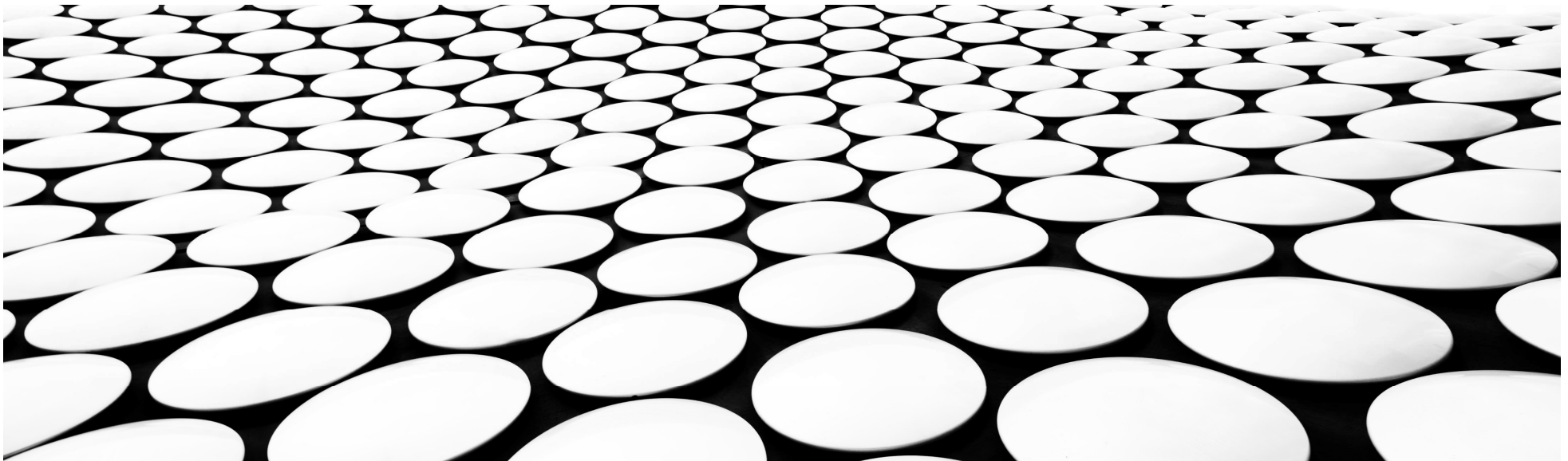

A FAMILY BUSINESS MOVING TO A NEW LOCATION

CAPSTONE PROJECT, IBM DATA SCIENCE PROFESSIONAL CERTIFICATE - THE BATTLE OF NEIGHBORHOODS (WEEK 2)

MUHAMMAD FAIZAN SIDDIQUI (09-MAY-2020)





INTRODUCTION





BACKGROUND

- A Huntsville, Alabama based health-and-fitness business
- All segments of the business facing sharp decline in revenue
- There seems to be no silver lining in the short term

PROBLEM



THE FAMILY IS CONSIDERING
RELOCATING TO A
DIFFERENT CITY



LOOKING FOR THE CITY WITH
RELATIVELY REQUIRES LOW
INVESTMENT IN REAL ESTATE

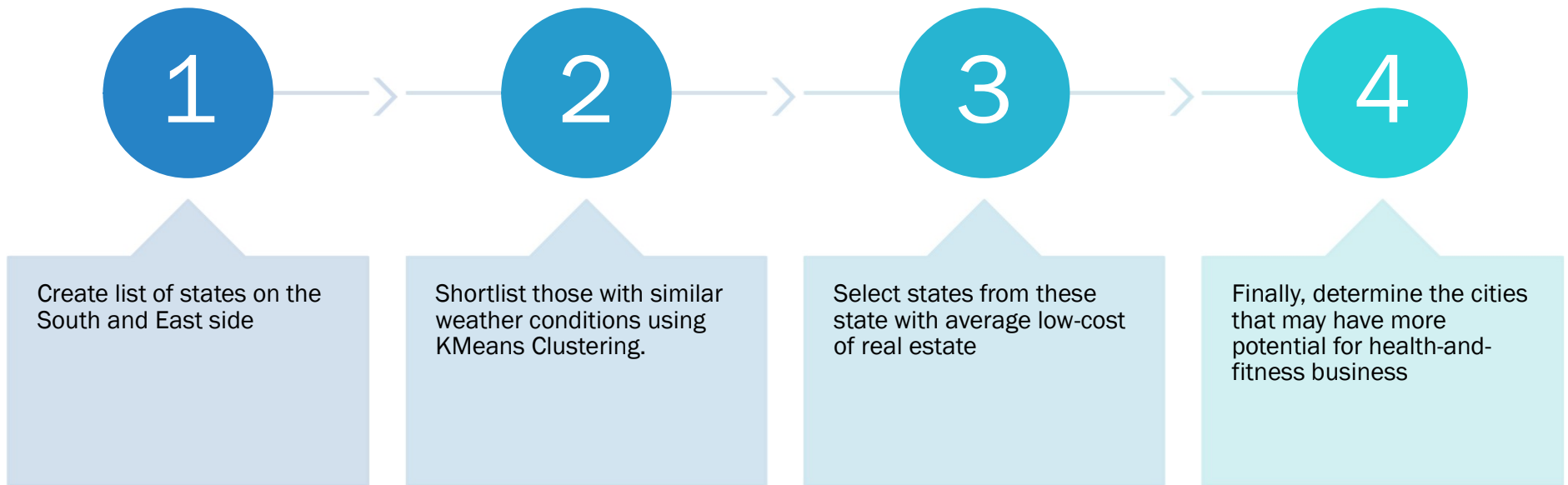


THEY WOULD LIKE TO
REMAIN ON THE SOUTH OR
EAST SIDE



CONCERNED ABOUT THE
CHANGES IN THE WEATHER

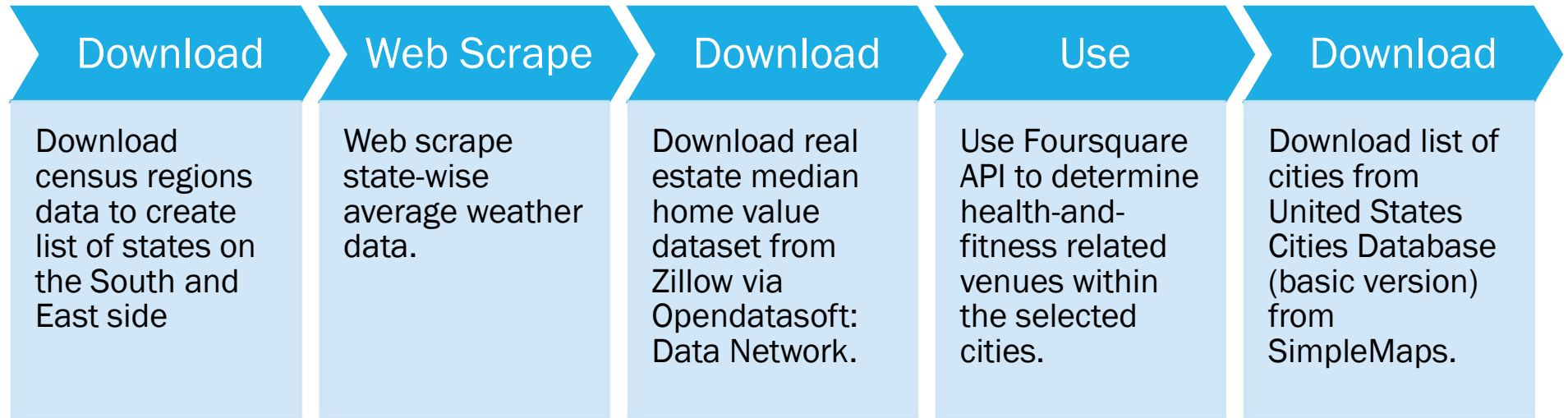
APPROACH





DATA





REQUIREMENTS AND SOURCES

DATA CLEANSING AND FEATURE SELECTION



Loaded data from data sources mentioned earlier



Retained only relevant features for the analysis



We standardized all column names



We also removed any non-ASCII characters from

All column names, and
Certain columns needed for
joining data frames

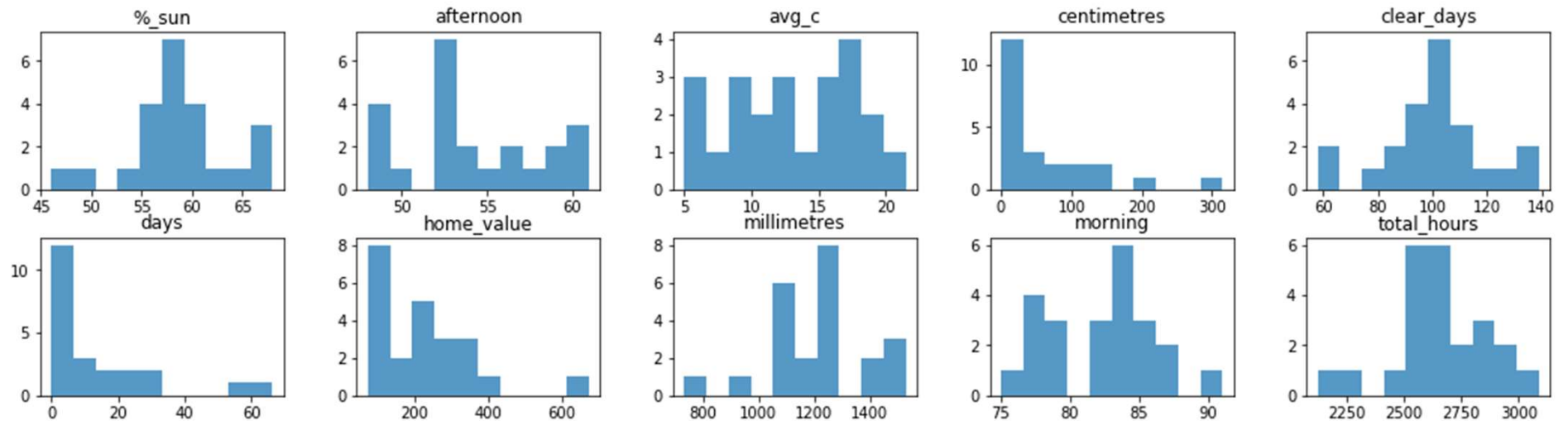


METHODOLOGY



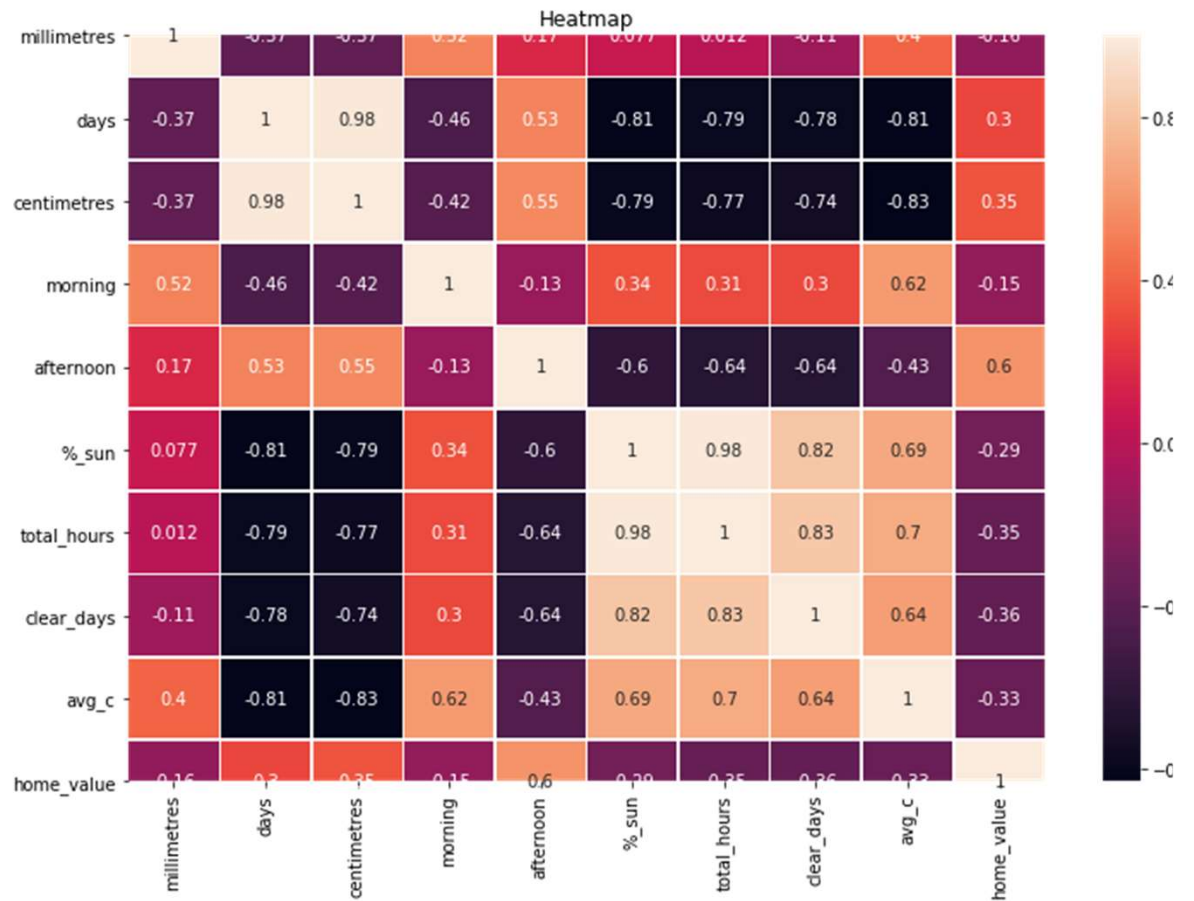
HISTOGRAM TO IDENTIFY ANY IRRELEVANT FEATURES FOR CLUSTERING

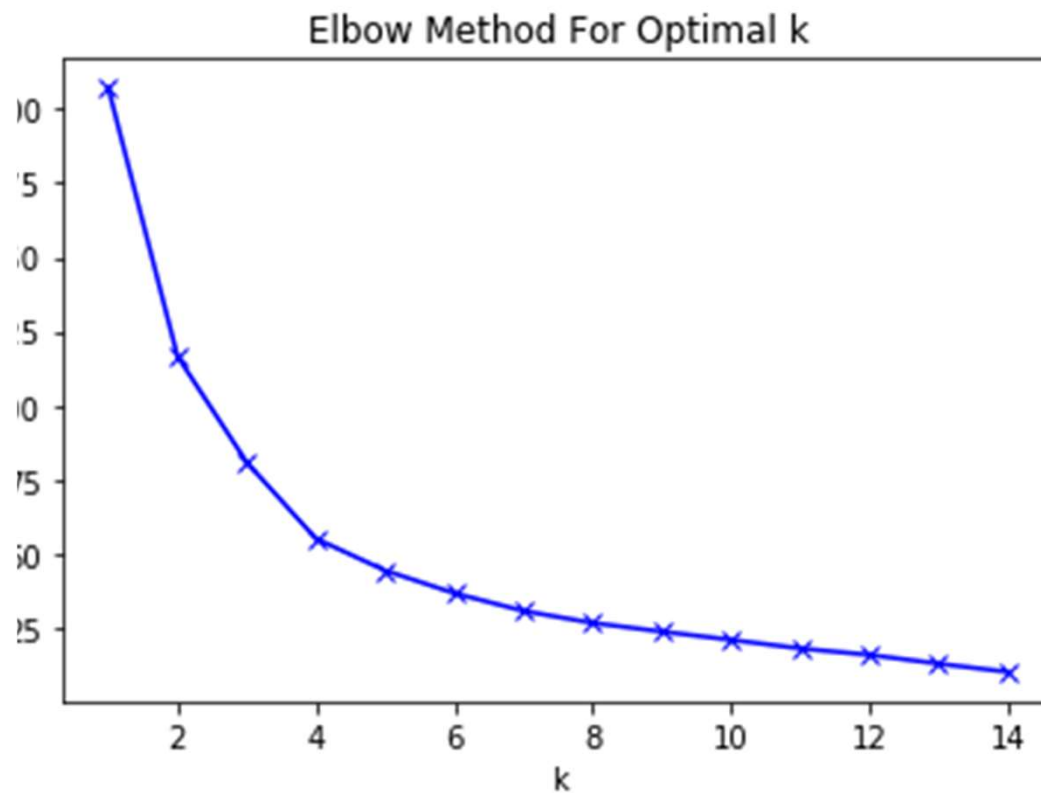
THERE WERE OUTLIERS WITHIN THE FEATURES, BUT ALL FEATURES SEEM TO BE SIGNIFICANT FOR THE JOB



**CORRELATION WITHIN
FEATURES IS NOT A
MAJOR PROBLEM FOR
CLUSTERING**

**THERE IS A STRONG
RELATIONSHIP
BETWEEN SOME
ATTRIBUTES**



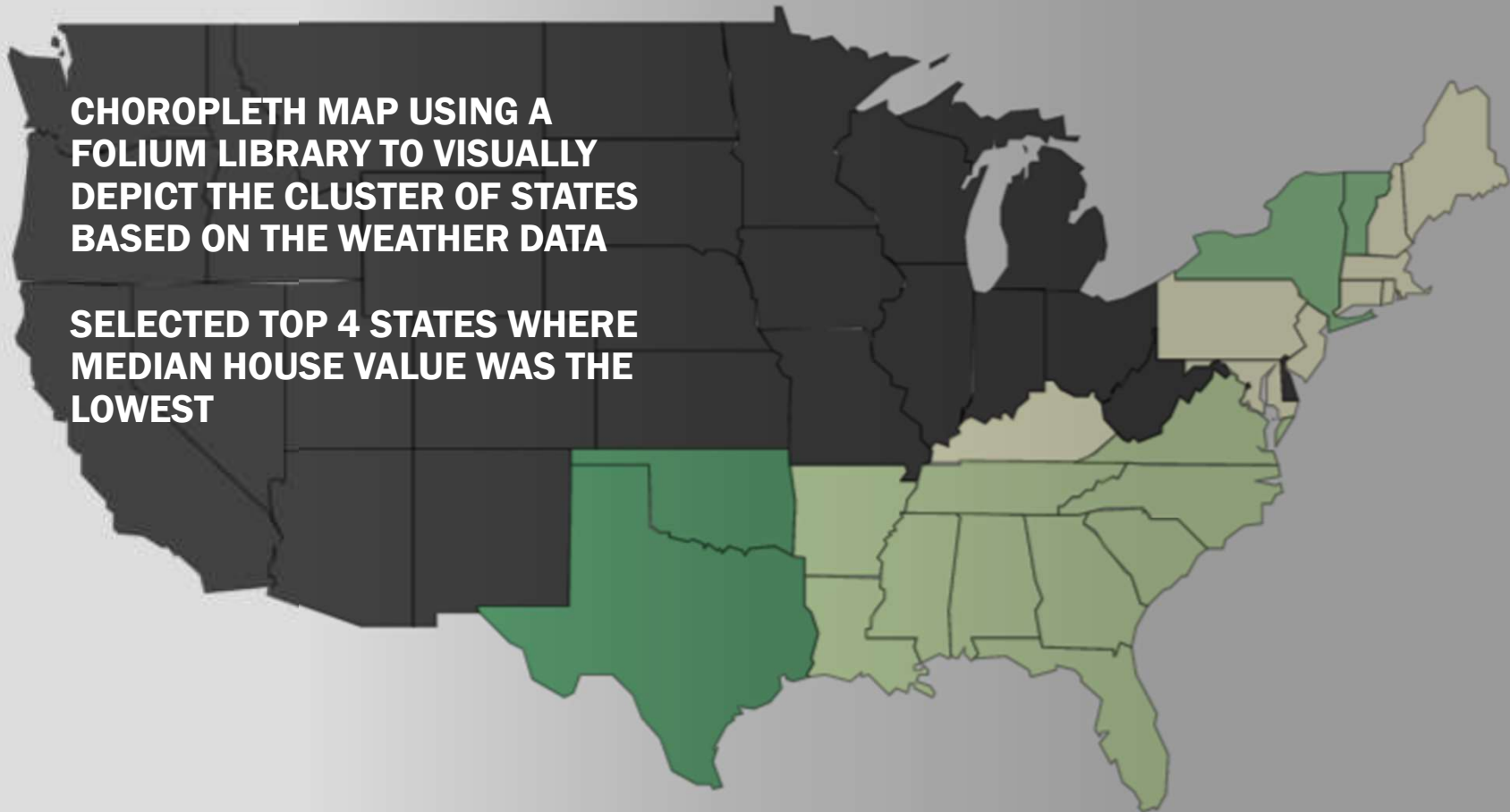


**WE USED ELBOW
METHOD TO FIND
OPTIMAL VALUE
FOR 'K' (=4)**



**CHOROPLETH MAP USING A
FOLIUM LIBRARY TO VISUALLY
DEPICT THE CLUSTER OF STATES
BASED ON THE WEATHER DATA**

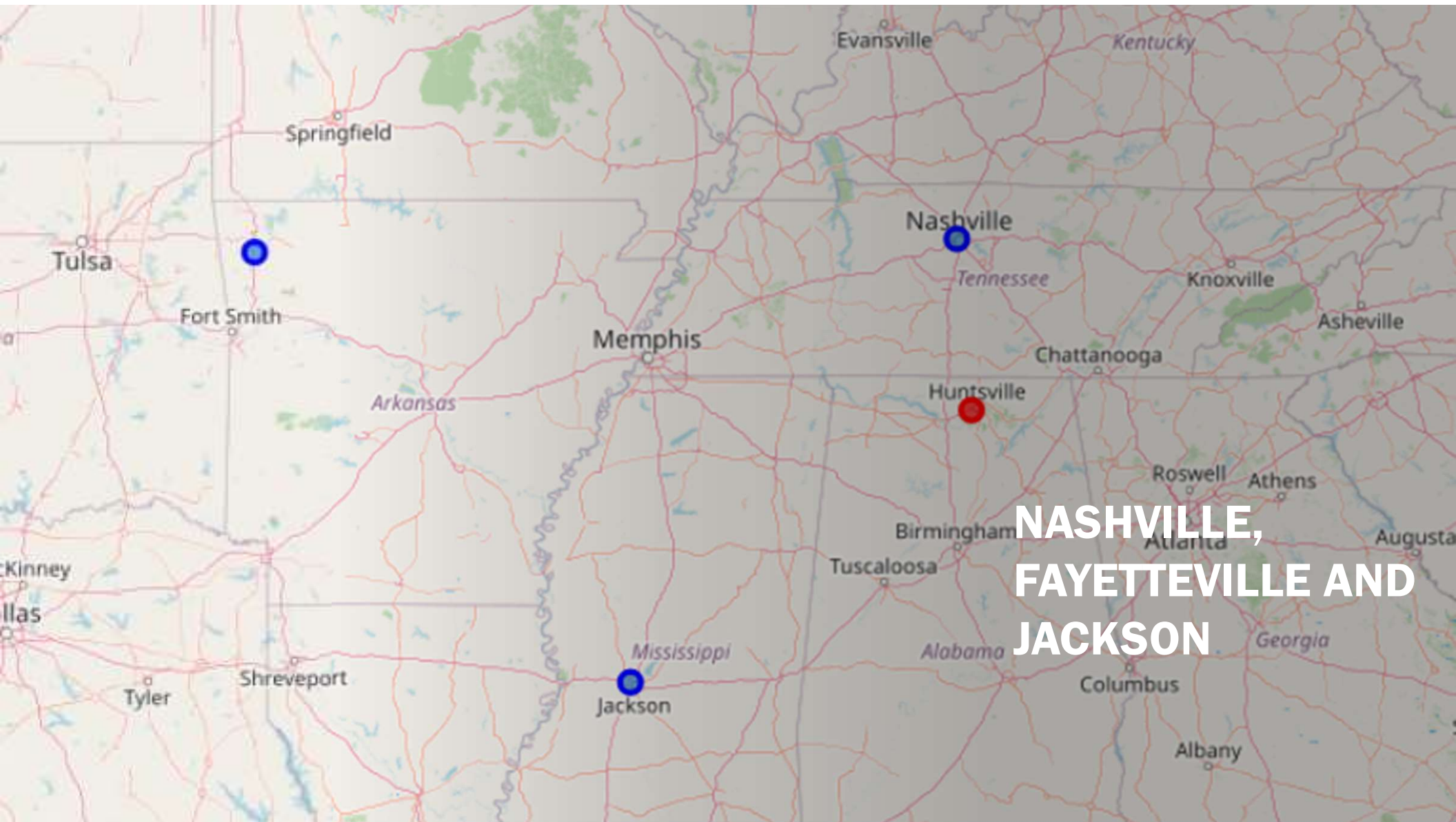
**SELECTED TOP 4 STATES WHERE
MEDIAN HOUSE VALUE WAS THE
LOWEST**





RESULTS





**NASHVILLE,
FAYETTEVILLE AND
JACKSON**



DISCUSSION



DISCUSSION

Assumed the business indeed required to be relocated and there is no other option

A very simplistic approach to a very complex business problem

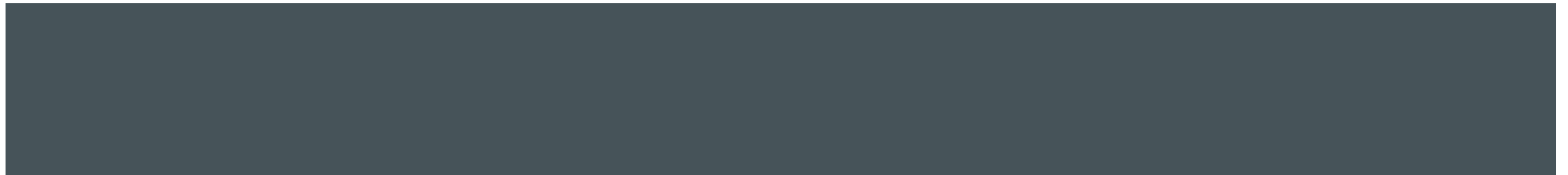
Only considered house median values as the dataset was freely available

Always tried to minimize scope of work and usage of Foursquare API, being free version

Shortcomings should be overcome for a commercially viable solution



CONCLUSION



CONCLUSION



Objective

To help a poorly performing family business in relocation
Under several constraints



We identified three cities that met the
stated requirements

THANK YOU!

