# Ranking homes to maximize chances of long-term satisfaction

## Introduction

Many factors influence the decision to purchase a home. Home buyers typically focus on features of the home – square footage, number of bedrooms and bathrooms, and price. However, there are many other factors that go into determining whether a house can feel like home. For example, proximity to family, favorite shopping centers, and entertainment opportunities all influence satisfaction with one’s home.

My family will be looking to purchase a home soon, and I wanted to create a program that would take into consideration some of these factors to help rank houses so that my family can select the home most likely to provide long term satisfaction. I will be ranking homes based on four criteria:

1. Purchasing power – defined as the number of square feet per dollar spent and calculated as the square footage of the home divided by the list price.
2. Proximity to our favorite store – we are die-hard Costco enthusiasts, so we would like to live close to a Costco store if possible.
3. Proximity to family – we want to live close to our family (parents and siblings).
4. Entertainment – A proxy for entertainment potential will be created by determining the number of unique categories of nearby venues for each location, as this represents a range of dining and entertainment options.

As it is currently coded, this program is likely only of interest to myself, due to the personal value placed in proximity to Costco. However, the program could be generalized by removing this parameter and focusing on the other three, or by substituting a user’s favorite store in place of Costco.

## Data

As mentioned in the previous section, the rank of the home will be determined by four criteria. Below, we examine the data sources to make the ranking model possible.

1. Purchasing power – in order to calculate this variable, we will need data on what homes are for sale, as well as the sale price and square footage of the home. This information could be gathered from a residential realty aggregator like Zillow.com or Realtor.com. In this project, we will use Trulia.com.
2. Proximity to our favorite store – we will use the Foursquare API to find Costco locations nearby to the homes for sale, then calculate the distance to each of the homes.
3. Proximity to family – there are a variety of ways that this data could be obtained. We could supply addresses of family members to a geocoder through the geopy library and obtain latitude and longitude. Since there are only three points of interest, we could also go to google maps, right click the map where their address is located, and read the latitude and longitude. In this project, to preserve my family’s privacy, I have chosen arbitrary addresses in the city that they live, rather than use their home address.
4. Entertainment – we will use the Foursquare API to gather information on venues near the locations of each of the homes, then calculate the number of unique categories of venues for each address. This should give a good idea of variety of activity and dining opportunities available in an area.