

The background of the slide features a wide-angle photograph of a majestic mountain range. The peaks are covered in thick, white snow, contrasting sharply with the deep blue of the sky above. The mountains recede into the distance, creating a sense of depth. In the foreground, the dark, rocky slopes of the mountains are visible, partially obscured by mist or low-hanging clouds.

Opportunities to Open a New Bar Sydney, Australia

IBM Data Science Capstone Project
---Zhicheng Hua

Introduction

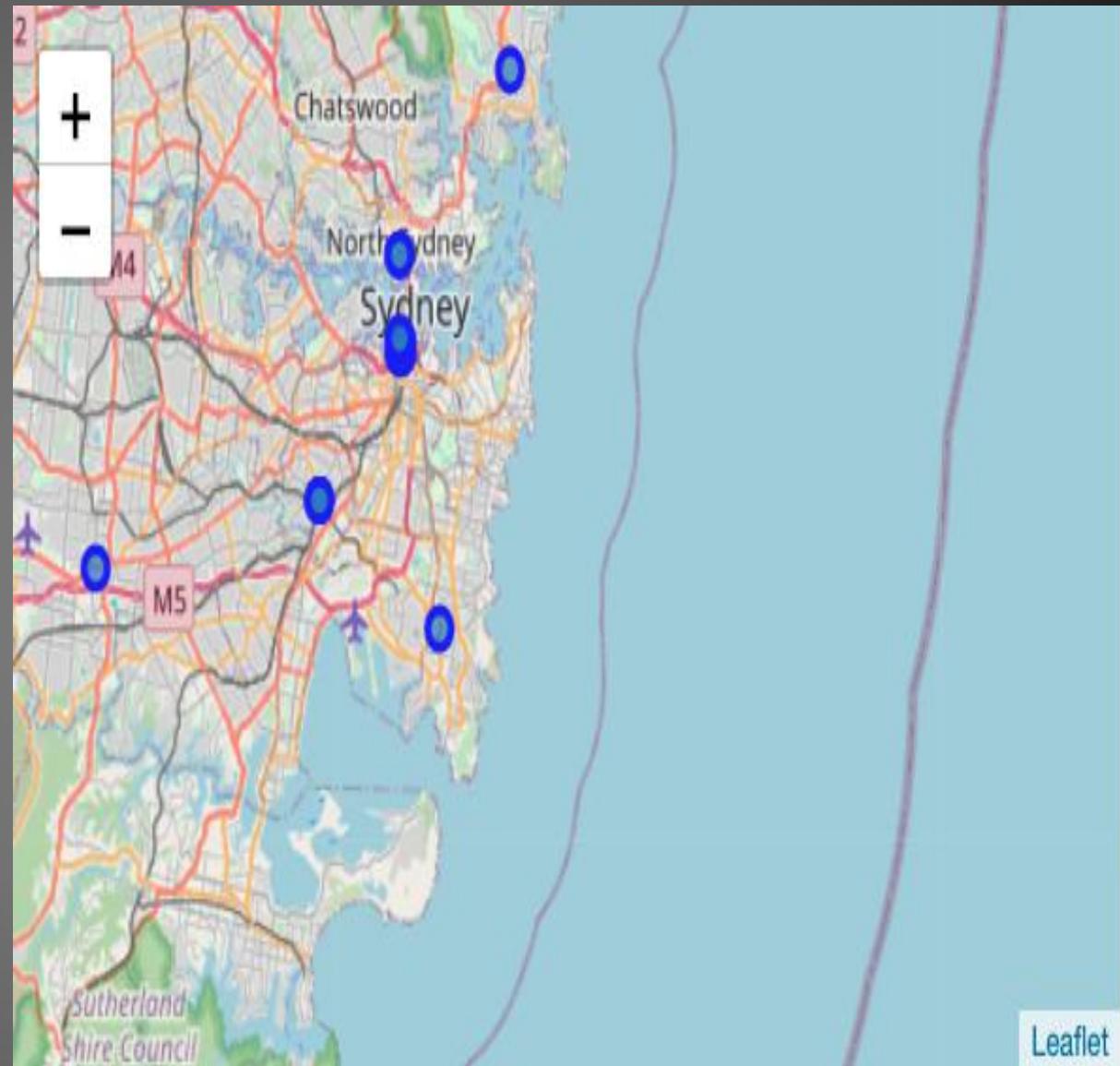


- For many residents, visiting a local bar is always a good way to relax and communicate after going through a high-intense working day. They can talk freely with friends, gather together watching football matches, and also the various parties held by different groups is also unmissable. The bars not only offer a place for people to get drinks but also offer a place to get people connected. As a result, bar culture is of the essence of Australia culture. And opening a nice bar at the right place considerable income. But when comes to the business decision it is more complicated than it seems like. And one of the determiner is its geolocation.

Map of Sydney

Region

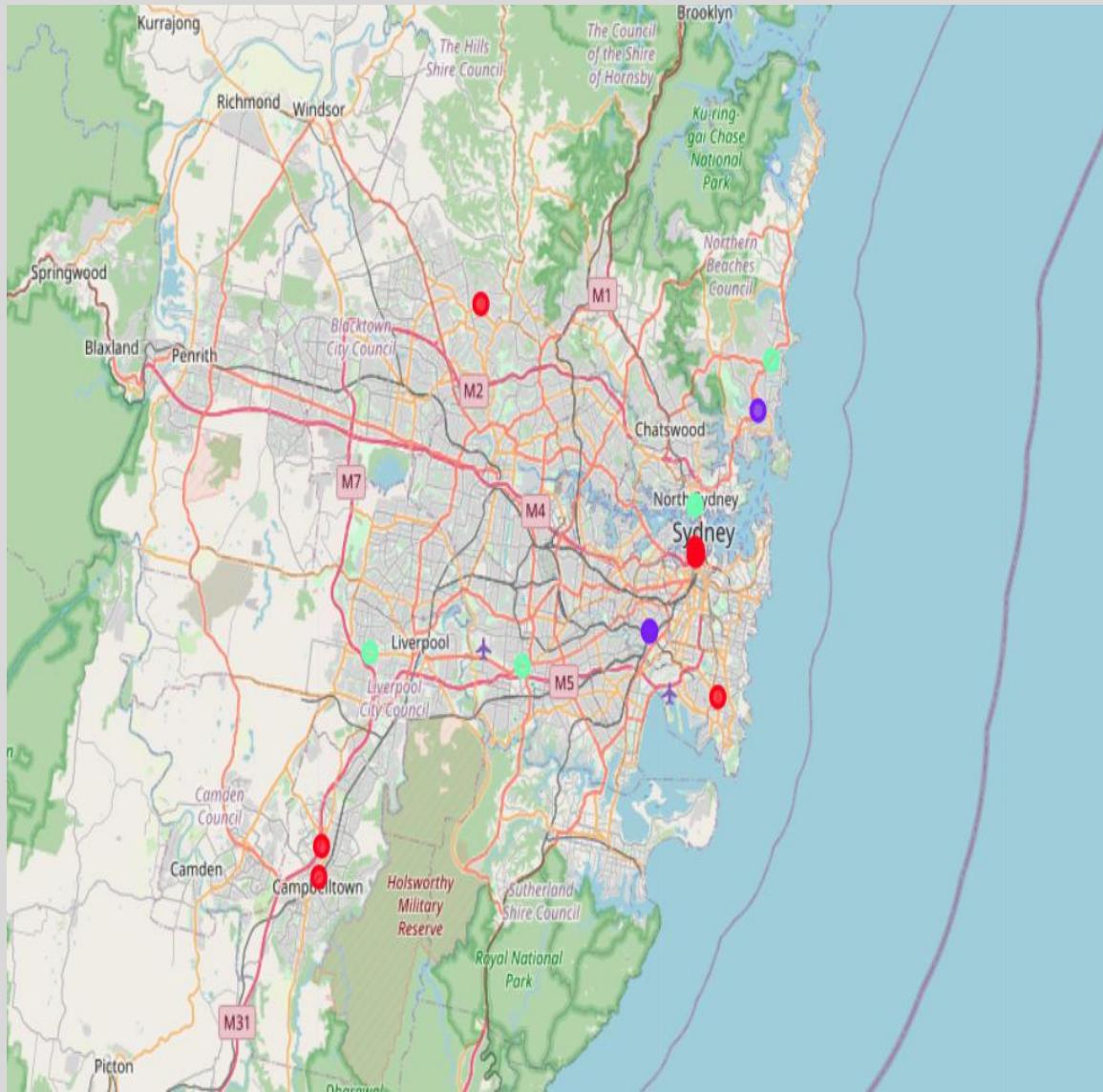
- | | |
|----|----------------------------------|
| 0 | Blue Mountains (New South Wales) |
| 1 | Canterbury-Bankstown |
| 2 | Dee Why |
| 3 | Eastern Suburbs (Sydney) |
| 4 | Forest District (Sydney) |
| 5 | Greater Western Sydney |
| 6 | Hills District |
| 7 | Inner West |
| 8 | Long Reef (New South Wales) |
| 9 | Macarthur, New South Wales |
| 10 | North Shore (Sydney) |
| 11 | Northern Sydney |
| 12 | St George (Sydney) |
| 13 | South Western Sydney |
| 14 | South-Eastern Sydney |
| 15 | Southern Sydney |
| 16 | Sydney central business district |
| 17 | Western Sydney |



| | Region | Airport Lounge | American Restaurant | Arcade | Art Gallery | Art Museum | Asian Restaurant | Athletics & Sports | Australian Restaurant | BBQ Joint | Bakery | Bar | Baseball Field | Basketball Stadium | Bay | Be | |
|----|----------------------------------|----------------|---------------------|--------|-------------|------------|------------------|--------------------|-----------------------|-----------|----------|----------|----------------|--------------------|----------|----------|----------|
| 0 | Blue Mountains (New South Wales) | 0.00 | 0.000000 | 0.00 | 0.000000 | 0.00 | 0.018182 | 0.00 | 0.018182 | 0.000000 | 0.036364 | 0.018182 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |
| 1 | Canterbury-Bankstown | 0.00 | 0.010204 | 0.00 | 0.000000 | 0.00 | 0.010204 | 0.00 | 0.000000 | 0.000000 | 0.020408 | 0.020408 | 0.000000 | 0.010204 | 0.00 | 0.000000 | |
| 2 | Dee Why | 0.00 | 0.000000 | 0.01 | 0.000000 | 0.00 | 0.010000 | 0.01 | 0.010000 | 0.000000 | 0.030000 | 0.020000 | 0.000000 | 0.000000 | 0.00 | 0.070000 | |
| 3 | Eastern Suburbs (Sydney) | 0.00 | 0.000000 | 0.00 | 0.010000 | 0.01 | 0.000000 | 0.00 | 0.000000 | 0.010000 | 0.000000 | 0.010000 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |
| 4 | Forest District (Sydney) | 0.00 | 0.000000 | 0.00 | 0.010000 | 0.01 | 0.000000 | 0.00 | 0.010000 | 0.010000 | 0.040000 | 0.010000 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |
| 5 | Greater Western Sydney | 0.01 | 0.000000 | 0.00 | 0.000000 | 0.00 | 0.010000 | 0.10 | 0.010000 | 0.000000 | 0.060000 | 0.060000 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |
| 6 | Hills District | 0.00 | 0.000000 | 0.00 | 0.000000 | 0.00 | 0.000000 | 0.00 | 0.000000 | 0.011111 | 0.000000 | 0.011111 | 0.011111 | 0.011111 | 0.011111 | 0.00 | 0.000000 |
| 7 | Inner West | 0.00 | 0.000000 | 0.00 | 0.000000 | 0.00 | 0.010000 | 0.01 | 0.010000 | 0.000000 | 0.050000 | 0.060000 | 0.000000 | 0.000000 | 0.01 | 0.100000 | |
| 8 | Long Reef (New South Wales) | 0.00 | 0.000000 | 0.00 | 0.000000 | 0.00 | 0.000000 | 0.05 | 0.000000 | 0.025000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |
| 9 | Macarthur, New South Wales | 0.00 | 0.000000 | 0.00 | 0.012821 | 0.00 | 0.000000 | 0.00 | 0.012821 | 0.000000 | 0.012821 | 0.000000 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |
| 10 | North Shore (Sydney) | 0.00 | 0.010000 | 0.00 | 0.000000 | 0.01 | 0.000000 | 0.00 | 0.020000 | 0.000000 | 0.020000 | 0.020000 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |
| 11 | Northern Sydney | 0.00 | 0.010000 | 0.00 | 0.000000 | 0.01 | 0.000000 | 0.00 | 0.020000 | 0.000000 | 0.020000 | 0.020000 | 0.000000 | 0.000000 | 0.00 | 0.000000 | |

Data Frame for Bar Occurrence

| | Region | Bar |
|---|----------------------------------|----------|
| 0 | Blue Mountains (New South Wales) | 0.018182 |
| 1 | Canterbury-Bankstown | 0.020408 |
| 2 | Dee Why | 0.020000 |
| 3 | Eastern Suburbs (Sydney) | 0.010000 |
| 4 | Forest District (Sydney) | 0.010000 |

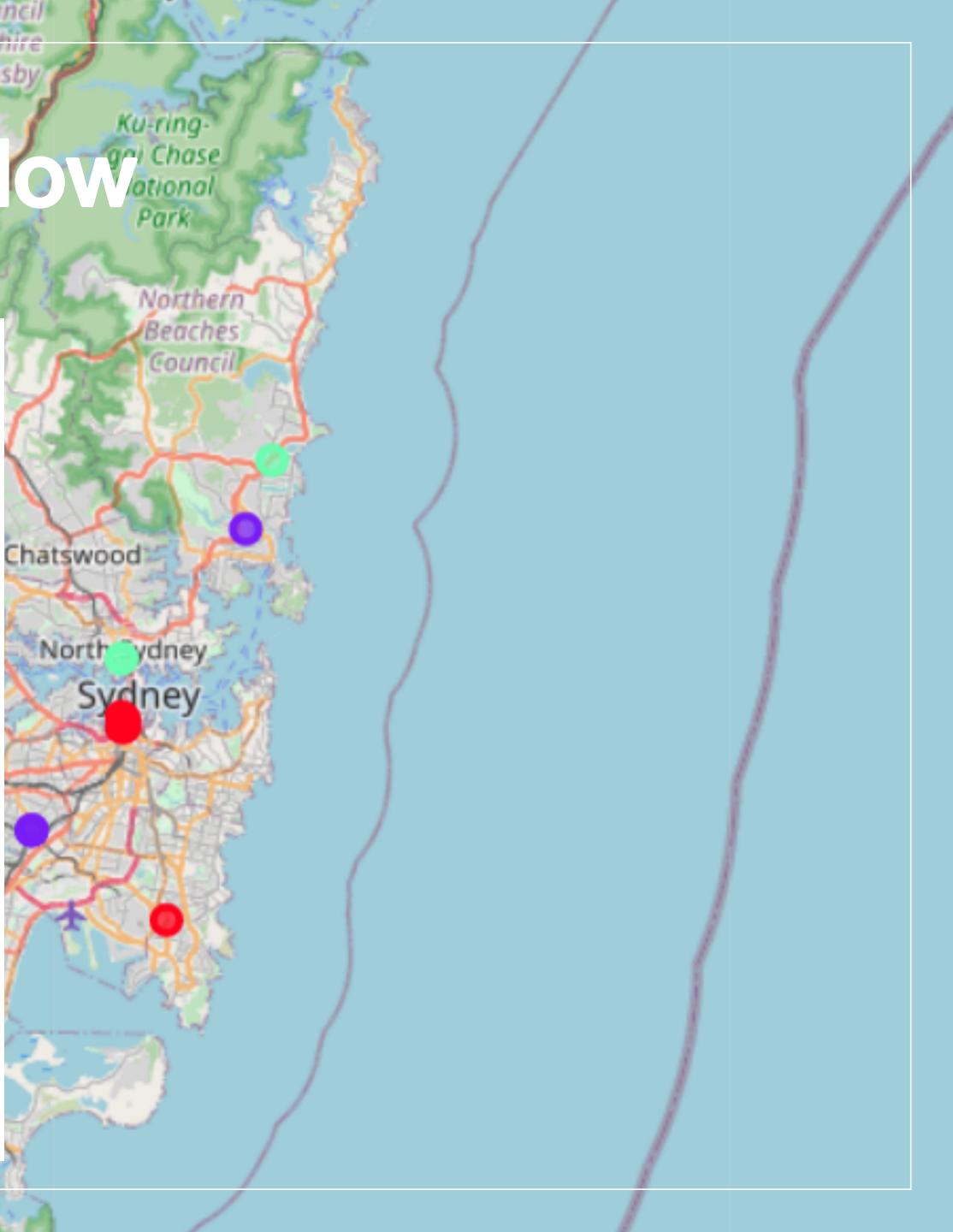


Regions Clustering

| | Region | Bar | Cluster Labels | Latitude | Longitude |
|----|----------------------------------|----------|----------------|------------|------------|
| 8 | Long Reef (New South Wales) | 0.000000 | 0 | -34.040583 | 150.823810 |
| 15 | St George (Sydney) | 0.010000 | 0 | -33.865600 | 151.208650 |
| 3 | Eastern Suburbs (Sydney) | 0.010000 | 0 | -33.869600 | 151.206910 |
| 4 | Forest District (Sydney) | 0.010000 | 0 | -33.868851 | 151.209332 |
| 13 | South-Eastern Sydney | 0.000000 | 0 | -33.952600 | 151.231270 |
| 6 | Hills District | 0.011111 | 0 | -33.720920 | 150.988300 |
| 9 | Macarthur, New South Wales | 0.000000 | 0 | -34.058460 | 150.821500 |
| 16 | Sydney central business district | 0.010000 | 0 | -33.864820 | 151.207730 |
| 14 | Southern Sydney | 0.060000 | 1 | -33.913440 | 151.161129 |
| 17 | Western Sydney | 0.060000 | 1 | -33.913440 | 151.161129 |
| 5 | Greater Western Sydney | 0.060000 | 1 | -33.913440 | 151.161129 |
| 7 | Inner West | 0.060000 | 1 | -33.783883 | 151.271505 |
| 10 | North Shore (Sydney) | 0.020000 | 2 | -33.839920 | 151.207890 |
| 11 | Northern Sydney | 0.020000 | 2 | -33.839210 | 151.207210 |
| 12 | South Western Sydney | 0.032258 | 2 | -33.926139 | 150.873462 |
| 2 | Dee Why | 0.020000 | 2 | -33.753620 | 151.285350 |
| 1 | Canterbury-Bankstown | 0.020408 | 2 | -33.934042 | 151.030229 |
| 0 | Blue Mountains (New South Wales) | 0.018182 | 2 | -33.713310 | 150.330650 |

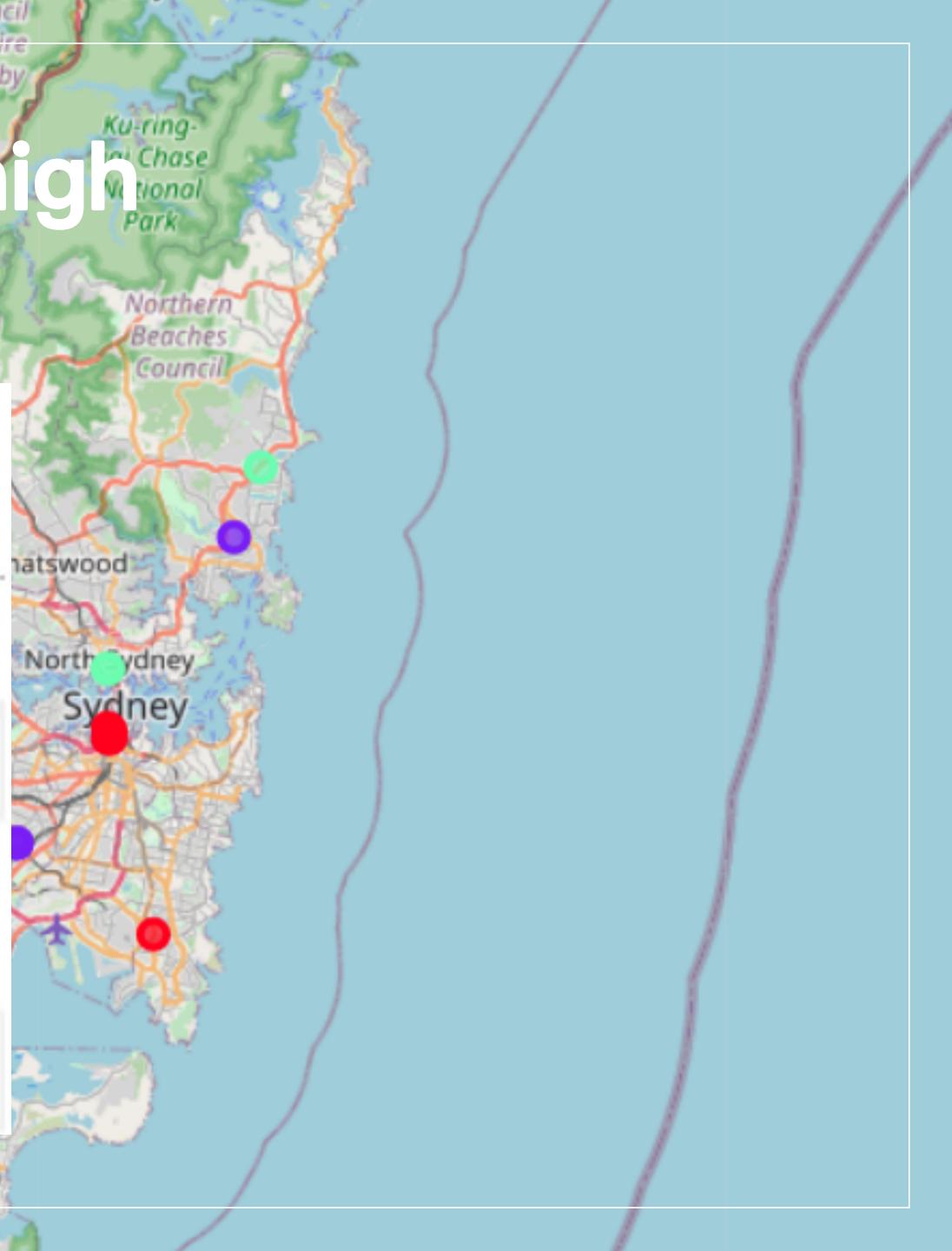
Cluster 0: Regions with low concentration

| | Region | Bar | Cluster Labels | Latitude | Longitude |
|----|----------------------------------|----------|----------------|------------|------------|
| 8 | Long Reef (New South Wales) | 0.000000 | 0 | -34.040583 | 150.823810 |
| 15 | St George (Sydney) | 0.010000 | 0 | -33.865600 | 151.208650 |
| 3 | Eastern Suburbs (Sydney) | 0.010000 | 0 | -33.869600 | 151.206910 |
| 4 | Forest District (Sydney) | 0.010000 | 0 | -33.868851 | 151.209332 |
| 13 | South-Eastern Sydney | 0.000000 | 0 | -33.952600 | 151.231270 |
| 6 | Hills District | 0.011111 | 0 | -33.720920 | 150.988300 |
| 9 | Macarthur, New South Wales | 0.000000 | 0 | -34.058460 | 150.821500 |
| 16 | Sydney central business district | 0.010000 | 0 | -33.864820 | 151.207730 |



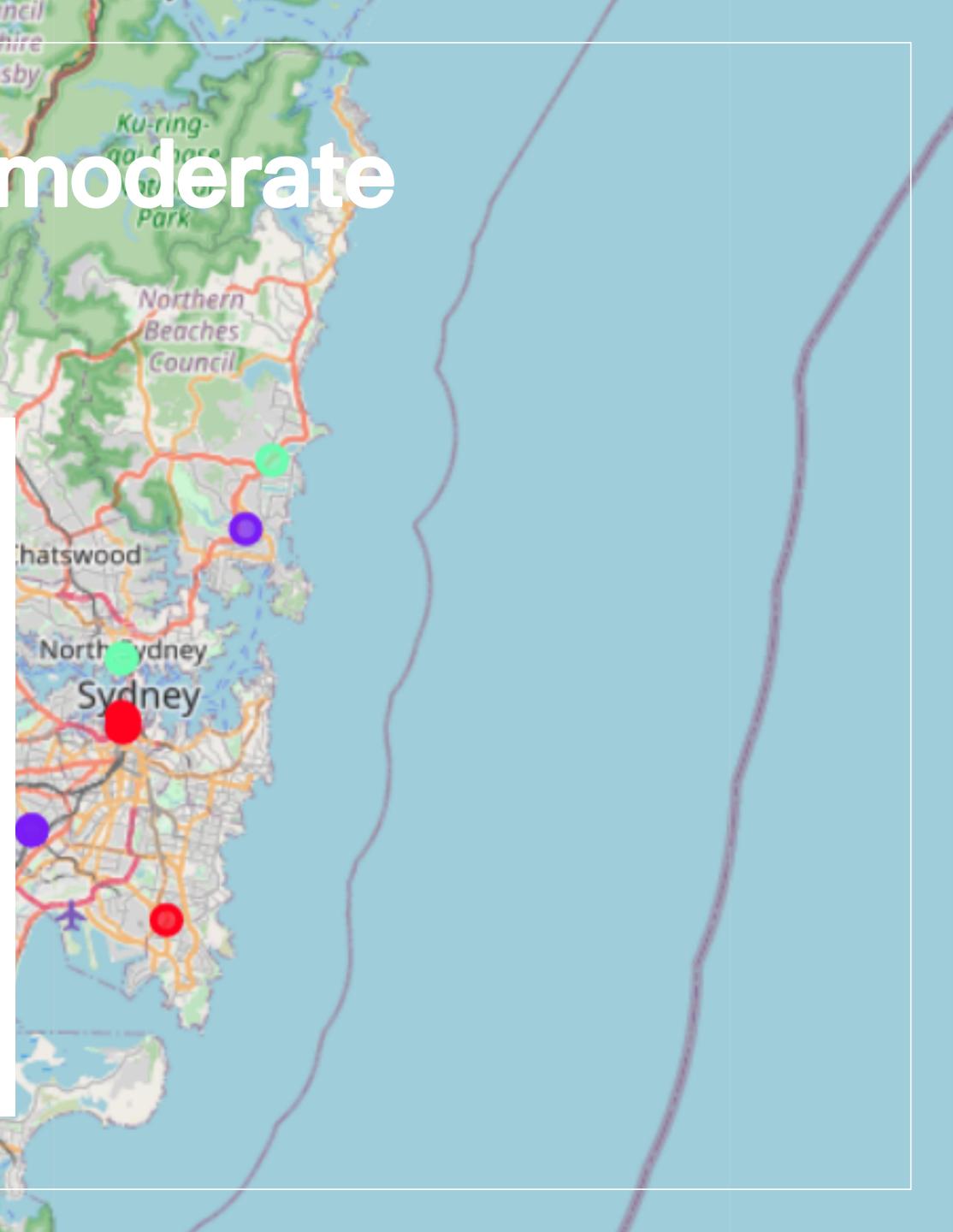
Cluster 1: Regions with high concentration

| | Region | Bar | Cluster Labels | Latitude | Longitude |
|----|------------------------|------|----------------|------------|------------|
| 14 | Southern Sydney | 0.06 | 1 | -33.913440 | 151.161129 |
| 17 | Western Sydney | 0.06 | 1 | -33.913440 | 151.161129 |
| 5 | Greater Western Sydney | 0.06 | 1 | -33.913440 | 151.161129 |
| 7 | Inner West | 0.06 | 1 | -33.783883 | 151.271505 |



Cluster 2: Regions with moderate concentration

| | Region | Bar | Cluster Labels | Latitude | Longitude |
|----|----------------------------------|----------|----------------|------------|------------|
| 10 | North Shore (Sydney) | 0.020000 | 2 | -33.839920 | 151.207890 |
| 11 | Northern Sydney | 0.020000 | 2 | -33.839210 | 151.207210 |
| 12 | South Western Sydney | 0.032258 | 2 | -33.926139 | 150.873462 |
| 2 | Dee Why | 0.020000 | 2 | -33.753620 | 151.285350 |
| 1 | Canterbury-Bankstown | 0.020408 | 2 | -33.934042 | 151.030229 |
| 0 | Blue Mountains (New South Wales) | 0.018182 | 2 | -33.713310 | 150.330650 |



DISCUSSION

As observed from the map the north-east and south-west part of the Sydney has the highest concentration of the bars, which may lead to the oversupply situation and suffering from intense competition. While the central area of Sydney still have a great potential to open some new bars, because their concentration rate are still low. And also the concentration of the bars in the suburb area is moderate. Therefore this project recommends investors to open new bars in the area of cluster 0, which are Long Reef (New South Wales) St George (Sydney) Eastern Suburbs (Sydney) Forest District (Sydney) South-Eastern Sydney. Hills District Macarthur, New South Wales Sydney central business district

THANKS FOR WATCHING

