



Coursera Capstone Project

Battle of the Neighborhoods: Moving from California to Phoenix,
Arizona.

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Background

- 500,000 people moved from California to Arizona from 2010 to 2018
- Cost of living is less in AZ, compared to CA
 - Possible cause of migration from CA → AZ



The Problem

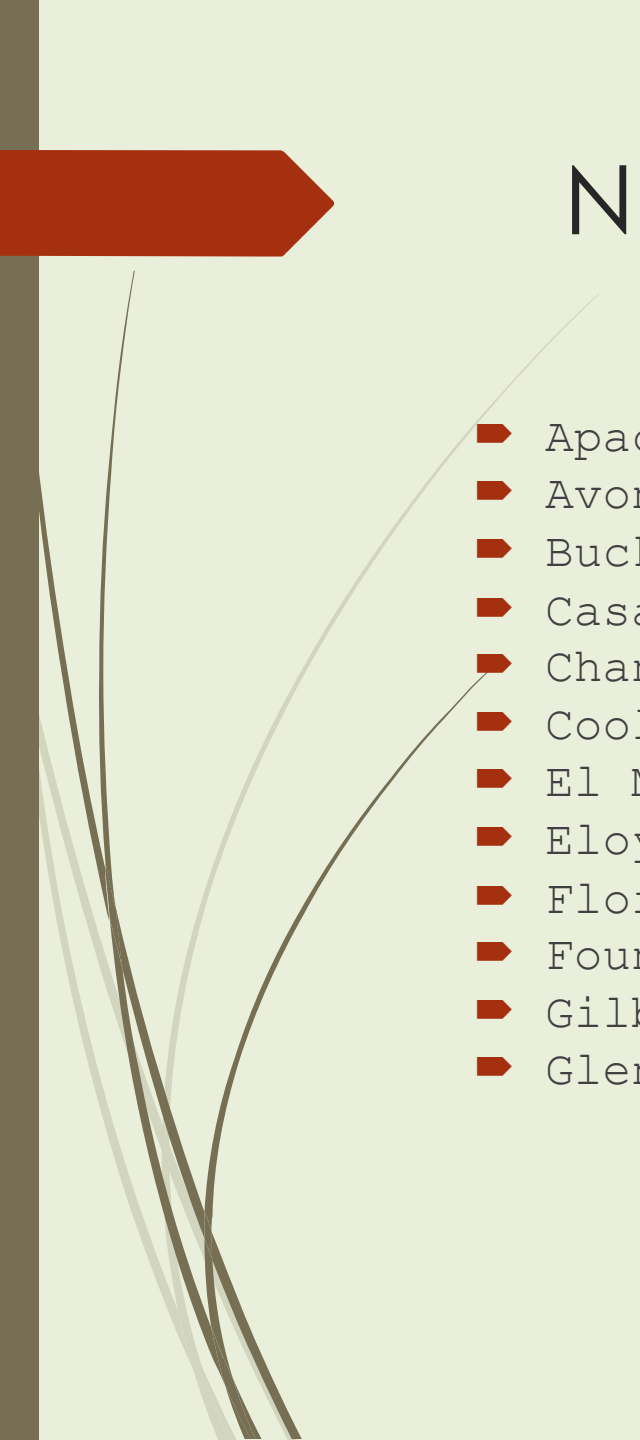
- One common destination in Arizona is **greater Phoenix area**
- **22 Cities in greater Phoenix, AZ area.**
- Client John Doe wants to make the move from his hometown in CA to the Phoenix, AZ area: which specific city is the “best match” for where he currently lives?
 - Factors: available venues, number of total venues, population size similarity



Data

- Location of “target” city is **user-provided: Rancho Cucamonga, CA**
- Population of “target” city is provided by manual **Google-search: approx. 171,000**
- Cities in the greater Phoenix, AZ area & populations: https://en.wikipedia.org/wiki/Phoenix_metropolitan_area
- Venue information for all cities: **Foursquare API**

Number of Foursquare Venues per City:



▶ Apache Junction	38
▶ Avondale	22
▶ Buckeye	17
▶ Casa Grande	13
▶ Chandler	50
▶ Coolidge	12
▶ El Mirage	12
▶ Eloy	9
▶ Florence	16
▶ Fountain Hills	23
▶ Gilbert	46
▶ Glendale	39

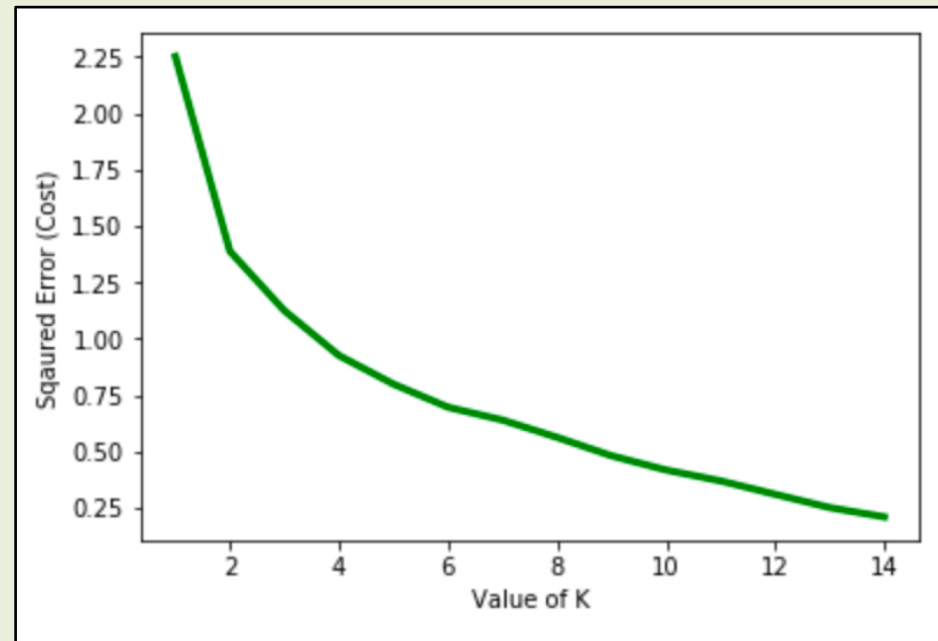
▶ Goodyear	7
▶ Maricopa	21
▶ Mesa	55
▶ Paradise Valley	4
▶ Peoria	22
▶ Phoenix	100
▶ Queen Creek	68
▶ Rancho Cucamonga	82
▶ Scottsdale	100
▶ Surprise	16
▶ Tempe	100

Top Venues (examples):

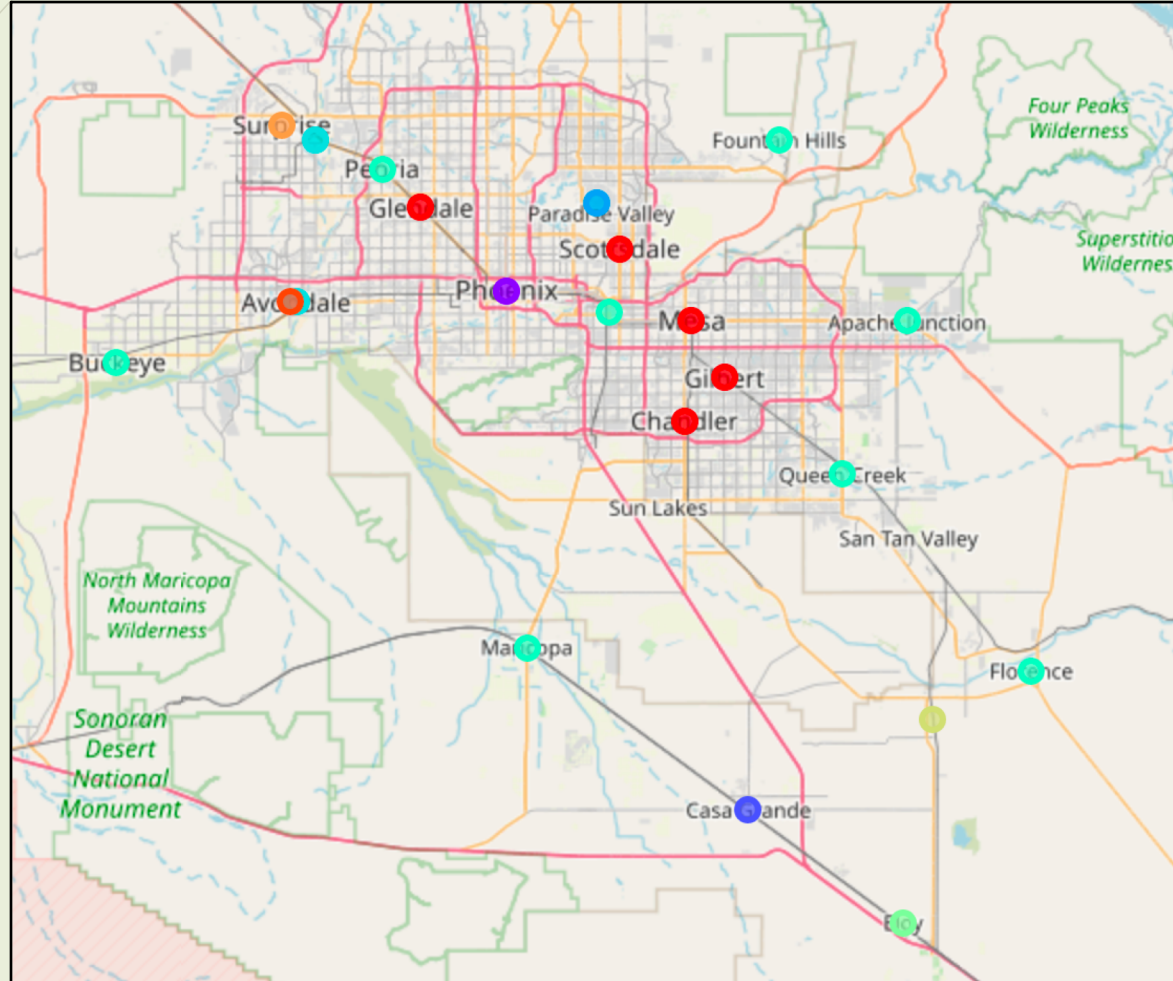
	City	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Apache Junction	Fast Food Restaurant	Pharmacy	Chinese Restaurant	Breakfast Spot	American Restaurant	Convenience Store	Pizza Place	Gas Station	Liquor Store	Salon / Barbershop
1	Avondale	Mexican Restaurant	Bakery	Health & Beauty Service	Diner	Social Club	Locksmith	Fast Food Restaurant	Burger Joint	Seafood Restaurant	Auto Garage
2	Buckeye	Mexican Restaurant	Discount Store	Park	Pizza Place	Business Service	Bank	Café	BBQ Joint	Sandwich Place	Pool
3	Casa Grande	Construction & Landscaping	Pizza Place	City Hall	Football Stadium	Burger Joint	Burrito Place	New American Restaurant	Café	Chinese Restaurant	Mexican Restaurant
4	Chandler	Mexican Restaurant	Taco Place	Italian Restaurant	Beer Bar	Bar	Brewery	Café	Lounge	Intersection	Juice Bar
5	Coolidge	Pizza Place	Mexican Restaurant	Convenience Store	Greek Restaurant	Post Office	Discount Store	Café	Business Service	Cupcake Shop	Cosmetics Shop

Cluster Modeling

- 15 most popular venue categories = **16 features**
- The value k (number of clusters) was varied from 1-15 to find a best-value
- No clear “elbow” in error vs. k graph (see below)
- **k = 10 adopted**



Cluster Map



- **Light Green marks (e.g. Fountain Hills)** indicate "Cluster #5", which also includes the target CA city

Discussion & Conclusion

- Still 7 cities in matching cluster
- Further information from client required: additional criteria?
 - *Which town (in cluster) with most similar population and total number of venues?*

	City	Population	State
19	Fountain Hills	24583	AZ
18	Florence	26074	AZ
16	Queen Creek	39184	AZ
15	Apache Junction	40538	AZ
14	Maricopa	48007	AZ
12	Goodyear	60000	AZ
8	Peoria	168181	AZ
0	Rancho Cucamonga	177751	CA
7	Tempe	185038	AZ

City	# Venues
Peoria	22
Rancho Cucamonga	82
Tempe	100

Best-match: Tempe, AZ

- Same cluster in model
- Population 185,038 (vs. 177,751)
- 100+ Venues (vs. 82)

At very least, a good place to start looking!