What is the best Tucson neighborhood for Embassy Tire to expand to next?¶

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Introduction

Embassy Tire & Wheel Company is a growing, family-owned business in the Tucson Metro Area. Starting from a single location in 2004, it is now expanding to a third location set to open in the summer of 2019. The positioning of the three current locations provide a decent range of coverage of the region. As a growing business, they most certainly aren't planned to settle on just three locations. After the third location opens and business starts to pick up, the company is sure to look to expand once again. But where to?

The report seeks to answer the question of "given the population and tire shop distribution of the Tucson Metro Area, where would be the best neighborhood(s) to look to expand into?"

Data

The types of data that are required to execute this idea are mostly population data and location data. Specifically, it requires data like the neighborhoods of Tucson, their populations, population densities, and the locations of all neighborhoods and tire shops in the Tucson metro area.

The data for the populations and population densities of the top 50 populated neighborhoods in Tucson are publically available at the following Statistical Atlas website: https://statisticalatlas.com/place/Arizona/Tucson/Population. The neighborhood names of the 50 most populated neighborhoods, their populations, their rank in population, their population densities, and their rank in population densities will be ripped directly from the website. This will be accomplished using the Beautiful Soup library.

The population data as well as the Statistical Atlas links for each neighborhood will be collected into a single DataFrame for ease of use. This DataFrame will also contain an Area (in square miles) column calculated by dividing Population (number of people) by Population Density (number of people per square mile) for each neighborhood.

The geographical locations of these neighborhoods will be retrieved using OpenStreetMap data obtained from the geocoder library. Locations which are not retrieved using this method will be found manually using the Google search engine.

The acquisition of tire shop location data is a process in several steps. First, the zip codes of major postal area codes in Tucson will be taken manually from the following Statistical Atlas website: https://statisticalatlas.com/place/Arizona/Tucson/Overview. Their geographical coordinates do not

appear in OpenStreetMap so their coordinates will be acquired manually using the Google Search engine. Finally, these locations will be used as the basis for a series of Foursquare API search queries (with keyword 'tire') to collect of comprehensive list of tire shops in the Tucson Metro Area. The IDs, Names, and Location in coordinates will be taken from the results of the queries and be compiled into a pandas DataFrame.