WHAT BUSINESS TO START IN SAN ANTONIO

A DATA SCIENCE AIDED DECISION PROCESS

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THE FASTEST GROWING CITY IN THE US

- According to Forbes, San Antonio is the No. 1 growing city in the US in year 2017.
  - In net, 66 people moved to the city during the year—or More than 24,200 People moved to SA by the year.
    - Note, in the same year: Dallas, Texas (18,900 people moved in); Fort Worth, Texas (18,700 people moved in)
  - [Link for the article](#)

WANT TO START A BUSINESS:
SHOULD FOLLOW THE POPULATION

- More people means more business opportunities.
  - But, What is the best business to start in San Antonio?
  - How to use Data Science tool to give advice to the entrepreneurs interested in starting business in San Antonio

THE BUSINESS QUESTION AND ANALYSIS LAYOUT

- The Question: What are the good business to start in San Antonio (SA)

- The procedure:
  - Find more matured and comparable city: Phoenix, AZ (PHX)
    - Similar population mix
    - Similar climate
  - Use DS tool to cluster the samilar neighborhoods of both SA and PHX (by Zipcode)
  - Compare the neighborhoods of SA to the ones of PHX in the same cluster to find what could be the business popular in PHX but not SA.
  - The suggestion to the entrepreneurs: Start a business popular in PHX but not yet in SA!

DATA

- Zip codes and population for both
  - San Antonio, TX and
  - Phoenix, AZ
- Coordinates for the zip codes
- Foursquare Venue data for the cities/zip codes

HOW TO DETERMINE WHICH TYPE BUSINESS IS THE BEST TO OPEN IN SAN ANTONIO—**IN PLAIN ENGLISH**

- Step 1: Find **a similar but more matured city of SA.**
  - **Phoenix, AZ** is picked since PHX and SA are similar in term of population mix and climate.

- Step II: Group the neighborhood (Zip code) of both cities (SA and PHX) based on their characteristics i.e. the popular venues.
  - The grouping should reveal similar preference of the neighborhoods.
  - 10 groups are categorized. Within each group, there are both SA and PHX neighborhoods.

- Step III: Within each group, find what is popular (in top 3 venues) of PHX neighborhood but not for SA.
  - For example, in group "X", *Pizza place* can be popular for neighborhood of PHX, but not the neighborhood for SA in the same group.

- Step IV: Make suggestion to the entrepreneurs on the Popular business in PHX.
  - For the case in the example, we should suggest an entrepreneur to open *a pizza place* in the group "X' neighborhood of SA

DATA SCIENCE TECH IMPLEMENTATION

- K-mean clustering
  - Cluster similar neighborhoods into same group
  - Draw inference from the clustering results
    - In each cluster:
      - What business is popular in PHX but not in SA?
      - Does it make sense to start such business in SA neighborhood of the cluster?

THE ANALYTIC RESULT

- The output data can be found in the Excel file:

  - Link: Excel file is attached.

- USE Cluster 3 as example.

  - What is popular in PHX but not SA in Cluster 1?

    - Café and Coffee shop!!!

      - Appeared **6 times (out of 19 neighborhood) in PHX** cluster I group for top 3 categories

      - VS 0 time (out of 36 Neighborhood) in **SA---None!!!.**

        - Even for some very populated neighborhoods: such as 78223, 78207, 78228, 78250, 78245.

CONCLUSION

- Open Coffee shops in San Antonio, TX—The fastest growing city in the US!
  - Especially, for neighborhoods: 78223, 78207, 78228, 78250, 78245.

- Thank you.