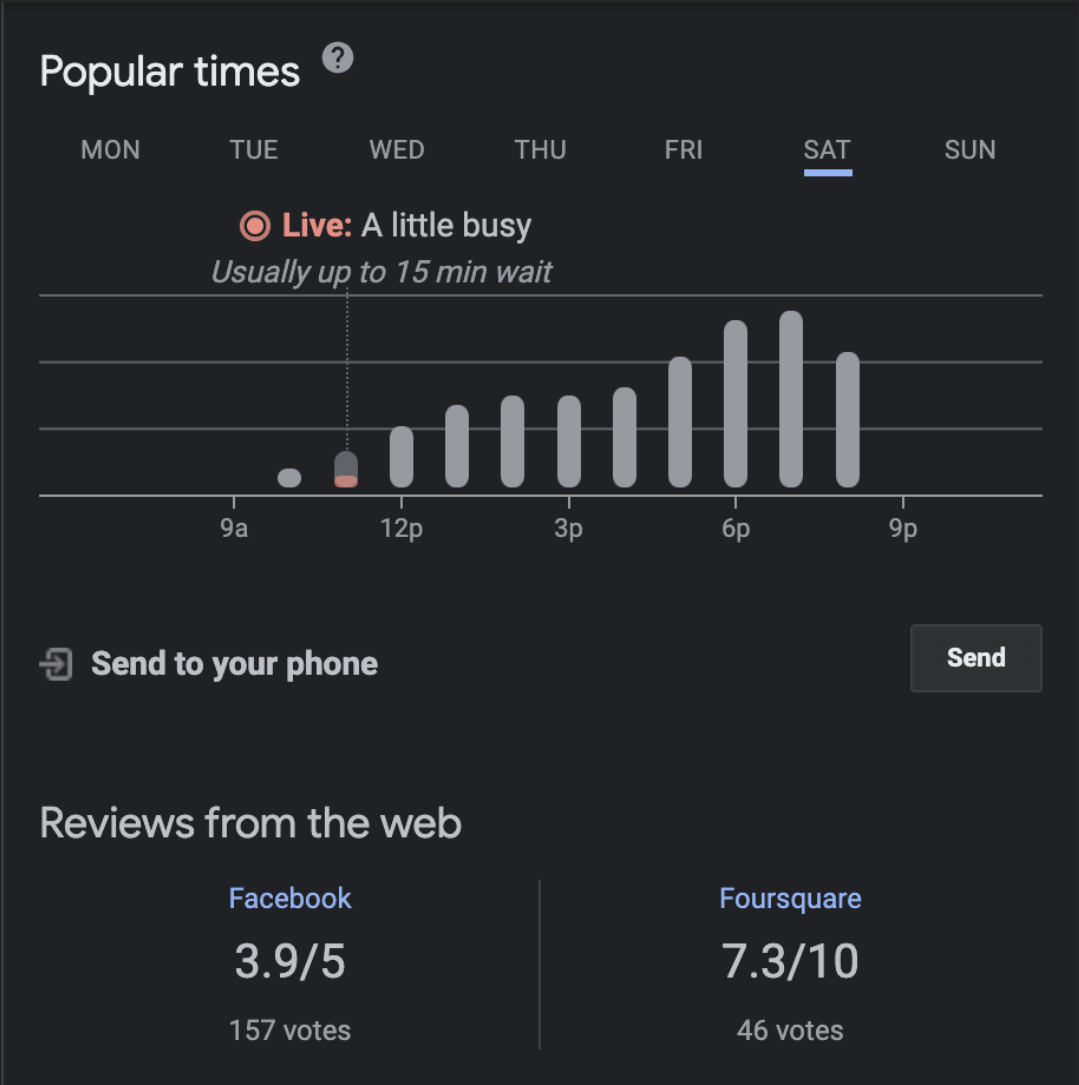
Reputation

- How is the business perceived by the public?
- How often are they getting reviews?

Improved Modeling Method

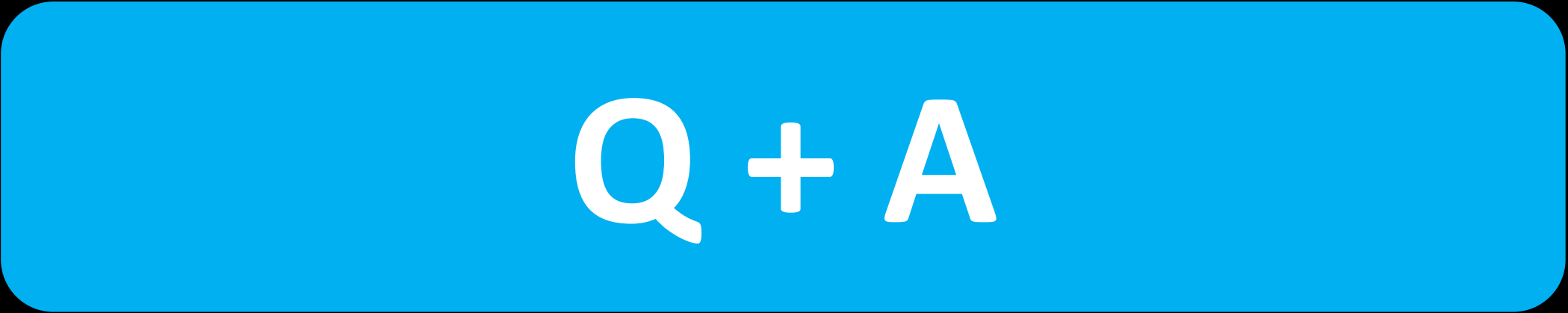


Google Analytics





END



Q + A