

Studying the restaurant distribution in the city centre area of Dusseldorf, Germany

Introduction

Dusseldorf is the capital city of North Rhine–Westphalia Land (state) in Germany. It is the 7th-largest city in Germany, with a population around 600,000 and area 217.41 km². The City of Dusseldorf consists of 50 city parts, which are collected into 10 city districts. In this work, we will study the categories of restaurants (including Café, pub and bakery) in the city center of Dusseldorf. The city center area of Dusseldorf consists of three city parts: 'Altstadt', 'Stadtmitte' and 'Carlstadt'. The results are useful for the people who want to open a new restaurant in Dusseldorf. In this work, we will find an appropriate place to open a Japanese restaurant.

Data Preparation

A list of the 50 city parts of Dusseldorf can be found at Wikipedia: https://de.wikipedia.org/wiki/Liste_der_Stadtteile_von_Düsseldorf. Since the data source is in German which contains umlaut (e.g. ä, ö, ü), when import the data the encoding should be set as 'UTF-8'. The latitude and longitude data of each city part is searched and obtained by Nominatim. Foursquare location data is then used to explore the restaurants by setting the endpoint group as 'venues', using the 'explore' endpoint and setting the section as 'food'. Since the area of 'Altstadt' (0.48 km²), 'Stadtmitte' (1.72 km²) and 'Carlstadt' (0.46 km²) are small, we explore all the restaurants by setting the geographical coordinate of 'Stadtmitte' with radius equals 1000m. Then the category and the geographical coordinate of each restaurant can be extracted from the explored results. The data analysis will focus on this information.