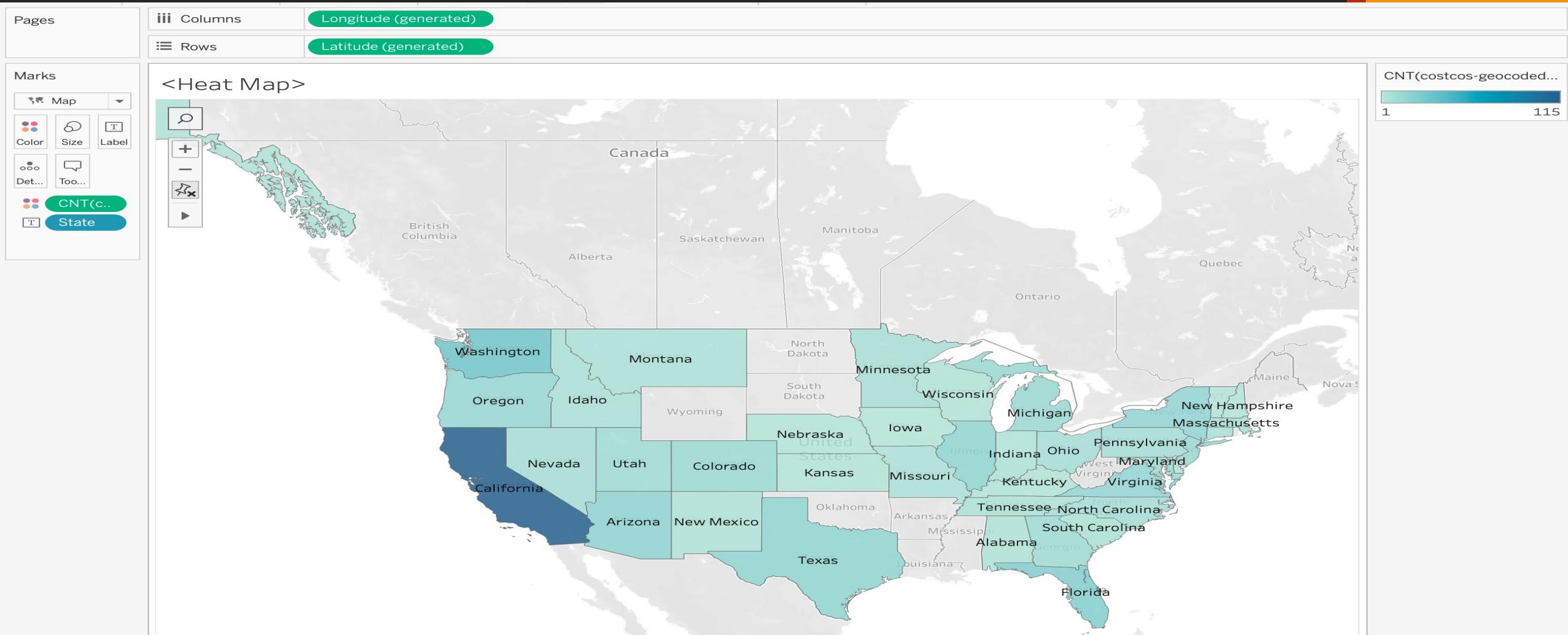
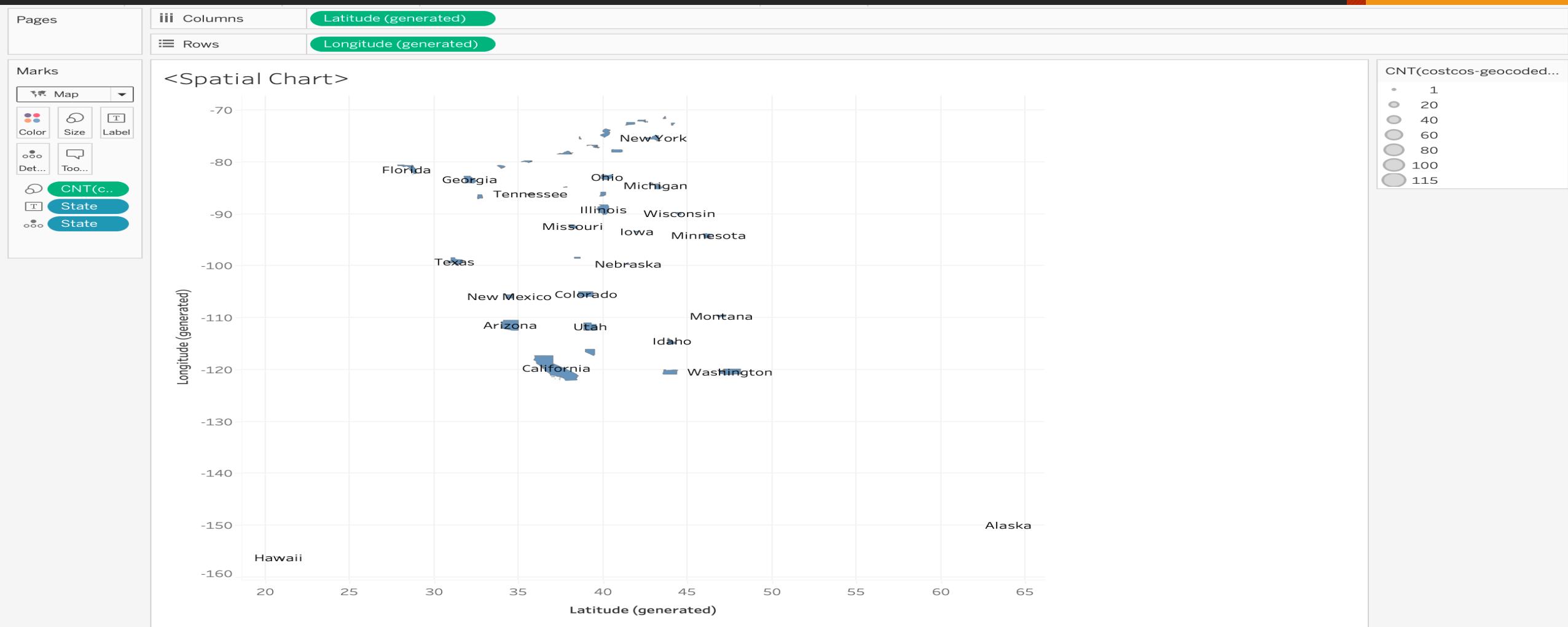


Charts in Tableau

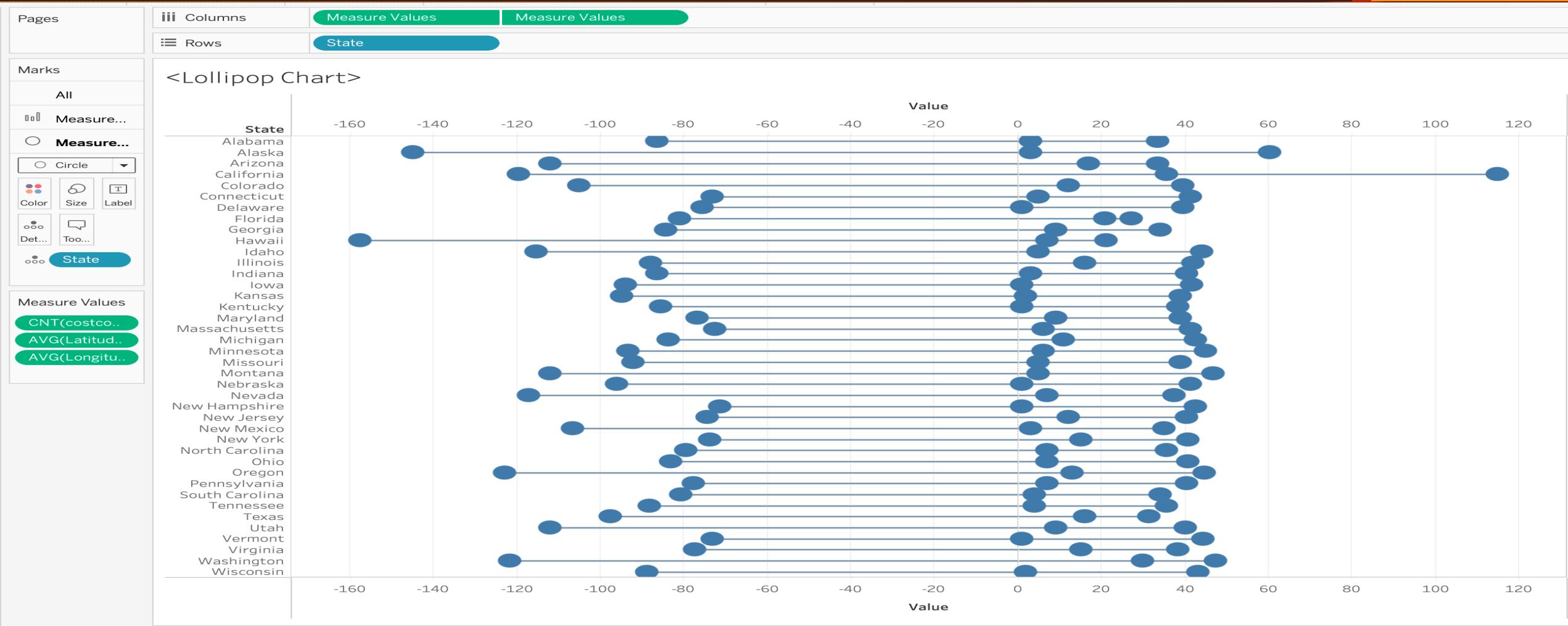
Heat Map



Spatial Chart



Lollipop Chart



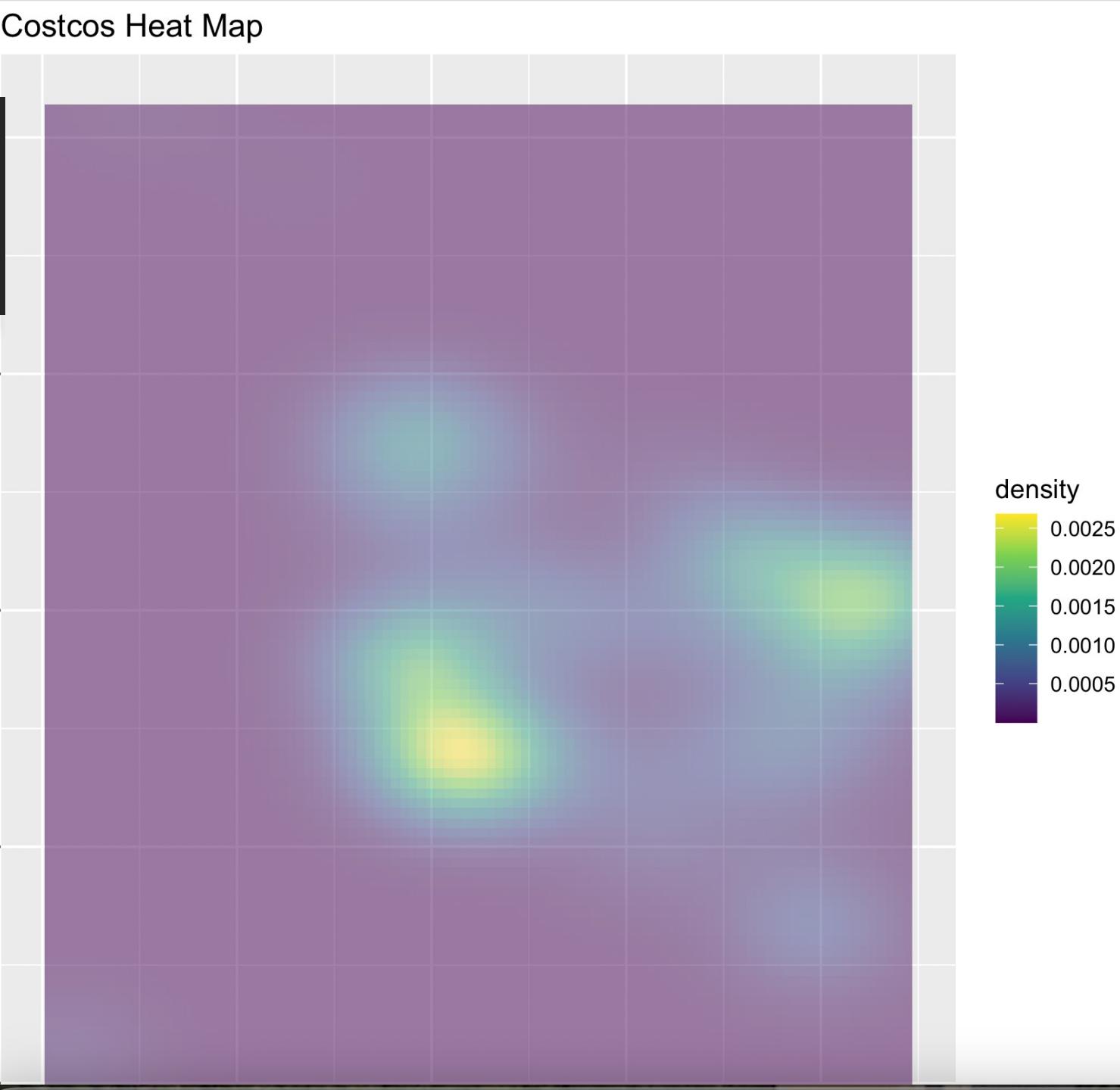
Charts in ‘R’

- # Specify the file path
- > file_path <- "/Users/josephmadden/Downloads/ex5-2/costcos-geocoded.csv"
- > # Read the CSV file into a data frame
- > costcos_data <- read.csv(file_path)

- library(ggplot2)
- > library(leaflet)

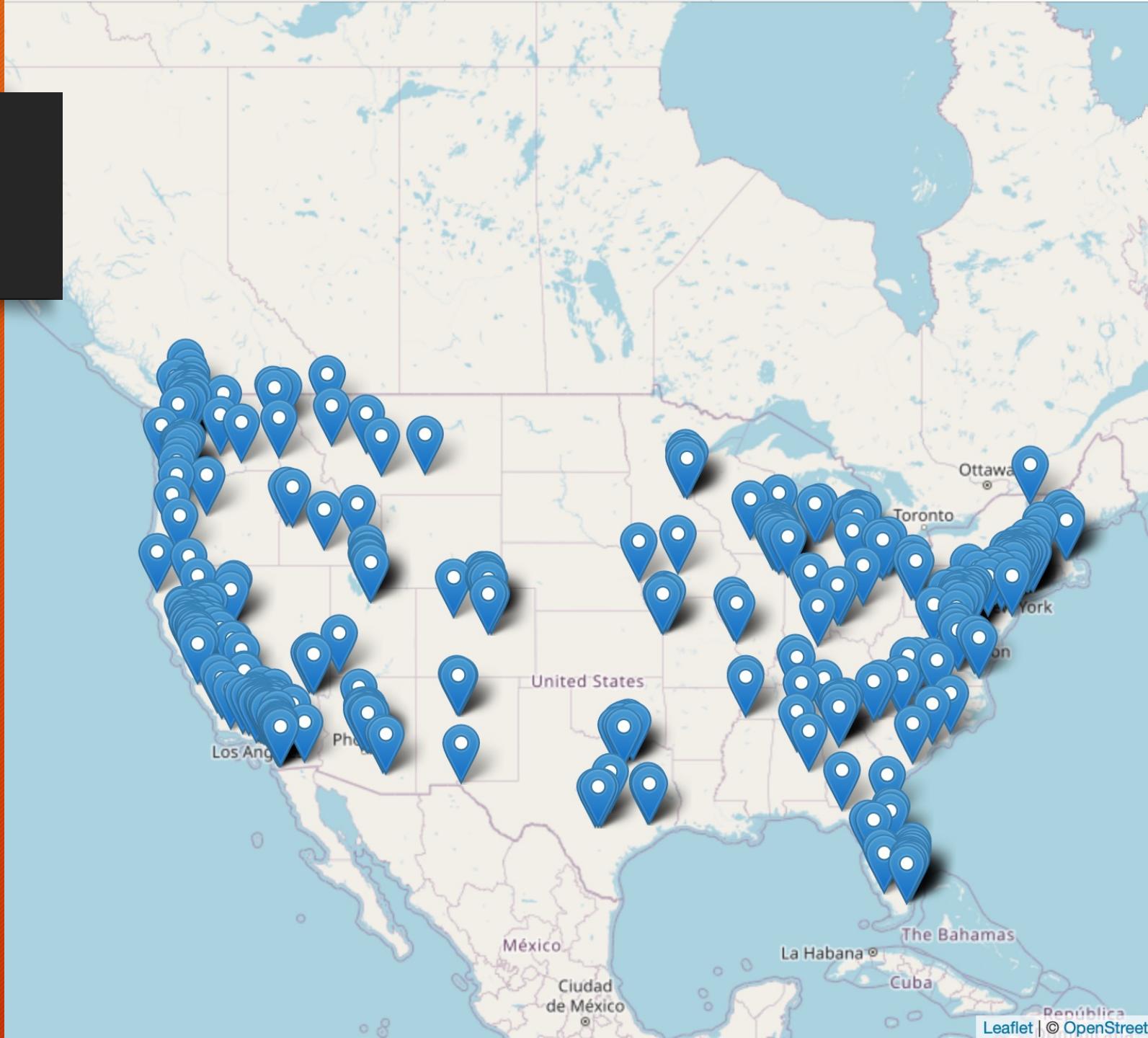
Heat Map

- # Heat Map with ggplot2
- > `ggplot(costcos_data, aes(x = Longitude, y = Latitude, fill = ..density..)) +`
- + `stat_density_2d(geom = "tile", contour = FALSE, alpha = 0.5) +`
- + `scale_fill_viridis_c() +`
- + `labs(title = "Costcos Heat Map")`



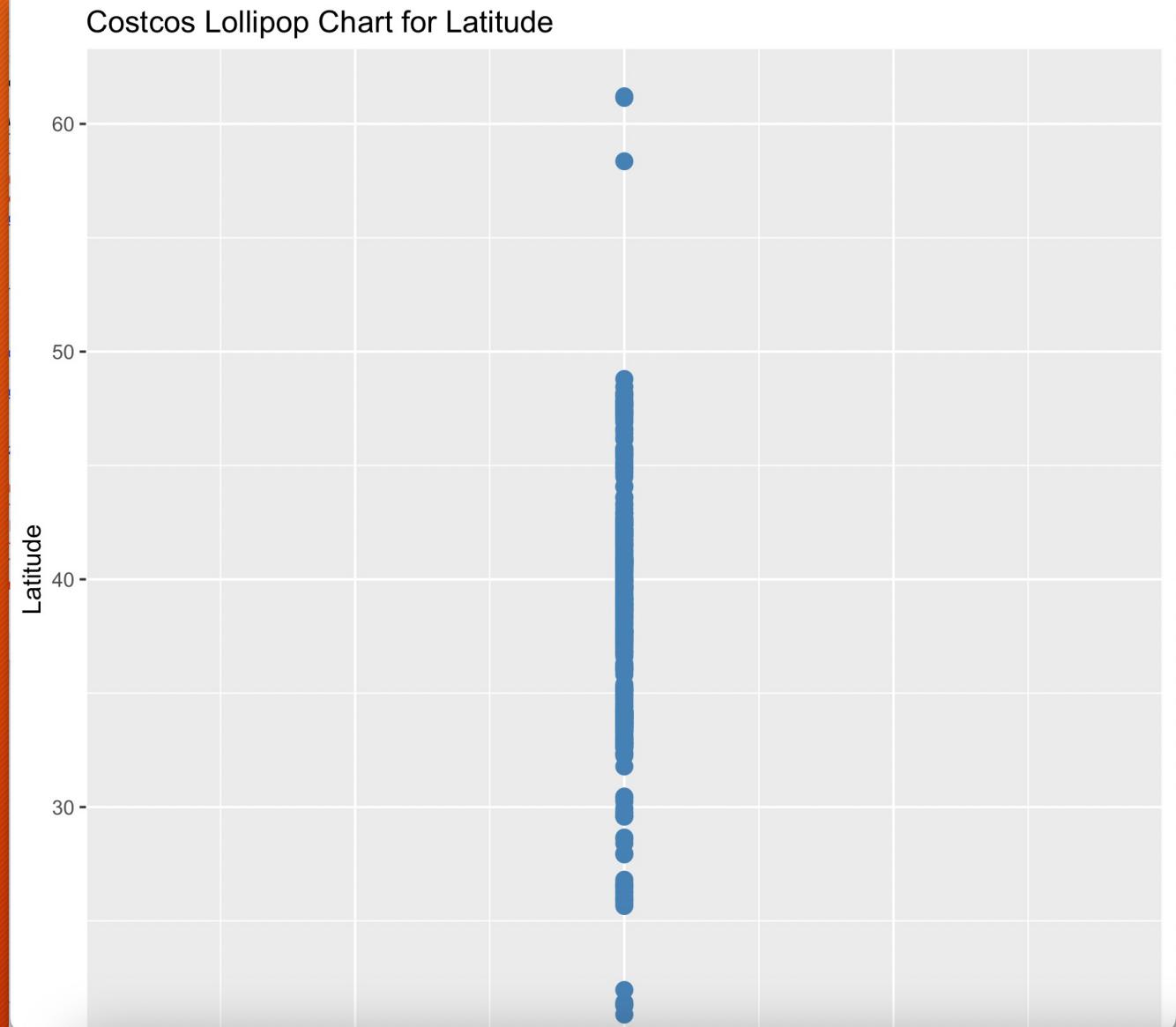
Spatial Chart

- leaflet(costcos_data) %>%
- + addTiles() %>%
- + addMarkers(~Longitude,
~Latitude, popup =
~paste(Address, "
", City, ", ",
State, " ", Zip.Code))



Lollipop Chart

```
ggplot(costcos_data, aes(x = 1, y =  
Latitude)) +  
+   geom_point(size = 3, color =  
"steelblue") +  
+   geom_linerange(aes(ymin =  
Latitude, ymax = Latitude), color =  
"steelblue", size = 1) +  
+   labs(title = "Costcos Lollipop  
Chart  
for Latitude")
```

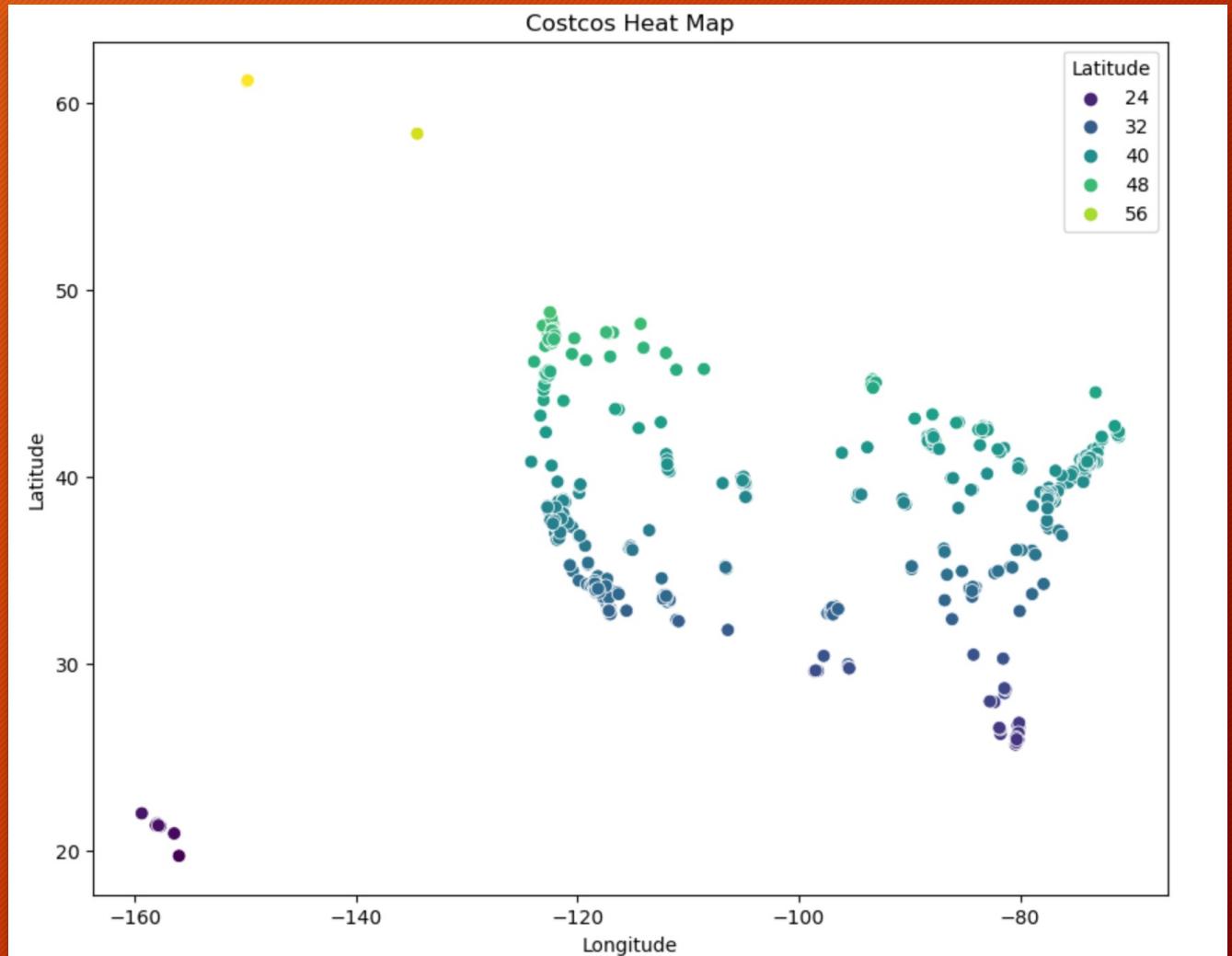


Charts in Python

- pip install pandas matplotlib seaborn folium
- import pandas as pd
- import matplotlib.pyplot as plt
- import seaborn as sns
- import folium
- file_path = "/Users/josephmadden/Downloads/ex5-2/costcos-geocoded.csv"
- costcos_data = pd.read_csv(file_path)

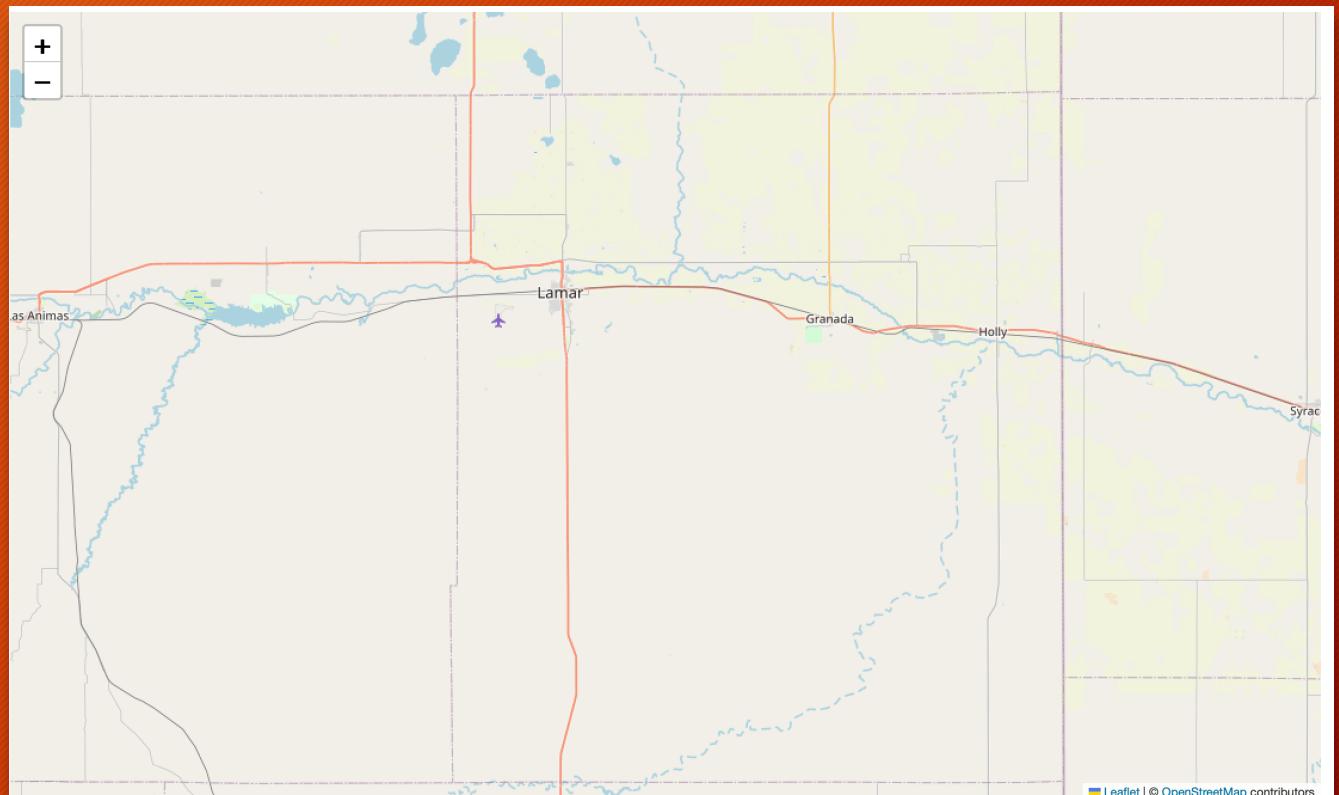
Heat Map

- `plt.figure(figsize=(10, 8))`
- `sns.scatterplot(x='Longitude', y='Latitude', data=costcos_data, hue='Latitude', palette='viridis', s=50)`
- `plt.title('Costcos Heat Map')`
- `plt.show()`



Spatial Chart

- ```
m = folium.Map(location=[costcos_data['Latitude'].mean(), costcos_data['Longitude'].mean()], zoom_start=10)
```
- ```
for index, row in costcos_data.iterrows():
```
- ```
 folium.Marker([row['Latitude'], row['Longitude']], popup=f'{row['Address']}, {row['City']}, {row['State']} {row['Zip Code']}').add_to(m)
```
- ```
m
```



Lollipop Chart

- `plt.figure(figsize=(10, 6))`
- `sns.pointplot(x='State', y='Latitude', data=costcos_data, color='steelblue', join=False)`
- `plt.title('Costcos Lollipop Chart for Latitude')`
- `plt.xticks(rotation=90)`
- `plt.show()`

