

If you move from LA to Nashville, which neighborhood might you want to live in?

COURSERA CAPSTONE
PROJECT FOR IBM DATA
SCIENCE PROFESSIONAL
QUALIFICATION

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NOVEMBER 2019



Introduction

Problem:

If you move from LA to Nashville, which neighborhood might you want to live in?

Target audience:

Journalist/blogger wanting to give people information to help them make choices.

The end user would be someone moving from LA to Nashville.

Background on problem



I live in Nashville and there are **lots of people relocating from LA to Nashville**.



Some common themes for moving seem to be for more **affordable housing**, to escape the **traffic** and enjoy the vibrant **music scene**.



When you first arrive it can be **hard to work out which area to live in**.



This project aims to identify the **most closely paralleled neighborhoods** between LA and Nashville in order to suggest where new people might want to look for accommodation.



Using **Foursquare data** about which businesses and amenities are in each neighborhood I hope to find areas which have a similar mixture.



Then adding house price data to see how **affordable** the equivalent neighborhood is.

Data

The data sources for this project were:

Foursquare data <https://foursquare.com/>

Zillow data <https://www.zillow.com/research/data/>

The names of neighborhoods in LA were scraped from <http://www.laalmnac.com/communications/cm02a90001-90899.php>

The names of Nashville neighborhoods were extracted from <https://nestinginnashville.com/buying-a-home-in-nashville/zip-code-map/>

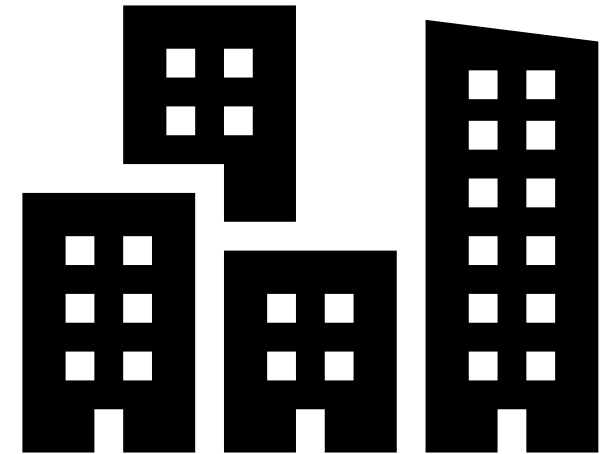
Methodology

1. Data on **LA neighborhoods** was **parsed** using BeautifulSoup4
2. Zip codes that were later discovered to have **little value**, including PO Boxes, were retroactively **removed**
3. **Latitudes and Longitudes** of each neighborhood were imported using pgeocode
4. LA neighborhoods were **mapped** using Folium
5. **LA venues** were extracted using the **Foursquare API**
6. The venue information was **one hot encoded**
7. A **dendrogram** was produced by creating a linkage matrix using scipy's cluster package

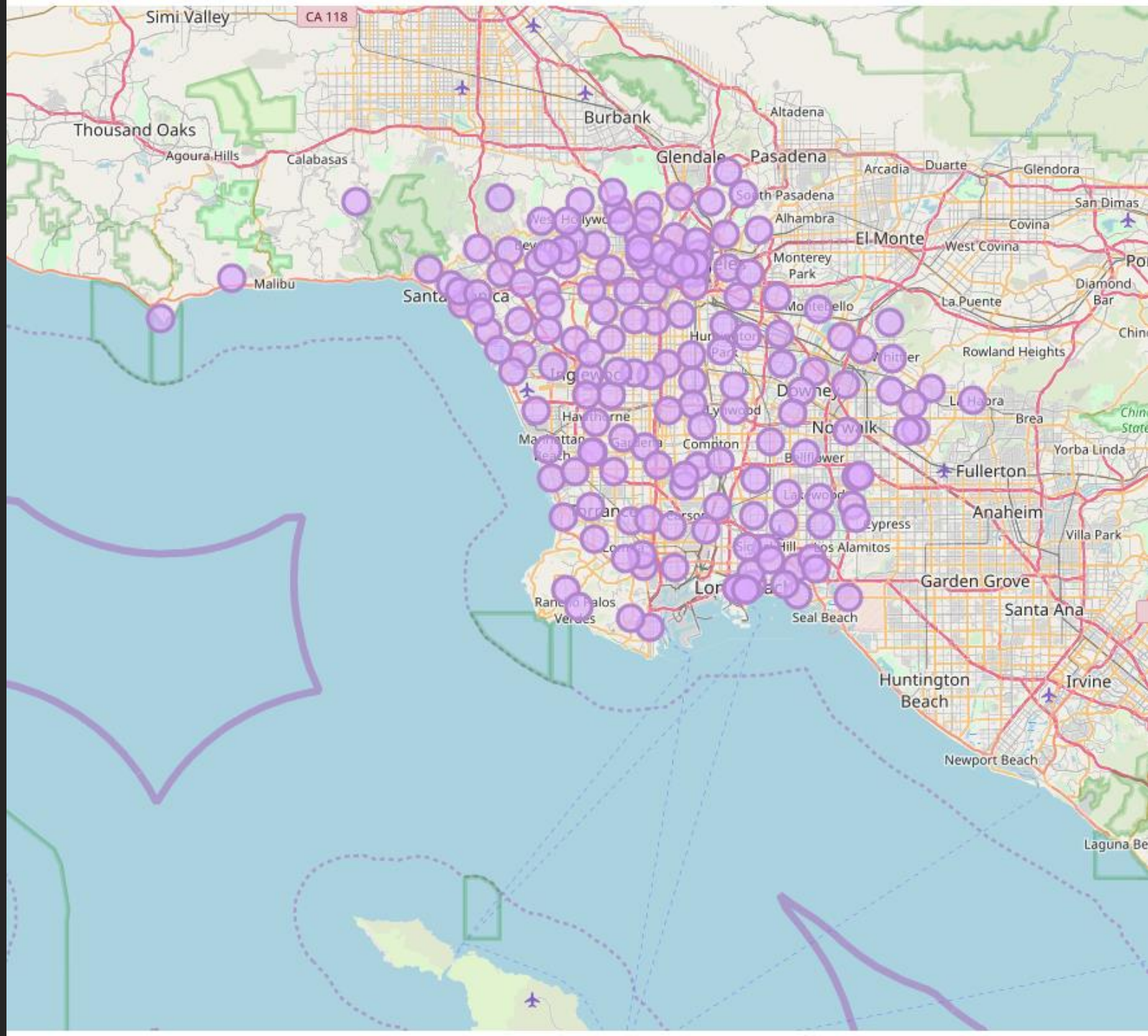


Methodology

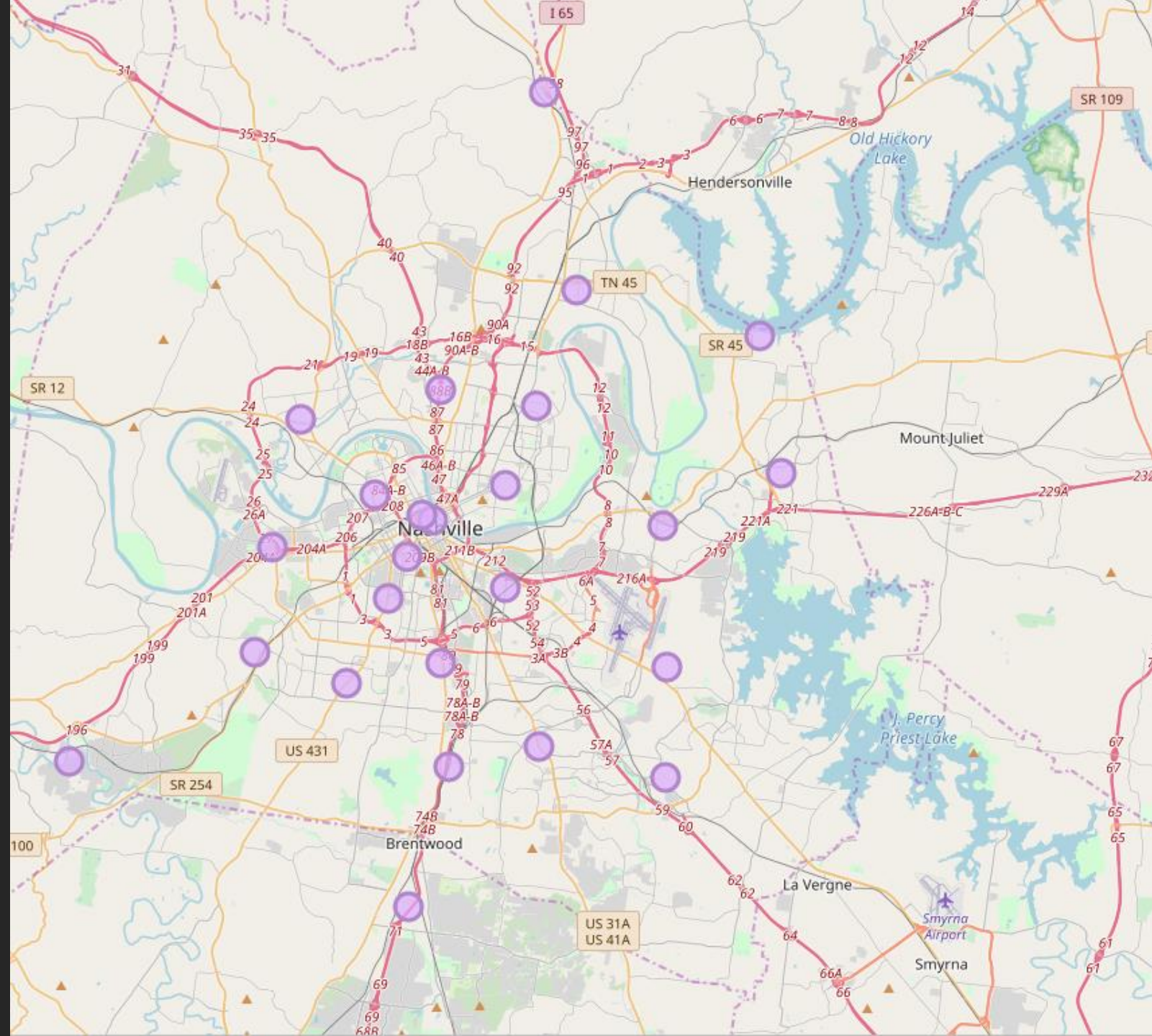
8. The **Nashville neighborhood** data was **extracted**
9. This data was **edited in excel** and reuploaded as an array which was then converted to a data frame
10. **Steps 3-7 were then repeated for the Nashville data**
11. The one hot encoded tables for **LA and Nashville** were **joined**
12. A **combined dendrogram** for LA and Nashville was created
13. **House price data** was extracted from Zillow and saved as a CSV
14. The CSV was uploaded and **combined with the geographical data**
15. **Median house price by neighborhood** was plotted



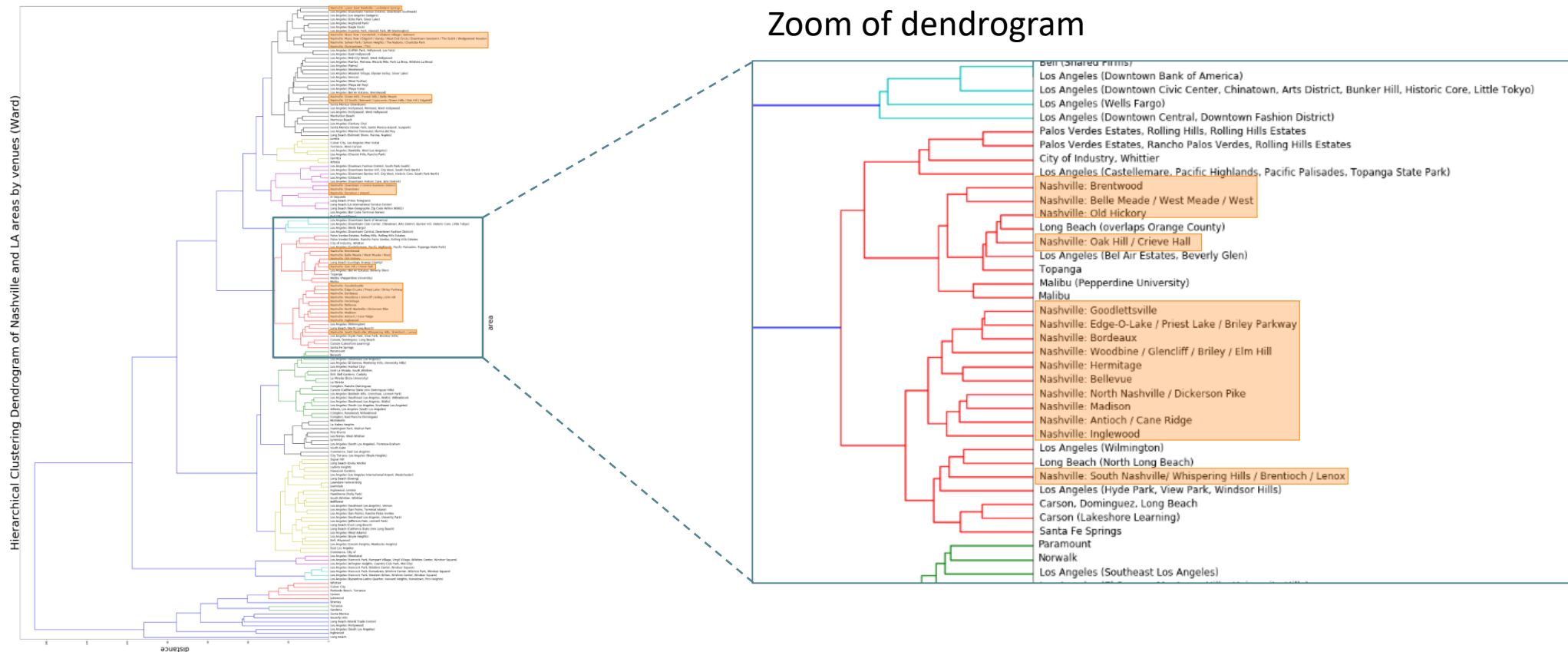
Map of LA Neighborhoods



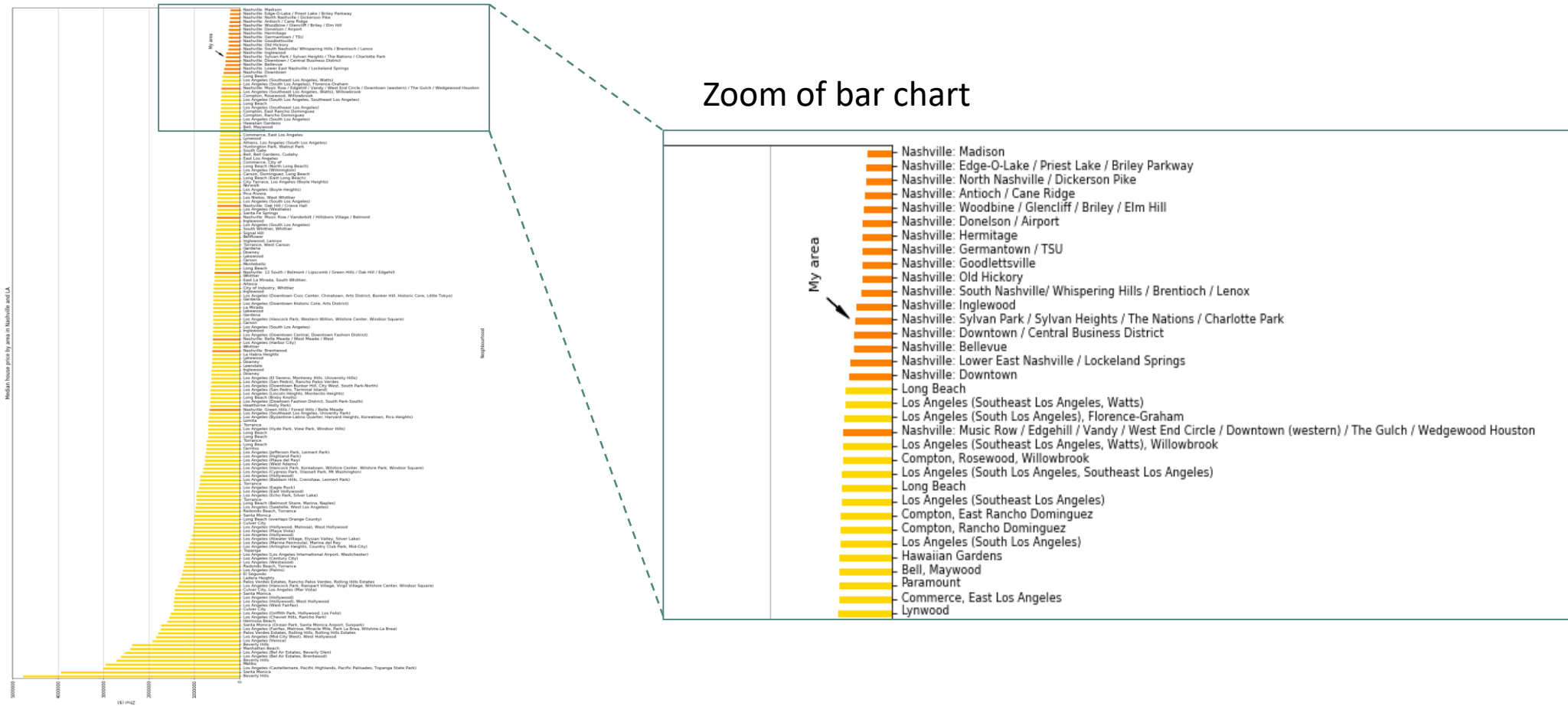
Map of Nashville Neighborhoods



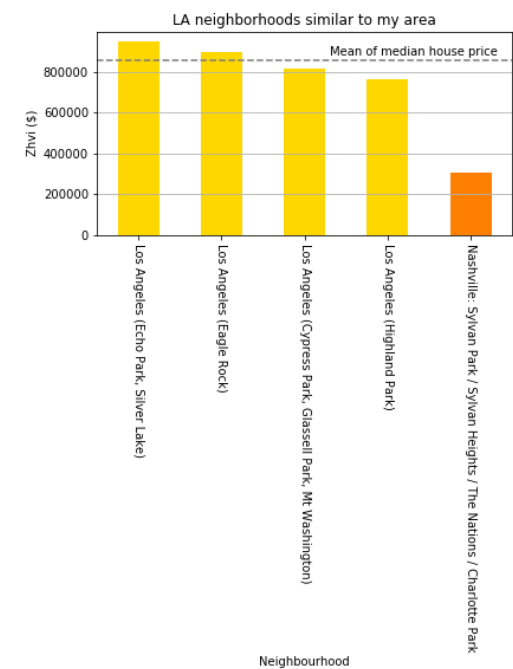
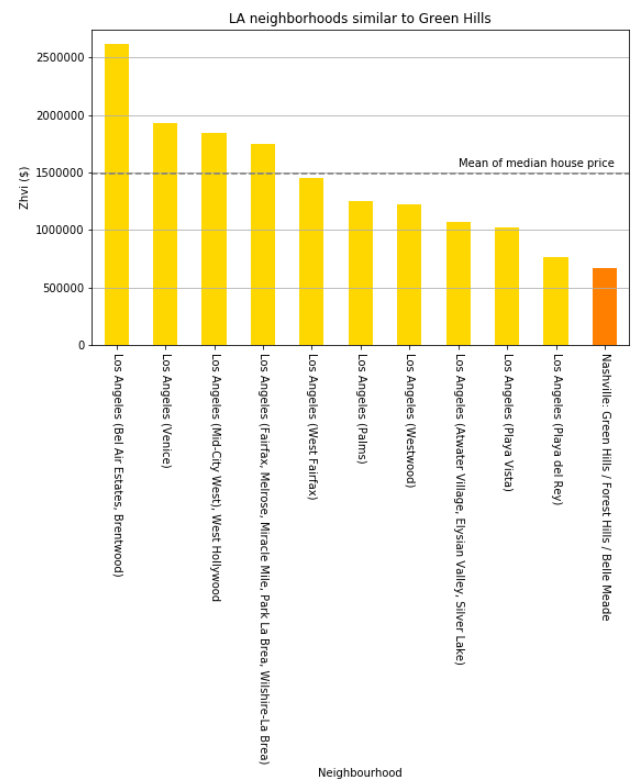
Dendrogram of LA and Nashville Neighborhoods



House price by neighborhood



Case studies

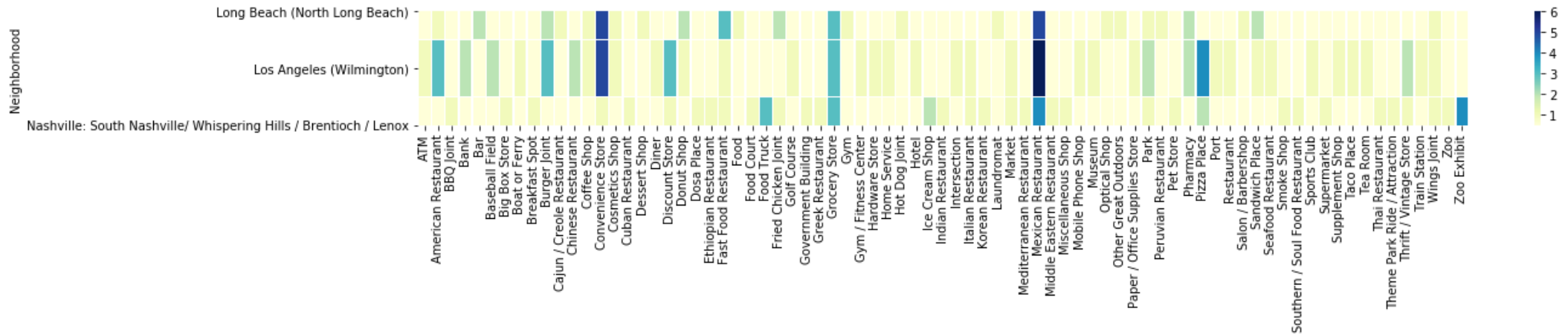


**Mean for LA only*

Areas where most common venue is hotel

Neighborhood	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
Beverly Hills	Hotel	Coffee Shop	American Restaurant	Boutique	Italian Restaurant	Park	Sushi Restaurant	Steakhouse	Cafe	Clothing Store
El Segundo	Hotel	Coffee Shop	Sandwich Place	Pizza Place	Airport Lounge	Airport Service	American Restaurant	Mexican Restaurant	Burger Joint	Beach
Los Angeles (Downtown Fashion District, South Park-South)	Hotel	Coffee Shop	Bar	New American Restaurant	American Restaurant	Sushi Restaurant	Taco Place	Theater	Beer Bar	Mexican Restaurant
Los Angeles (Hollywood)	Hotel	Lounge	Pizza Place	Coffee Shop	Bar	Nightclub	Burger Joint	Gym	Mexican Restaurant	Music Venue
Los Angeles (Hollywood), West Hollywood	Hotel	Gym	Burger Joint	Vegetarian / Vegan Restaurant	Coffee Shop	Trail	Japanese Restaurant	Clothing Store	Comedy Club	Hotel Bar
Los Angeles (Hollywood, Melrose), West Hollywood	Hotel	Gym	Mexican Restaurant	Clothing Store	New American Restaurant	Burger Joint	French Restaurant	Cafe	Vegetarian / Vegan Restaurant	Sushi Restaurant
Nashville: Donelson / Airport	Hotel	Sandwich Place	Fast Food Restaurant	Pizza Place	Gas Station	American Restaurant	Mexican Restaurant	Automotive Shop	Pharmacy	Discount Store
Nashville: Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	Hotel	Pizza Place	Music Venue	American Restaurant	Mexican Restaurant	Coffee Shop	Burger Joint	Taco Place	Sushi Restaurant	Bar

Heatmap of areas similar to South Nashville



Nashville music zones

Neighborhood	Venue	Venue Category
Downtown	Live On The Green Music Festival	Music Venue
Downtown	Bourbon Street Blues and Boogie Bar	Music Venue
Downtown	Ryman Auditorium	Music Venue
Downtown	Redneck Riviera	Music Venue
Downtown	The Stage on Broadway	Music Venue
Downtown	B.B. King's Blues Club	Music Venue
Downtown	Ascend Amphitheater	Music Venue
Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	Music Row	Music Venue
Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	The Station Inn	Music Venue
Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	The High Watt	Music Venue
Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	Exit/In	Music Venue
Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	The Cannery Ballroom	Music Venue
Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	Carter Vintage Guitars	Music Store
Music Row / Edgehill / Vandy / West End Circle / Downtown (western) / The Gulch / Wedgewood Houston	Ryman Auditorium	Music Venue
12 South / Belmont / Lipscomb / Green Hills / Oak Hill / Edgehill	Blackbird Studio	Music Venue
12 South / Belmont / Lipscomb / Green Hills / Oak Hill / Edgehill	Guitar Center	Music Store
12 South / Belmont / Lipscomb / Green Hills / Oak Hill / Edgehill	Corner Music	Music Store
12 South / Belmont / Lipscomb / Green Hills / Oak Hill / Edgehill	Fork's Drum Closet	Music Store
Music Row / Vanderbilt / Hillsboro Village / Belmont	Music Row	Music Venue
Music Row / Vanderbilt / Hillsboro Village / Belmont	Musicians Corner @ Centennial Park	Music Venue
Music Row / Vanderbilt / Hillsboro Village / Belmont	Exit/In	Music Venue
Downtown / Central Business District	Live On The Green Music Festival	Music Venue
Downtown / Central Business District	Bourbon Street Blues and Boogie Bar	Music Venue
Downtown / Central Business District	Ryman Auditorium	Music Venue
Downtown / Central Business District	The Stage on Broadway	Music Venue
Downtown / Central Business District	Redneck Riviera	Music Venue
Downtown / Central Business District	B.B. King's Blues Club	Music Venue

Conclusion

It is of course **hard to parallel neighborhoods** across cities to find their twin. And the sheer ratio of **LA to Nashville neighborhoods (7:1)** means there is **more diversity in LA** which is unmatched in Nashville.

Nevertheless, there are some **neighborhoods** that have a close degree of **affinity**, such as LA and Nashville's downtowns, Green Hills and downtown Santa Monica, Lower East Nashville and the 90021 area.

Where should I move?



FOR MUSIC: NASHVILLE'S
DOWNTOWN AREAS, MUSIC
ROW AND 12 SOUTH



FOR TRAFFIC: ANYWHERE!



FOR AFFORDABILITY:
ANYWHERE, EXCEPT MAYBE
THESE ZIP CODES: 37215, 37027,
37205, 37204, 37212, 37220



FOR SIMILARITY: SEE
DENDROGRAM

Bonus visual: LA venue word cloud



Bonus visual: Nashville venue word cloud

