

Best Location for Karate Dojos Business

Business Problem

Client wants to open karate dojos across the US and now are looking to identify the best locations. We'll gather census data to support our research and use SQL to answer business questions below.

Building Environment

Create Census database and two tables in Snowflake:

Here is the [link](#) of how to build tables and load data from Amazon S3.

- census_by_zip_code

	ZIP_CODE	REPORTING_YEAR	HOUSEHOLDS	POPULATION_TOTAL	POPULATION_MALE	POPULATION_FEMALE	MEDIAN_AGE	...	HOUSING_UNITS_
1	87537	2,018	856	2,510	1,283	1,227	42.1		
2	87017	2,018	112	346	150	196	50.9		
3	87528	2,018	727	3,505	1,758	1,747	27.9		
4	87533	2,018	58	133	49	84	25.8		
5	87511	2,018	787	2,896	1,177	1,719	36		
6	87520	2,018	518	1,237	633	604	56.1		
7	87532	2,018	6,429	18,756	9,280	9,476	39.3		
8	87013	2,018	1,542	5,350	2,698	2,652	36.5		

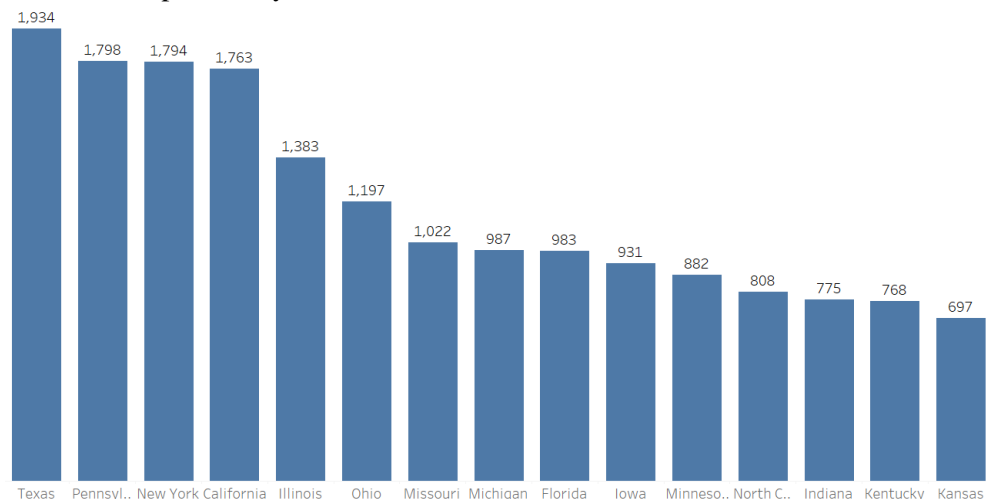
- zip_codes

	ZIP_CODE	...	CITY	COUNTY	STATE_CODE
1	20005		Washington city	District of Columbia	DC
2	96785		Fern Forest CDP, Volcano CDP, Mountain View CDP	Hawaii County	HI
3	2896		North smithfield	Providence	RI
4	703		Santa Clara comunidad, Aguas Buenas zona urbana	Aguas Buenas Municipio	PR
5	96910		Barrigada	null	GU
6	20535		Washington city	District of Columbia	DC
7	921		San Juan zona urbana	San Juan Municipio	PR
8	778		Parcelas de Navarro comunidad, Celada comunidad, Gurabo zona urbana	Gurabo Municipio	PR

Basic Queries

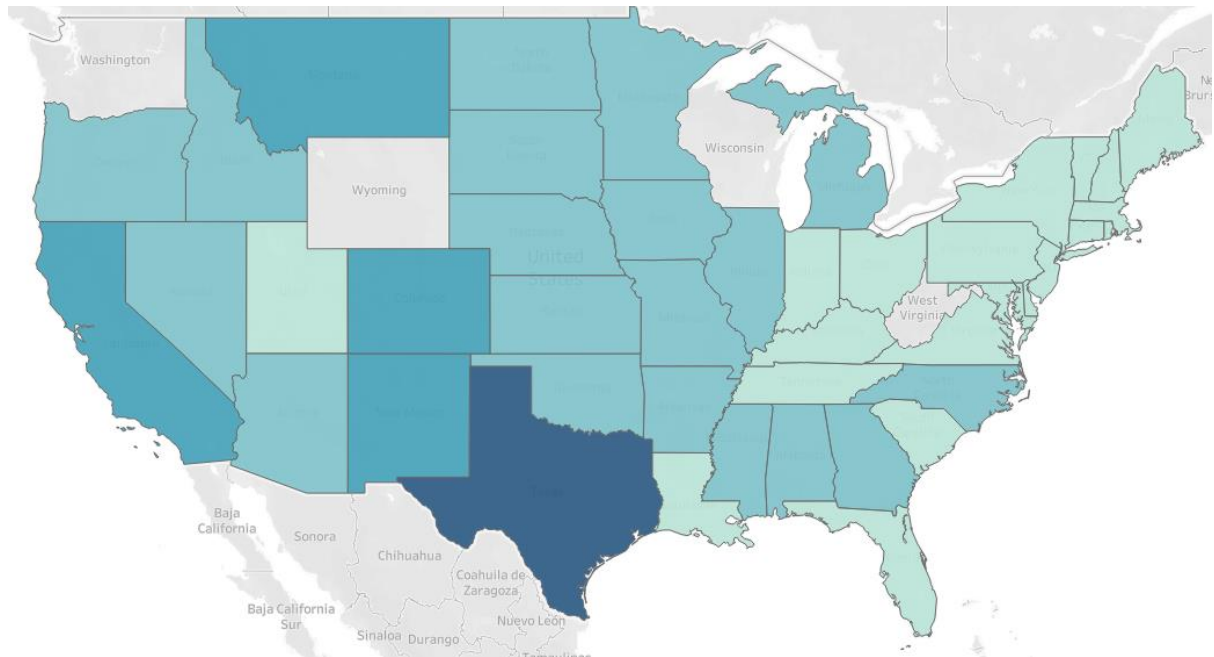
Here is the [link](#) of SQL queries and the visualization is made by Tableau.

1. Number of zip codes by state.



From the bar chart, we can see the top 3 states are Texas, Pennsylvania, and New York.

2. Size of each state.



The color is darker, the size is bigger, and from the map, we can know that Texas has the biggest area of all, then are Montana, California, New Mexico, and Colorado.

3. Total number of zip codes on the west coast or not and the average size (meters) by zip codes.

	ZIP_CODE_AREA	# of Zip Codes	Avg Zip Code Size
1	Not West	27823	206784098.24
2	West	2523	416065009.48

4. Number of zip codes in each size category by the given conditions.

(When area less than 5,000,000 is small, bigger than 100,000,000 is Large, else is Median)

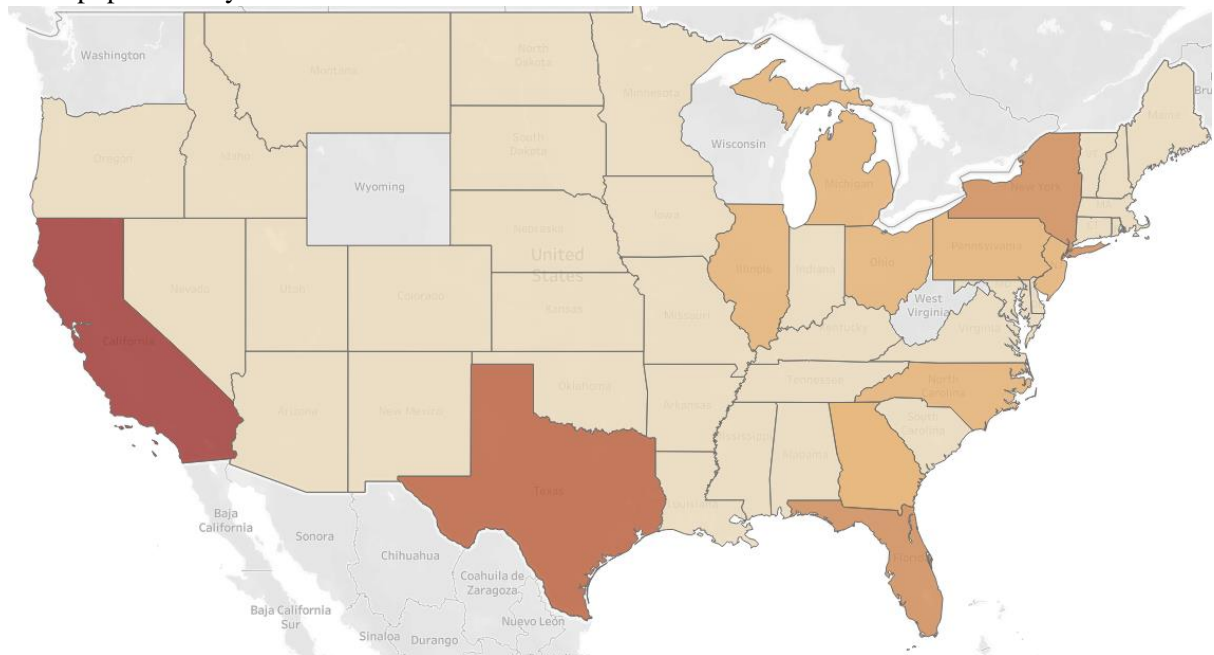
	SIZE_CATEGORY	N
1	Small	11,017
2	Large	14,548
3	Medium	4,781

5. Total population by reporting year.

	REPORTING_YEAR	POP
1	2,018	326,274,356
2	2,013	315,201,715

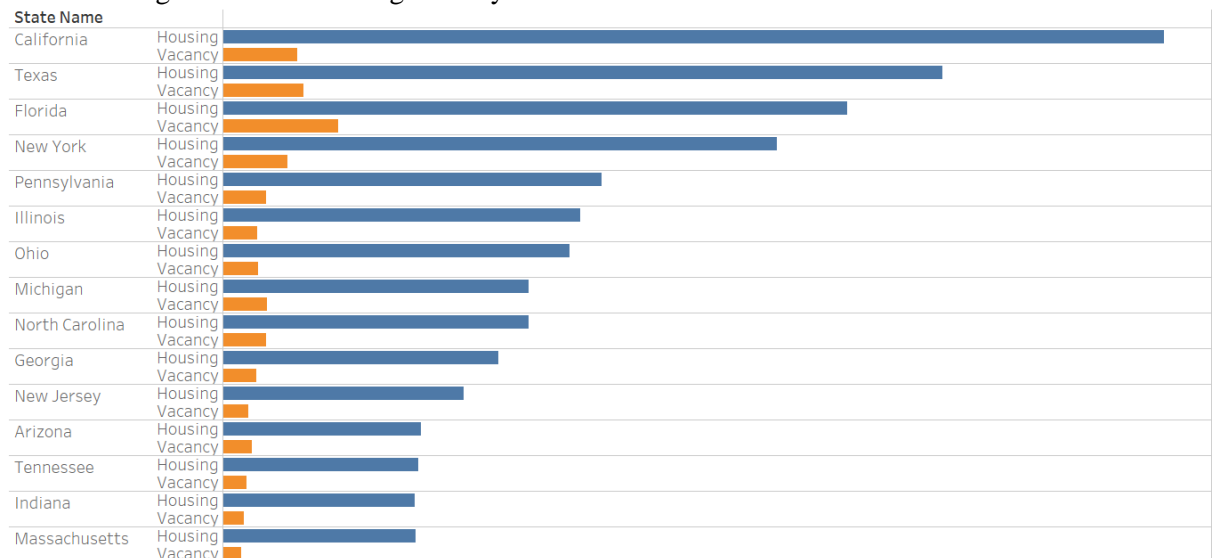
The population growth rate is about 3.5% within 5 years.

6. Total population by each state in 2018



The color is darker, the population is bigger. From the map, we can see that California has the biggest population, then are Texas, Florida, and New York.

7. Total housing and vacant housing units by the state in 2018.



From the chart above, in the top 5 states with the most housing units, we notice that Florida has the most vacant housing units, second in Texas and California.

8. Number of zip codes based on the categories by their median age in 2018.

(When population in this zip code less than 150 is unable to calculate, median age over 55 is older adults, less and equal than 35 is young adults, else is middle-aged adults)

	AGE_CATEGORY	# of zip codes
1	middle-aged adults	23369
2	young adults	5339
3	unable to calculate	2345
4	older adults	2067

9. The occupancy of each zip code at threshold at 0.95.

	ZIP_CODE	HOUSING_UNITS_TOTAL	OCCUPANCY_RATING	OCCUPANCY_CATEGORY
1	95148	12,210	0.99	High occupancy
2	55024	12,139	0.99	High occupancy
3	49426	12,556	0.99	High occupancy
4	80122	12,777	0.99	High occupancy
5	49428	10,196	0.99	High occupancy
6	20152	10,720	0.99	High occupancy
7	94597	10,456	0.99	High occupancy
8	55311	14,066	0.98	High occupancy
9	92843	12,036	0.98	High occupancy
10	98155	13,985	0.98	High occupancy

The top 10 are San Jose (CA), Farmington (MN), Hudsonville (MI), Littleton (CO), Jenison (MI), Chantilly (VA), Walnut Creek (CA), Maple Grove (MN), Garden Grove (CA), and Seattle (WA).

10. Number of children in grade 1-8

State Name	
California	2,897,964
New York	1,021,050
Texas	877,689
Florida	789,376
Arizona	400,897
Illinois	328,324
Nevada	226,531
Michigan	162,278
Pennsylvania	144,524
Utah	121,558
Ohio	113,000
Minnesota	107,351
Massachusetts	103,246

Some karate schools will start training kids who are aged 4 to 6, hence we checked the number of kids in grades 1 to 8. From the table, we can see California, New York, and Texas have more kids in their state populations.

11. Top 10 zip code population growth

	ZIP_CODE	POP_2013	POP_2018	GROWTH_NUM	GROWTH_PCT
1	92618	18,617	43,316	24,699	133
2	77441	5,409	11,308	5,899	109
3	75078	11,683	23,580	11,897	102
4	34785	17,903	34,933	17,030	95
5	89166	11,860	22,225	10,365	87
6	33473	6,098	11,300	5,202	85
7	79765	8,298	14,782	6,484	78
8	76177	5,306	9,361	4,055	76
9	80238	11,296	19,901	8,605	76
10	95134	15,517	27,224	11,707	75

The top 10 are Irvine (CA), Fulshear (TX), Prosper (TX), Wildwood (FL), Las Vegas (NV), Boynton Beach (FL), Odessa (TX), Fort Worth (TX), Denver (CO), and San Jose (CA).

12. The average percent of income spent on rent in west coast cities.

State	N..	⌘
California	32.816	
Hawaii	32.737	
Oregon	31.020	
Alaska	28.290	

13. Top 5 zip codes with a high percentage of people with advanced degrees.

	ZIP_CODE	ADVANCED_DEGREE_PCT	DEGREE_CATEGORY
1	95721	1	High
2	12862	1	High
3	83354	1	High
4	63750	1	High
5	77454	1	High

They are Echo Lake (CA), Riparius (NY), Sun Valley (ID), Gipsy (MO), and Lissie (TX).

Conclusion

According to the population, California has the biggest population, most housing units, and the greatest number of children in grades 1 to 8, it seems like California is the ideal location to start our business. However, the rent will take a one-third salary, if we consider expanding our branches, this is a huge cost for a start-up company.

If we see the top 10 zip code population growth, there are 4 zip codes in Texas. Also, Texas is third place in the number of children in grades 1 to 8 and second greatest population and housing units. It seems like Texas may be another choice to start our business.