



PREDICTING THE POTENTIAL  
LOCATION FOR AN ASIAN  
SUPERMARKET IN

# STUTTGART



**207.36 km<sup>2</sup>**

Stuttgart's area



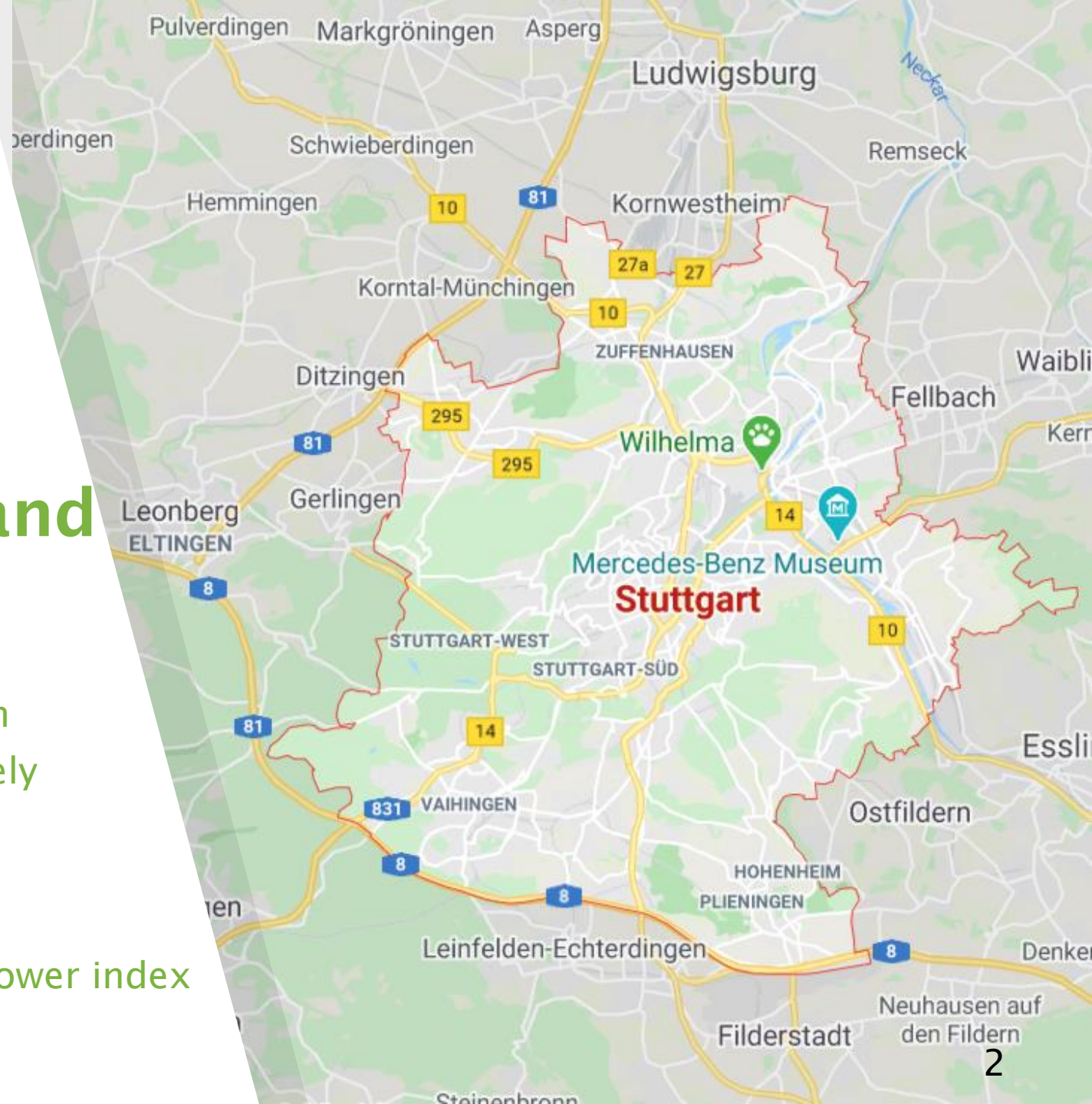
**634,830 thousand**  
**2.8, 5.3 million**

Population in urban area, in  
administrative region, and in  
metropolitan area respectively



**106.4**

Retail-relevant purchasing power index  
2017 per inhabitant



# Project Goals



Asian Supermarket

## Objective

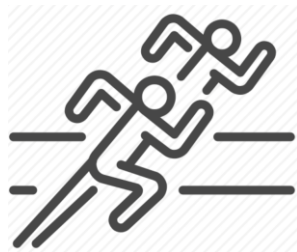


Find the potential areas for an Asian Supermarket in Stuttgart

## Constraints



The location is within 500m range from potential customer and public transportation



Have no competitors in the radius of 2km

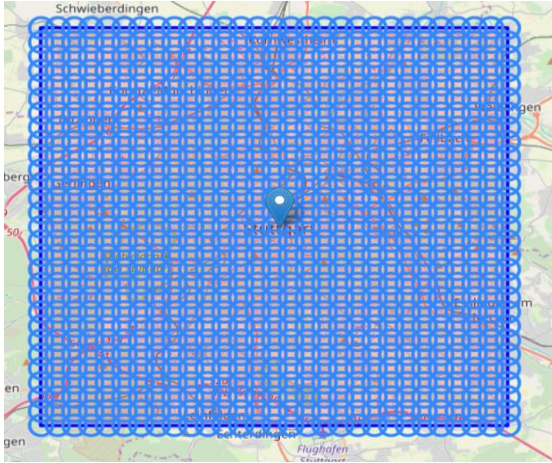
# Data Preparation



The geograpical coordinate of Stuttgart are 48.7784485, 9.1800132.



# Data Preparation



Dividing the bounding box to 840 neighbors

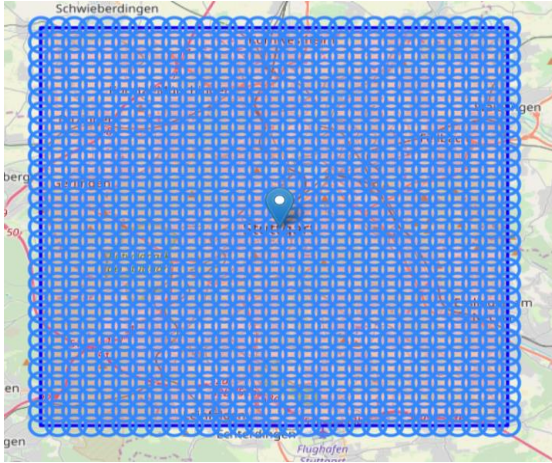


Coordinate requesting



```
(48.69824685714286, 9.058402357142857),
(48.69824685714286, 9.068303035714285),
(48.69824685714286, 9.078203714285713),
(48.69824685714286, 9.088104392857144),
(48.69824685714286, 9.098005071428572),
(48.69824685714286, 9.10790575),
(48.69824685714286, 9.117806428571429),
(48.69824685714286, 9.127707107142857),
(48.69824685714286, 9.137607785714286),
(48.69824685714286, 9.147508464285714),
(48.69824685714286, 9.157409142857142),
(48.69824685714286, 9.16730982142857),
(48.69824685714286, 9.177210500000001),
(48.69824685714286, 9.18711117857143),
```

# Data Preparation



Venue requesting



	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	0	48.692019	9.038601	Spatzensee	48.694011	9.043653	Playground
1	0	48.692019	9.038601	café im krankenhaus	48.690379	9.032925	Café
2	1	48.692019	9.048502	Initiativpark	48.692467	9.052749	Athletics & Sports
3	1	48.692019	9.048502	Stadtwald Böblingen	48.688682	9.052283	Trail
4	7	48.692019	9.107906	Waldrefugien	48.693604	9.108142	Forest

# Data Cleaning

Divide the dataset into **TWO SUB-DATASETS**



## FAVORITE PLACES



Asian restaurants



Public transportation



## NON-FAVORITE PLACES



Supermarkets



Shopping malls



Food and Drink shops

# Distance Calculation



Neighborhood's  
centers

Haversine



Haversine





# Location Finding



## FAVORITE PLACES

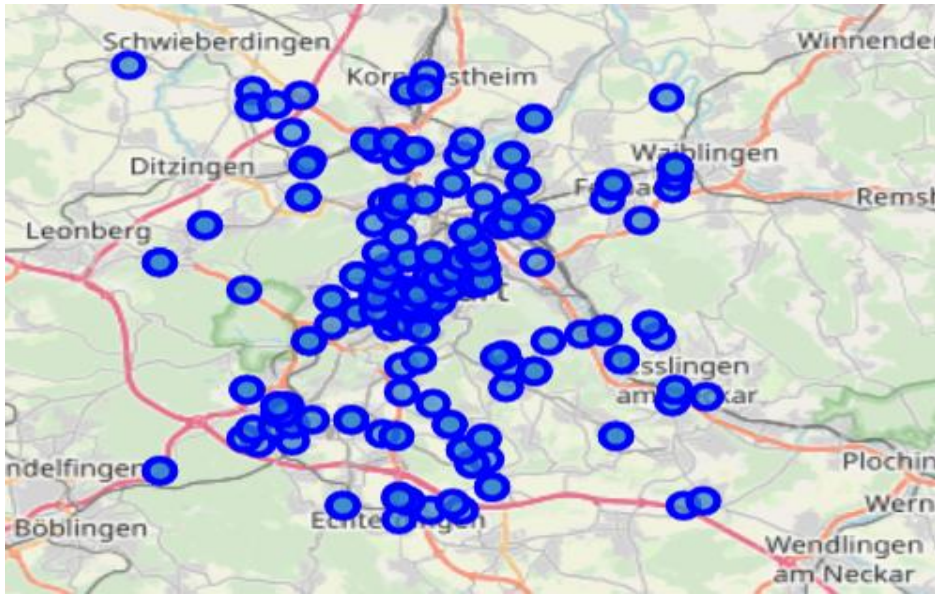
Distance constraint: 500 meters



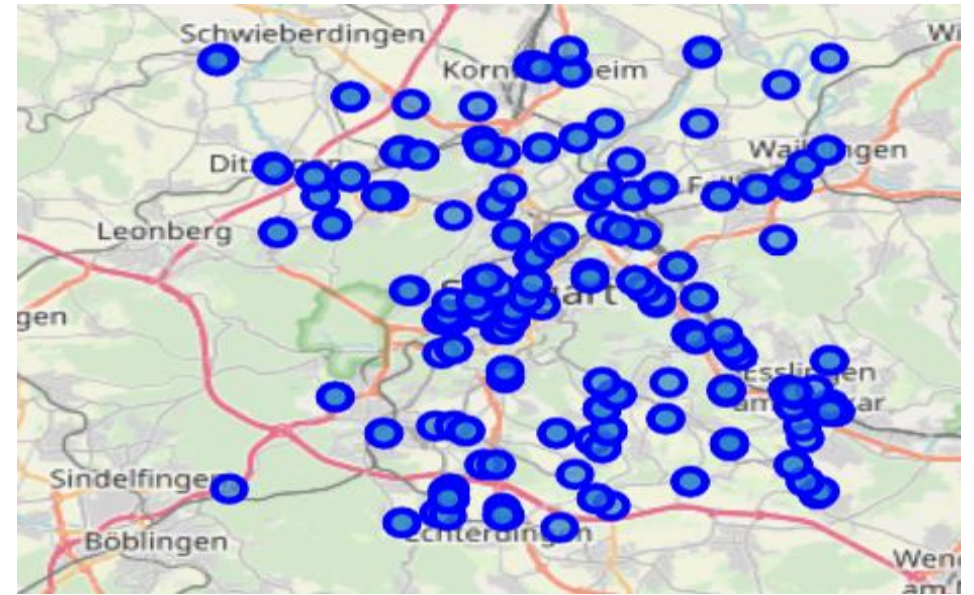
## NON-FAVORITE PLACES

Distance constraint: 2000 meters

	candidate_index	candidate_latitudes	candidate_longitudes	min_dist_to_competitor	min_dist_to_favourites
121	121	48.716930	9.088104	2.207327	0.395566
411	411	48.779209	9.088104	2.719427	0.256864
436	436	48.785437	9.048502	2.174846	0.409731

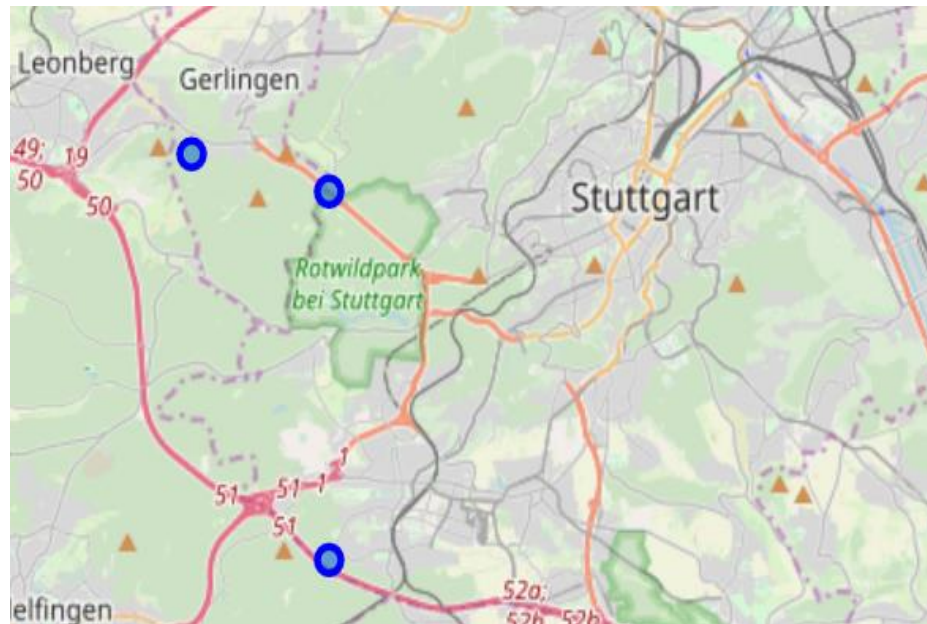


Favorite places



Non-favorite places

## Potential Locations



### Address

Steinenbronn,Regierungsbezirk Stuttgart

Gerlingen,Regierungsbezirk Stuttgart

Gerlingen,Regierungsbezirk Stuttgart