# Creating a REIT Portfolio in Austin, Texas

Capstone Project for IBM Applied Data Science

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**Top Image Credit:** https://www.homes.com **Bottom Image Credit:** https://aquilacommercial.com

# I. Introduction:

Dubbed "Silicon Hills" after its predecessor Silicon Valley in California – Austin, Texas has become the next epicenter of the technology industry. With big names such as Apple, Microsoft, Facebook, etc. already located there and the announcement of Tesla and Oracle movement last year (2020), this further solidifies Austin as the new tech hub. Financial analysts have shown Austin further grow in population due workforce demand. This overall means a boom in real estate investment in Austin, Texas. Although it has already begun, investors can still take advantage of this boom. In this project specifically, the desire is to create a publicly-traded REIT (Real Estate Investment Trust) portfolio targeting these areas.

**What is an REIT/Publicly-Traded REIT (brief introduction for those unfamiliar):**

A Real Estate Investment Trust (REIT) is a company that owns and/or manages properties that produce income, whether it be from rent or mortgage. Essentially, a group of investors pool their capital and lend their money to a company (of whom they trust) to manage that capital into real estate investments. REITs by law must return 90% of their net earnings to their investors.

A publicly-traded REIT is an REIT that is available on the stock market to be invested in by anyone interested in it. The slight drawback is that the dividend rate, or amount returned to investors is varied on the company. Although the great thing about publicly-traded REITs is that you don't need to be part of the billionaire and millionaire club to afford these investments – if you can afford the stock, you can participate.

Further Readings: https://www.investopedia.com/terms/r/reit.asp

**Business Problem:**

Ultimately, the central goal of this project is to create a strategic REIT property portfolio that would most benefit from Austin's growth. Specifically to answer the question, "Which property and what property types should the investment portfolio hold?" There are two objectives to answer this question. First, is to find out where to invest in Austin, Texas. Specifically, what are the locations that mostly benefit from the movement of the tech sector, the movement of workforce, and population growth? Second, is to find out what type of real estate surround these places (commercial, housing, etc.). Specifically, which property types are more common in these areas?

**Target Investors (Who Would be Interested in this Project):**

The target audience are companies interested in creating a publicly-traded REIT portfolio in the Austin, Texas area. Specifically, real estate investment in Silicon Hills. The target companies are those interested in creating a real estate portfolio near Big Tech and large population pools. The portfolio will be designed on the discovered features (real estate types) within these areas.

# II. Data Usage and Data Sources:

### 1. Big Tech Location Data:

Why Big Tech: Blue-chip Tech companies typically have stronger financial background and have a more solid customer base, so they are less likely to go bankrupt compared to start-up companies. They are therefore a good source of employment, which is good for the local population, which will in turn positively affect expenditure in their area. Examples of these companies are Apple, Microsoft, Facebook, Google, etc. Companies of focus are those that are in the NASDAQ index and DOW 30.

Usage: First, find which big Tech companies are in Austin, Texas. Second, find their headquarter addresses of these big Tech companies in Austin, Texas via web scrapping. Afterwards, create a data frame consisting of these companies and their location data with Nominatim. Lastly, create radial locations around these companies to compare features (real estate types) via Foursquare API.

Source for Big Tech Company's in Austin, Texas:

- https://siliconmaps.com/silicon-hills/
- https://en.wikipedia.org/wiki/Silicon_Hills

**2. Population Growth Data:**

Why Population Growth: Real estate around these Big Tech companies may benefit from them, but it does not necessarily mean these are the best places to invest in. A look at population growth by location/neighborhood can help identify where business may boom. The critical assumption behind this idea is that the more people there are in a certain area, the larger the demand for goods and services, thus more business would benefit. For example: the more people living near a grocery store, the more potential customers there are for that grocery store.

Usage: First, find the population growth per neighborhood in Austin, Texas via web scrapping. Afterwards, plot the population change via matplotlib to see which neighborhoods are growing significantly. Then create a data frame consisting of these neighborhoods and their location data with Nominatim. Lastly, create a radial location around these neighborhoods to compare features via Foursquare API.

Source for population growth in Austin, Texas:

- https://en.wikipedia.org/wiki/List_of_Austin_neighborhoods
- https://data.austintexas.gov/
- https://www.city-data.com/city/Austin-Texas.html

**3. Geolocation Data:**

Why Nominatim: Nominatim with the Python geopy package has been more reliable (in the researcher's personal usage) to find location data. Specifically in retrieving longitude and latitude data. Although the research will be open to other sources (such as Google Location Data) if necessary.

Usage: This will be used with the other data sources to find and associate geospatial data to locations of interest.

Source:

- https://geopy.readthedocs.io/en/stable/
- https://nominatim.org/

**4. Features (Real Estate Data):**

Why Foursquare API: According to the course, Foursquare has the most accurate location data on businesses.

Usage: The business/real estate types will be used as features. These features will be used to compare areas around Big Tech and areas around with strong population growth. The goal is to find the most common types of real estate that overlap the radius of big tech companies and neighborhoods with population growth. Finally, analysis will allow the creation of a real estate portfolio invested in these areas and types of properties discovered.

Source: https://foursquare.com/