Neighborhood Analysis of Denver, Colorado

Introduction

I was born and raised in Denver, but have lived out of the country for the last 5 years. In the next 6-8 months I will be moving back to Denver with my husband, but we do not know where to live, as the landscape of the metropolitan area has changed much due to the city's considerable growth.

In this notebook, I will analyze the neighborhoods in and around Denver, Colorado in order to find the best place to live, taking into consideration the following factors:
- **Neighborhood characteristics**
  - Outdoor activities (parks, trails, dog parks, etc.)
  - Restaurants & bars (coffee shops, breweries, restaurants)
- **Housing prices** (to live within our budget)
- **Proximity to downtown and to the airport** (my husband and I don't want a long commute to work, and we often fly to visit family)

This analysis could also be of use to other Denver residents who are looking to move neighborhoods, as well as individuals looking to open venues in neighborhoods with certain characteristics.

Data
To realize this analysis, I will use the following data sources:
- **Zillow data** for Denver neighborhoods and median housing prices
  http://files.zillowstatic.com/research/public/Neighborhood/Neighborhood_Zhvi_All Homes.csv

	RegionID	SizeRank	RegionName	RegionType	StateName	State	City	Metro	CountyName	date	price
0	274772	0	Northeast Dallas	Neighborhood	TX	TX	Dallas	Dallas-Fort Worth-Arlington	Dallas County	1996-01-31	134517.0
1	112345	1	Maryvale	Neighborhood	AZ	AZ	Phoenix	Phoenix-Mesa-Scottsdale	Maricopa County	1996-01-31	NaN
2	192689	2	Paradise	Neighborhood	NV	NV	Las Vegas	Las Vegas-Henderson-Paradise	Clark County	1996-01-31	139741.0
3	270958	3	Upper West Side	Neighborhood	NY	NY	New York	New York-Newark-Jersey City	New York County	1996-01-31	246925.0
4	118208	4	South Los Angeles	Neighborhood	CA	CA	Los Angeles	Los Angeles-Long Beach-Anaheim	Los Angeles County	1996-01-31	134826.0

  - With this data, I will acquire the unique neighborhoods of the city ('RegionName').
  - Additionally, the 'price' column indicated median house prices of the neighborhood.

- **Foursquare data** to understand the neighborhoods' characteristics. Given that there are so many categories of variables (235 categories identified in Denver), I will realize a mapping of these categories to more comprehensive groups, thus allowing the clustering algorithm to better generalize.

Venue_mapping

Venue	Category
Sports Club	Athletics / Sports
Boxing Gym	Athletics / Sports
Dance Studio	Athletics / Sports
Basketball Court	Athletics / Sports
Athletics & Sports	Athletics / Sports
Gym	Athletics / Sports
Yoga Studio	Athletics / Sports
Golf Course	Athletics / Sports
Recreation Center	Athletics / Sports
Gym / Fitness Center	Athletics / Sports
Volleyball Court	Athletics / Sports
Football Stadium	Athletics / Sports
Stadium	Athletics / Sports
Skating Rink	Athletics / Sports
Pub	Bar / Brewery
Wine Bar	Bar / Brewery
Beer Garden	Bar / Brewery
Sports Bar	Bar / Brewery
Distillery	Bar / Brewery
Brewery	Bar / Brewery
Bar	Bar / Brewery
Gastropub	Bar / Brewery
Dive Bar	Bar / Brewery
Insurance Office	Business
Paper / Office Supplies Store	Business
Auto Workshop	Business