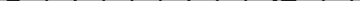
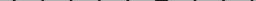




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122 «'»

[ ,  , ]

2024



A horizontal bar composed of seven teal squares, followed by a black square containing a white colon character.



10

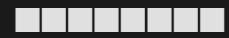


A horizontal bar consisting of ten equal-sized teal squares, followed by a black colon character.

K-means, GeoJSON, Machine Learning, RESTful API

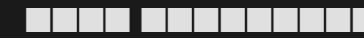


- ✓ K-means 1,864'
- ✓ GeoJSON 4
- ✓ Elbow Method, Silhouette
- ✓ Google Places API
- ✓ AI-Claude Sonnet



Google Maps

TripAdvisor



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A horizontal bar consisting of eight identical teal-colored squares arranged side-by-side, followed by a single small black square at the end.

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- K-means 
 -  GeoJSON  OSM
 - Google Places API



Backend:

FastAPI, Python, MongoDB

Frontend:

React 19, Tailwind CSS, Recharts



Leaflet.js, GeoJSON, OSM

AI:

Claude Sonnet 4, Google Places API



1,864



7



4



100%





█████████████████████:

100% - Frontend █████████████████

█████████████████████:

90% - Backend API ████████████

█████████████████:

██████████████ - █████████████████████

- ✓ Silhouette: 0.693
- ✓ Davies-Bouldin: 0.62
- ✓ K=7 ██████████████



✓ K-means clustering 1,864 clusters

✓ K-means clustering 1,864 clusters

✓ K-means clustering 1,864 clusters GeoJSON output

✓ AI-powered clustering 1,864 clusters

✓ Google Places API clustering 1,864 clusters

✓ K-means clustering 1,864 clusters GeoJSON output

✓ AI-powered clustering 1,864 clusters GeoJSON output.



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