

# Correlation between the proximity of public transport stops and the rental prices of apartments in Nuremberg.

Ghulam Mustafa

Friedrich-Alexander-Universität Erlangen-Nürnberg  
11.07.2023

## 01 Project Description

## 02 Data Sources

## 03 Data Exploration

## 04 Report/Results



<https://rb.gy/jrvq4>

## Summary

- This project aims to analyze the correlation between the proximity of public transport stops and the rental prices of apartments in Nuremberg.

## Rationale

- By understanding the relationship between public transport stops and rental prices, this analysis can provide valuable insights for renters, landlords, and city planners in optimizing public transportation networks and improving the accessibility of housing in Nuremberg.

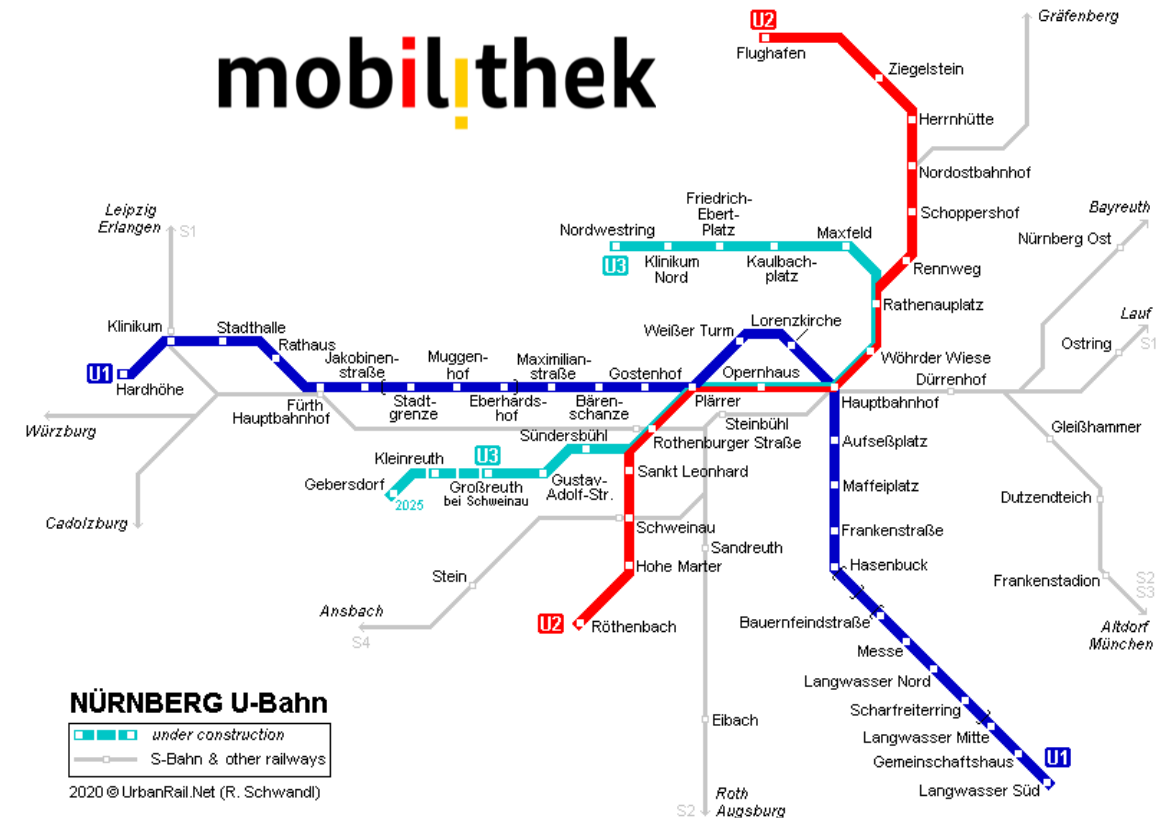


<https://rb.gy/h8asr>

## Datasource1: Nuremberg Stops: IDs and geodata

- **Metadata URL:** <https://mobilithek.info/offers/-6228947429763481687>
- **Data URL:** [https://opendata.vag.de/dataset/08eb49f9-0f6c-4b76-96fd-5f8e3a0ac593/resource/c66d5b67-6a01-4190-a9cf-1de6359d07ae/download/20170601\\_haltestellen\\_id\\_geo.xlsx](https://opendata.vag.de/dataset/08eb49f9-0f6c-4b76-96fd-5f8e3a0ac593/resource/c66d5b67-6a01-4190-a9cf-1de6359d07ae/download/20170601_haltestellen_id_geo.xlsx)
- **Data Type:** xlsx

This dataset provides information on all subway, tram, and bus stops in the VAG area of Nuremberg, including their IDs and geolocation data.



<https://rb.gy/w4gda>

<https://rb.gy/ac56h>

## Datasource2: Immoscout24 dataset

- **Metadata URL:**  
<https://www.kaggle.com/datasets/corrieaar/apartment-rental-offers-in-germany>
- **Data URL:**  
<https://www.kaggle.com/datasets/corrieaar/apartment-rental-offers-in-germany/download?datasetVersionNumber=6>
- **Data Type:** xlsx

This dataset contains rental property listings on Immoscout24 (**Year 2017**), the largest real estate platform in Germany, including information on rental prices, property attributes, and location.



<https://rb.gy/gez6n>  
<https://rb.gy/ibreb>

Table: immoscout

Columns:

Field	Description	Field	Description
federalState	State where the property is located	serviceCharge	Additional charges for services
heatingType	Type of heating system	telekomTvOffer	Telekom TV offer
telekomHybridUploadSpeed	Telekom Hybrid Upload Speed	newlyConst	Property is newly constructed or not
balcony	Presence of a balcony	pricetrend	Price trend
telekomUploadSpeed	Telekom Upload Speed	totalRent	Total rent including all charges
yearConstructed	Year the property was constructed	noParkSpaces	Number of parking spaces
firingTypes	Types of firing systems	hasKitchen	Presence of a kitchen
cellar	Presence of a cellar	yearConstructedRange	Range of year constructed
baseRent	Base rent amount	houseNumber	House number
livingSpace	Living space area in square meters	condition	Condition of the property
interiorQual	Interior quality of the property	petsAllowed	Pets allowed or not
street	Street name	streetPlain	Plain street name
lift	Presence of a lift	baseRentRange	Range of base rent
typeOfFlat	Type of flat (apartment)	zipCode	ZIP code
noRooms	Number of rooms	thermalChar	Thermal characteristics
floor	Floor number	numberOfFloors	Total number of floors
noRoomsRange	Range of number of rooms	garden	Presence of a garden
livingSpaceRange	Range of living space	district	District name

cityTown	City/Town name	description	Property description
facilities	Facilities available	heatingCosts	Heating costs
energyEfficiencyClass	Energy efficiency class	lastRefurbish	Year of last refurbishment
electricityBasePrice	Base price of electricity	electricityKwhPrice	Price per kWh of electricity
date	Date of data entry	latitude	Latitude of the location
longitude	Longitude of the location		

Latitude and Longitude was not available in the dataset, Use **geopy.geocoders** to extract lat/lng from address.

Table: nuremberg\_stops

Columns:

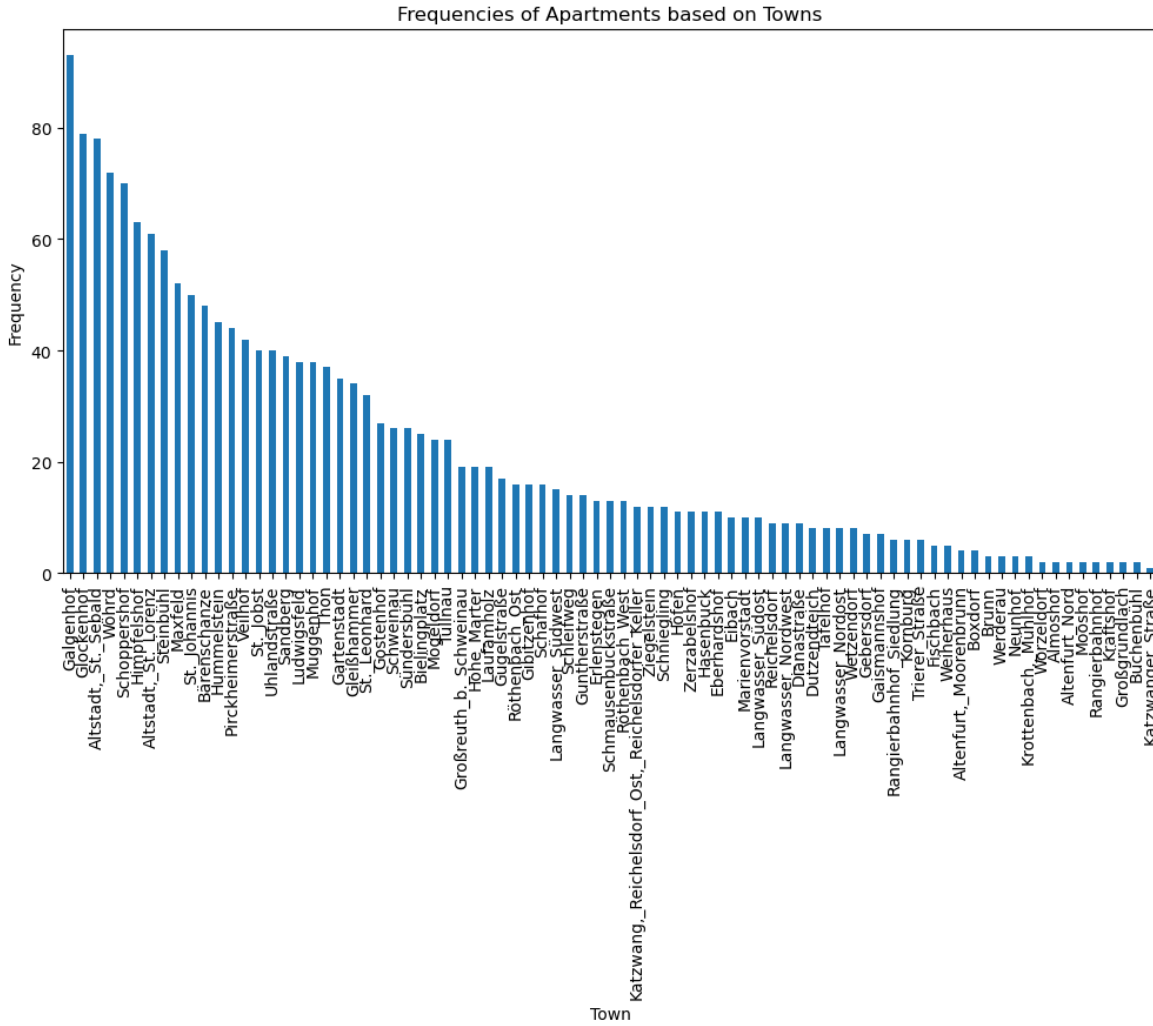
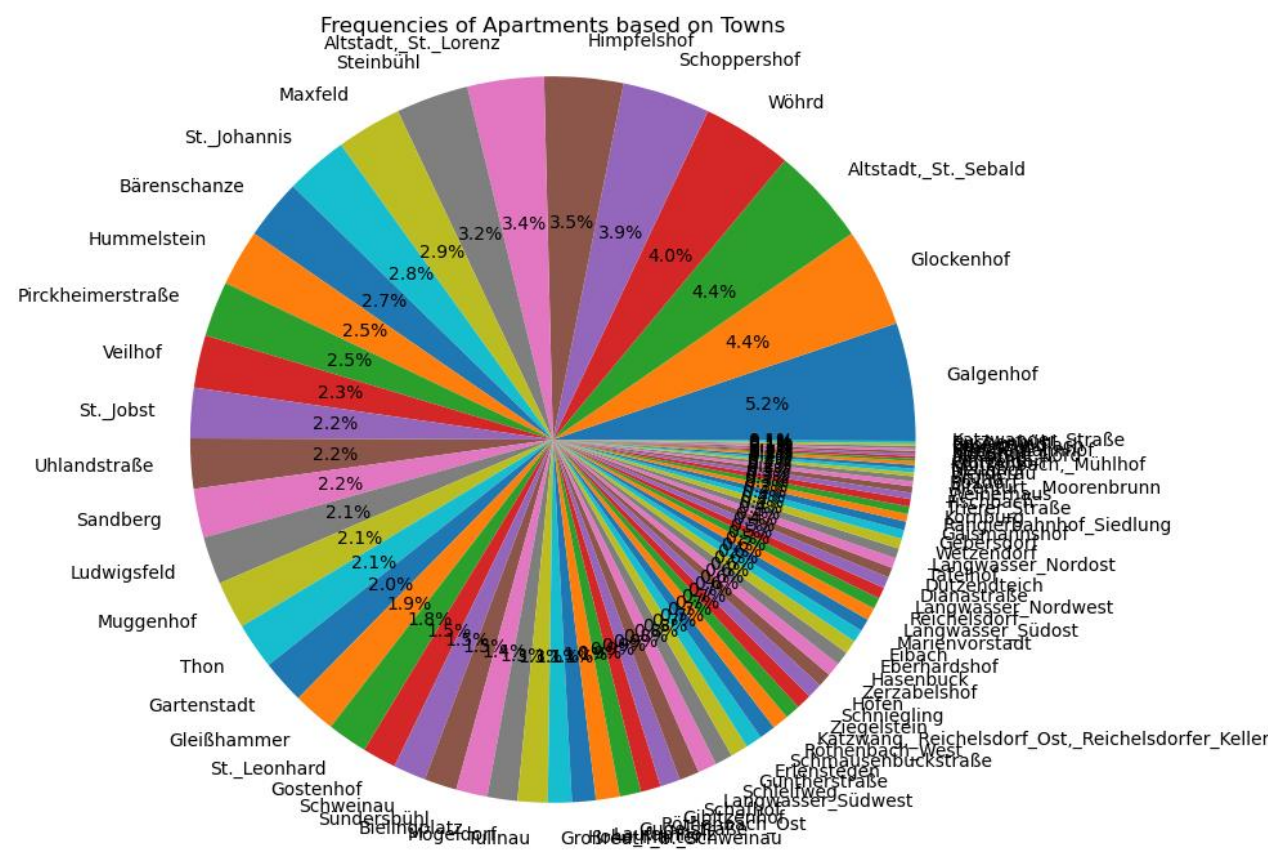
Field	Description	Field	Description
VAGIdentifier	Identifier for VAG (Verkehrs-Aktiengesellschaft Nürnberg)	VAGIdentifierChar	Character representation of VAGIdentifier
stopName	Name of the public transport stop	latitude	Latitude of the stop location
longitude	Longitude of the stop location		

VAGIdentifier	VAGIdentifierChar	stopName	latitude	longitude
101	WT	Weißer Turm	49.450071	11.070433
101	WT	Weißer Turm	49.449634	11.068995
148	WEINTR	Weintraubengasse	49.454224	11.073774
148	WEINTR	Weintraubengasse	49.454395	11.073731
149	EGID-P	Egidienplatz	49.455715	11.082086



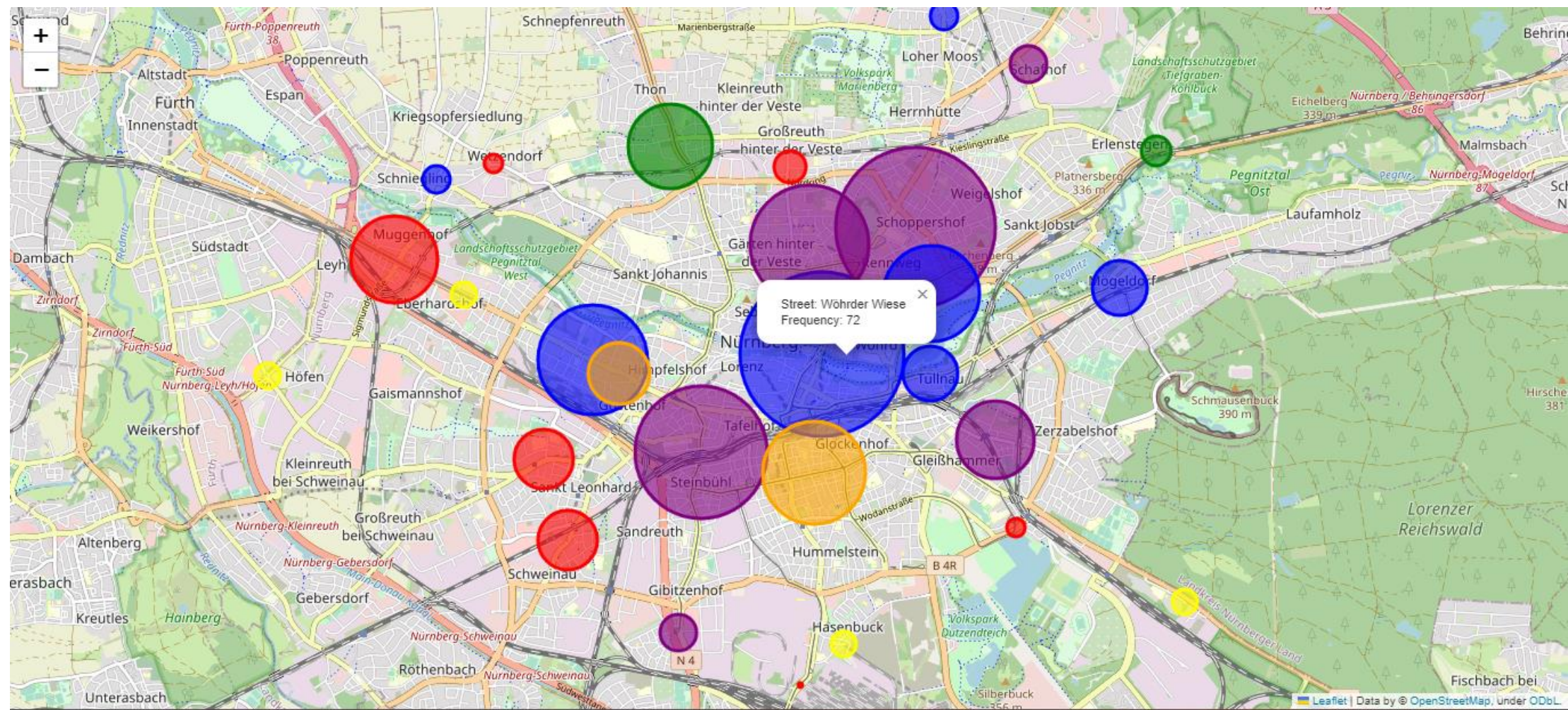
Frequencies of Apartments based on Towns

Town with most Apartment listed: Galgenhof



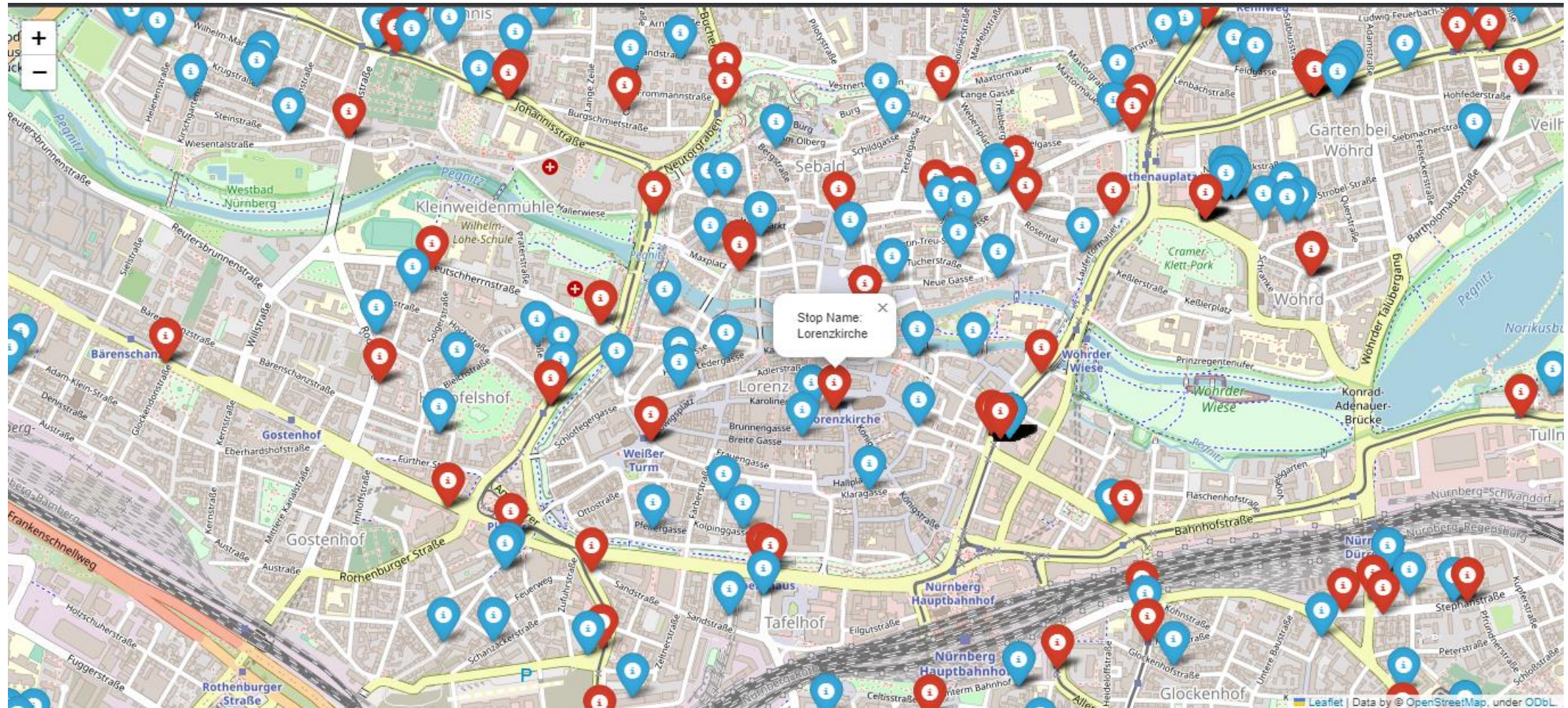


Frequencies of Apartments based on Streets (Street with most Apartment listed: Wöhrder Wiese)





## Optimal Location Selection: Analyzing the rental prices in proximity to public transport stops



Correlation between total rent and distance: **0.02211301431069459**

Based on this correlation value, there is ***no strong evidence to suggest that the distance to the nearest public transport stop has a significant impact on the rental prices*** in the dataset. Other factors or variables may have a more dominant influence on the rental prices.

Mean rental price	771.8260937499999
Median rental price	775.0
Std rental price	535.7256947365172
Max rental price	4195.0
Min rental price	480.0

Max living space	309.68 Sq-Meter
Min living space	10.0 Sq-Meter
Mean living space	69.71 Sq-Meter





<https://rb.gy/zf3l4>