City Explorer – Munich

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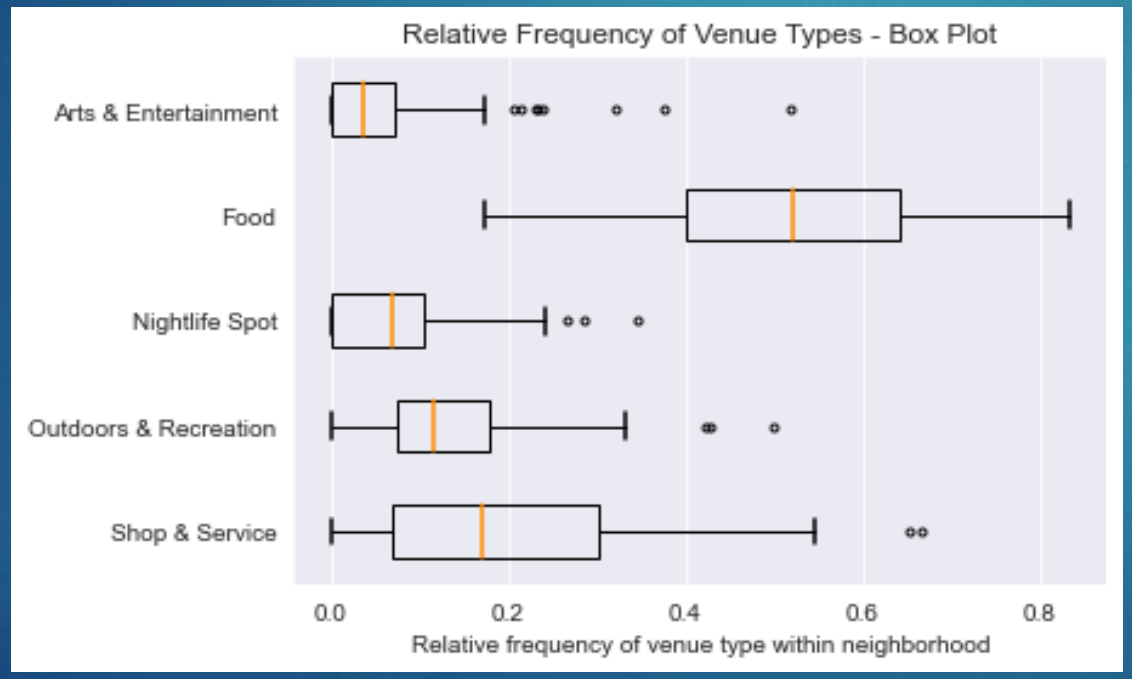
- When visiting a new city, many people wish to stroll around to explore the shops, cafes, bars, and parks in their surroundings
- City Explorer is a web-based city guide for visitors people who wish to explore their surroundings independently.
- Users can select from five distinct venue categories:
  - Arts & Entertainment (e.g. art galleries, museums, theaters, cinemas, stadiums)
  - Food (e.g. restaurants, pubs, cafés)
  - Nightlife (e.g. bars, nightclubs)
  - Outdoors & Recreation (e.g. parks, forests)
  - Shops & Service (e.g. clothing stores, bookstores, flower shop)
- Users can indicate the neighborhoods that they enjoyed the most to get recommendations on further neighborhoods that they might want to explore.

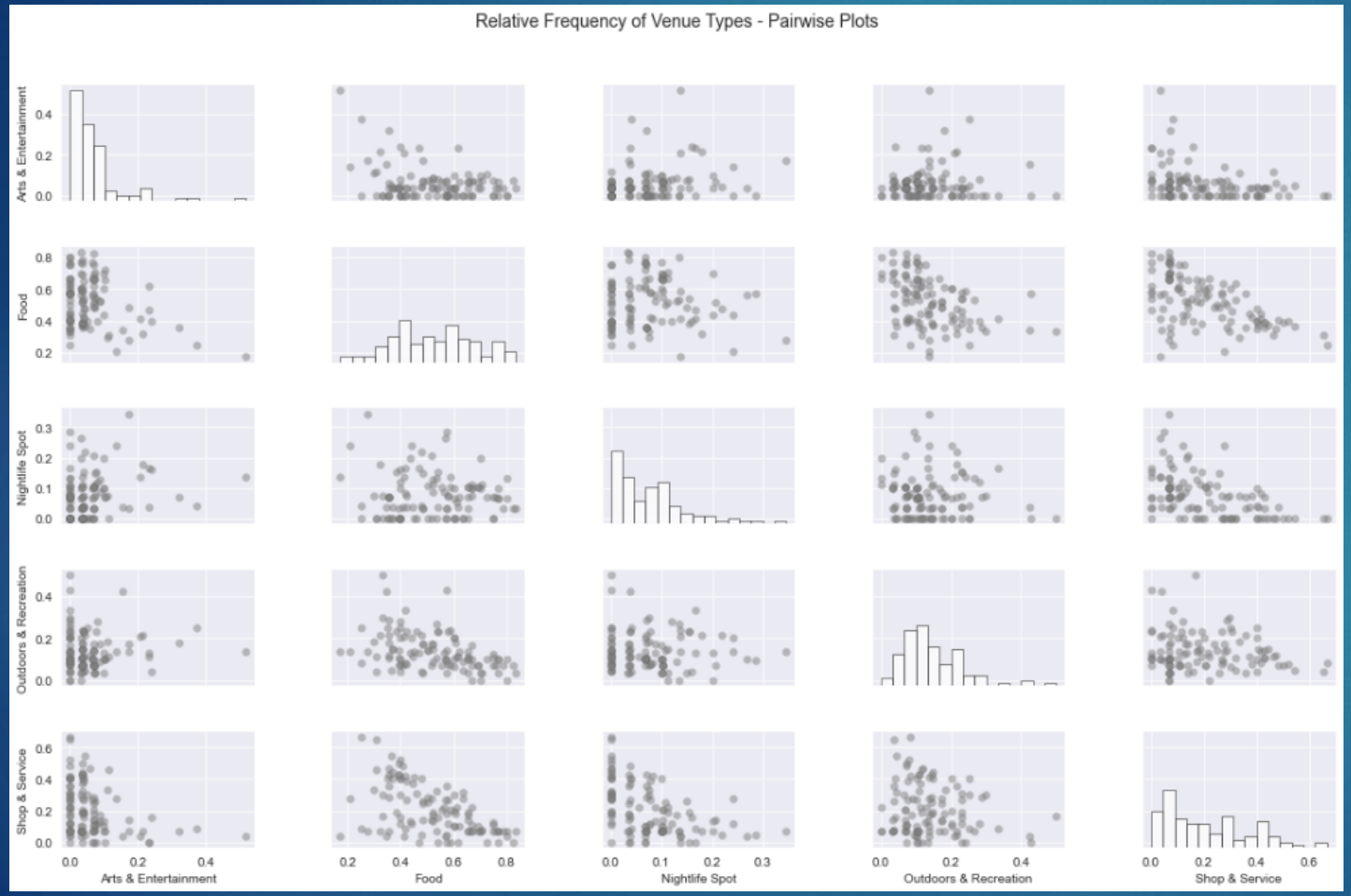
Data

- Combines geodata (OpenStreetMap) and venue data (Foursquare) to divide Munich neighborhoods into clusters of similar neighborhoods



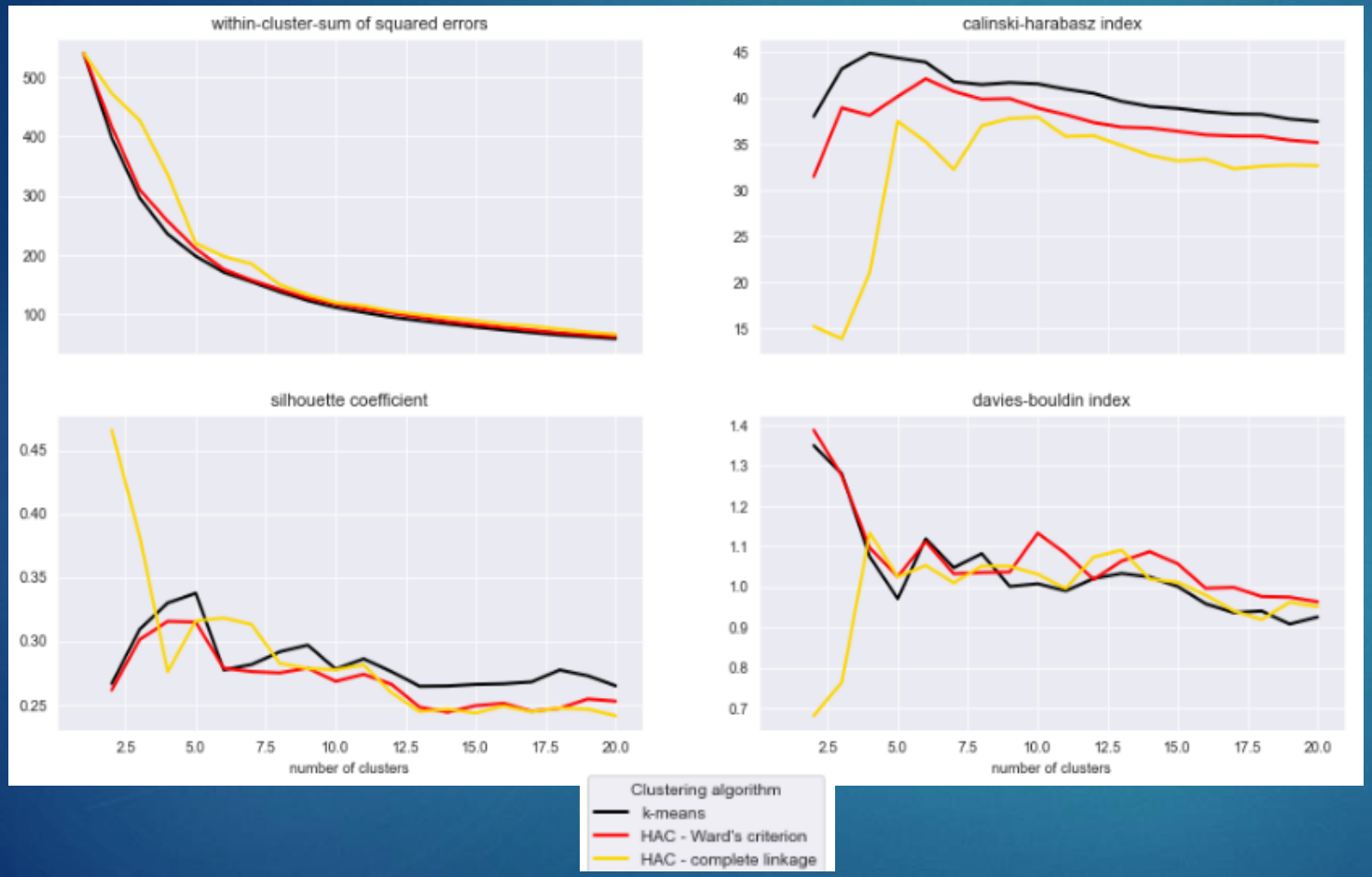
- "Food" venues are the most common venue type
- Shop & Service" venues are second most common venue type, followed by venues of the category "Outdoors & Recreation„
- "Arts & Entertainment" and "Nightlife Spot" are least frequent venue types within neighborhoods

Data



- No clearly separated clusters
- At most one area of high density per plot
- Obersvations outside high density areas do not show grouping patterns
- k-means might not be the most suitable clustering algorithm
- Also consider hierarchical agglomerative clustering (HAC)

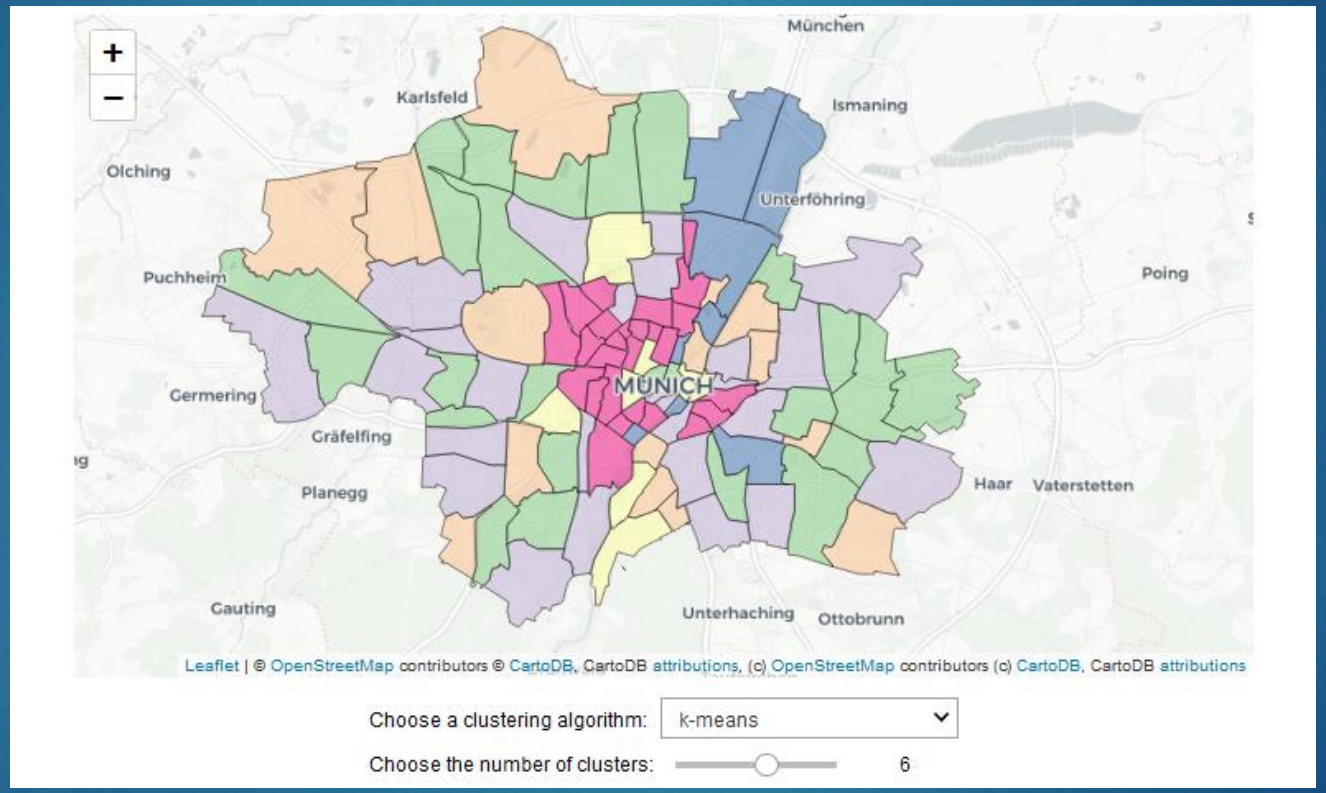
Method



- K-means and HAC with Wards criterion linkage score similarly for all assessment metrics
- Optimal number of clusters for K-means: 4 or 5
- Optimal number of clusters for HAC with Ward‘s criterion linkage: 5 or 6
- For HAC with complete linkage contradicting implications: relationship between number of clusters and clustering quality is unclear
- HAC with complete linkage excluded from further analysis

Results

- Most suitable neighborhood segmentation is obtained with K-means clustering with 6 clusters

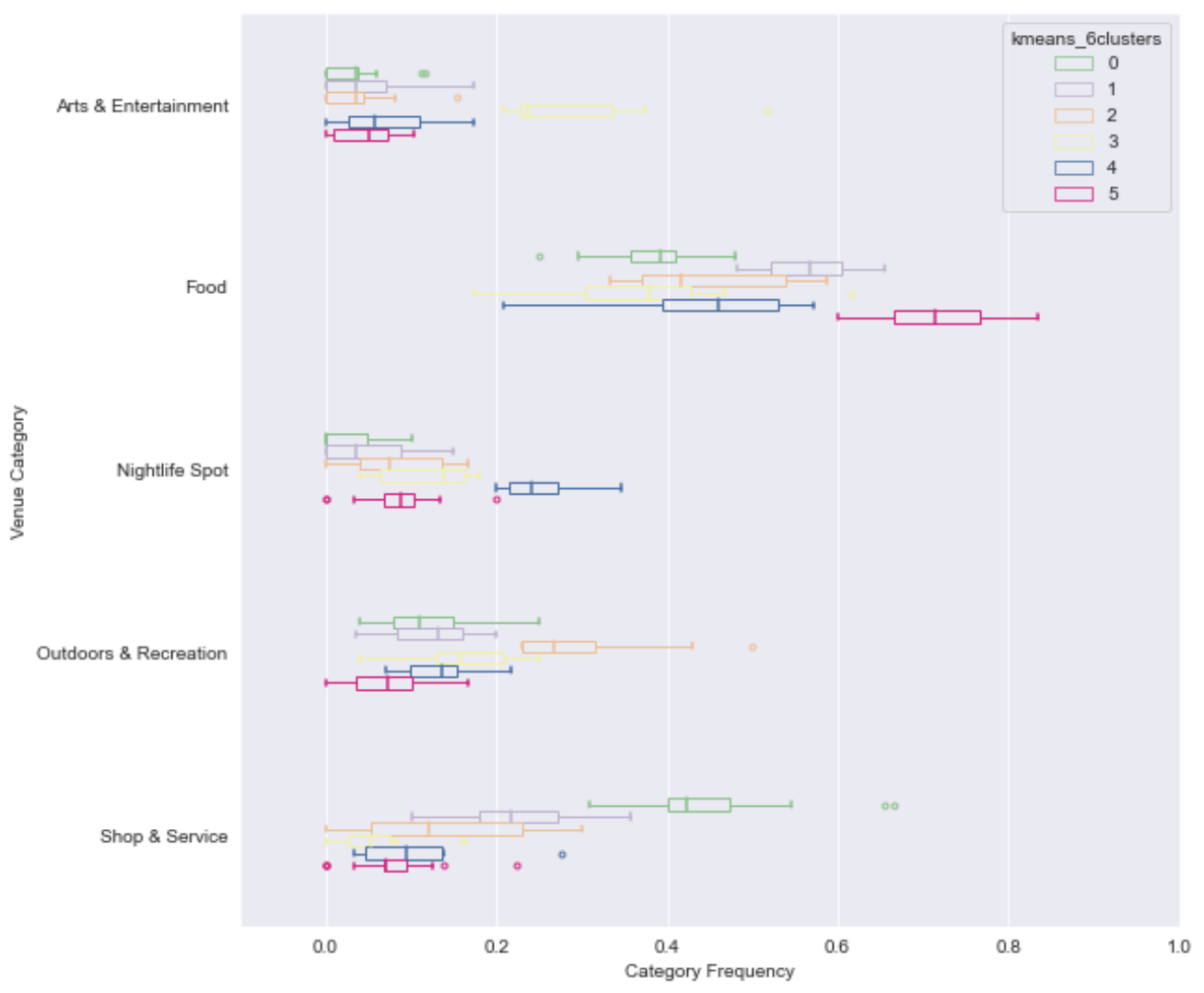


- Deviates from implications of assessment metrics, but allows better distinction between inner-city(pink) and similar outer-city neighborhoods (purple)

Results

- Six clearly distinguishable clusters
- Each cluster stands out in at least one of the five venue dimensions
- Exception: Purple cluster with intermediate frequencies in all dimensions

Results



Each cluster with particularly high relative frequency of one venue type

- Green: Shopping and Service
- Orange: Outdoors and Recreation
- Yellow: Arts and Entertainment
- Blue: Nightlife Spots
- Red: Food