

# Coursera Data Science Capstone Project

## Rent and Venues in Palo Alto

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# Overview

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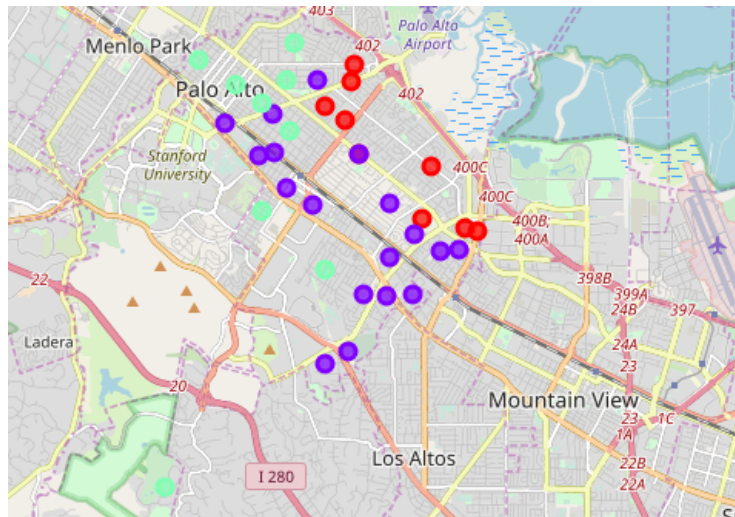
# Introduction

- Main question: what kind of venues in the neighborhoods lead to higher rental cost in Palo Alto?
- Target audience: Real estate investors who want to generate steady cash flow

- Rental Data  
Source: rentcafe.com
- Neighborhood Coordinates Data  
Source: Google Geocoder API
- Neighborhood venues Data  
Source: Foursquare API

- Machine learning algorithm: K-Mean Clustering method
- Number of cluster: 3
- Detail: Cluster neighborhoods based on venues' categories and average rent.

# Palo Alto Map with Neighborhoods Clusters



# Palo Alto Neighborhoods Clusters 1

Rent	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	
2693	Playground	Pizza Place	Dog Run	Pet Store	Burrito Place	Salon / Barbershop	
2693	Dance Studio	Gym	Automotive Shop	Rental Car Location	Grocery Store	Coffee Shop	
2693	Gas Station	Bagel Shop	Chinese Restaurant	Gym	Coffee Shop	Tailor Shop	
2693	Mexican Restaurant	ATM	Bagel Shop	Gas Station	Grocery Store	Gym / Fitness Center	
2693	Coffee Shop	Gas Station	Shopping Plaza	Gym	Chinese Restaurant	Bagel Shop	
2693	Baseball Field	Furniture / Home Store	Intersection	Yoga Studio	Frozen Yogurt Shop	Fried Chicken Joint	
2693	Pool	Art Gallery	Art Museum	Garden	Park	Yoga Studio	
2862	Pharmacy	Gym	Mexican Restaurant	Bank	Yoga Studio	Shoe Repair	
2693	Intersection	Pool	Food Truck	Gym	Park	Yoga Studio	
2693	Gym	Automotive Shop	Rental Car Location	Jewish Restaurant	Flower Shop	Fast Food Restaurant	

# Palo Alto Neighborhoods Clusters 2

Rent	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue
3426	Intersection	Pizza Place	Sandwich Place	Sushi Restaurant	Coffee Shop	Park
3426	Café	Intersection	Plaza	Food Truck	Financial or Legal Service	Frozen Yogurt Shop
3426	French Restaurant	Mexican Restaurant	Italian Restaurant	Bank	Organic Grocery	Japanese Restaurant
3426	Intersection	Indian Restaurant	Dog Run	Playground	Café	Park
3426	Garden	Intersection	Pool	Theater	Dog Run	Financial or Legal Service
3426	Rental Car Location	Hotel	American Restaurant	Park	Pharmacy	Gym / Fitness Center
3426	Dance Studio	Grocery Store	Automotive Shop	Nail Salon	Shopping Plaza	Chinese Restaurant
3426	Dance Studio	Bookstore	Pizza Place	Deli / Bodega	Pool	Coffee Shop
3426	Coffee Shop	American Restaurant	Grocery Store	Spa	Bakery	Burger Joint
3426	Hotel	Gym / Fitness Center	Spa	Park	Chinese Restaurant	Bistro
3426	Yoga Studio	Café	Rest Area	Garden	Indonesian Restaurant	Farmers Market
3426	Hotel	Rental Car Location	American Restaurant	Gym / Fitness Center	Park	Street Food Gathering
3426	Japanese Restaurant	Rest Area	Optical Shop	Automotive Shop	Park	Financial or Legal Service
3426	Pharmacy	Gym	Mexican Restaurant	Bank	Yoga Studio	Shoe Repair
3426	Optical Shop	Recreation Center	Park	Steakhouse	College Soccer Field	Rugby Pitch
3426	Pool	Yoga Studio	Fast Food Restaurant	Frozen Yogurt Shop	Fried Chicken Joint	French Restaurant
3426	Mobile Phone Shop	IT Services	Mexican Restaurant	Deli / Bodega	Rental Car Location	Outdoor Sculpture
3426	Garden	Pool	Art Museum	Tennis Court	Park	Financial or Legal Service



# Palo Alto Neighborhoods Clusters 3

Rent	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue
3859	Professional & Other Places	Park	Yoga Studio	Financial or Legal Service	Frozen Yogurt Shop	Fried Chicken Joint
3859	Park	Gas Station	Mattress Store	Arts & Crafts Store	Chinese Restaurant	Sushi Restaurant
3820	Park	Theater	Performing Arts Venue	Pool	Tennis Court	Campground
3820	Pizza Place	Park	Yoga Studio	Financial or Legal Service	Frozen Yogurt Shop	Fried Chicken Joint
3820	Park	Yoga Studio	Tapas Restaurant	Pastry Shop	Creperie	Coffee Shop
3820	Garden	Rest Area	Israeli Restaurant	Intersection	Fried Chicken Joint	French Restaurant
4086	Golf Course	Financial or Legal Service	Furniture / Home Store	Frozen Yogurt Shop	Fried Chicken Joint	French Restaurant
3820	Yoga Studio	Elementary School	Park	Massage Studio	Garden	Historic Site
3820	Coffee Shop	Electronics Store	French Restaurant	Frozen Yogurt Shop	Greek Restaurant	Shoe Store

# Discussion

- Neighborhoods that are inconvenient and have unpleasant surrounding for living have lowest rent.
  - Neighborhood without attractions (Inconvenient)
  - Neighborhood with gas station and playground (Unpleasant small and noise)
- Neighborhoods located in the convenient area have around the average rent.
  - Downtown
  - Commercial district
    - Convenient location
    - Noisy and insecure (too many people)
- Neighborhoods near park and professional places have highest rent price.
  - Great view
  - Quiet
  - Security

# Conclusion

- Optimal Choice: Buy properties near park and professional places.
- Second Optimal Choice: Buy properties near attractions (Downtown and commercial districts)
- Avoid:
  - Properties without attractions
  - Property near gas station
  - Property near playground

# Thank You!