



Comparing Neighborhoods of Darmstadt and Karlsruhe

A data science study

Final project of the
'Applied Data Science Capstone'
on [coursera.org](https://www.coursera.org)

Dr.-Ing. Steffen Salenbauch

04-02-2019

Introduction

- Did you ever move? - Probably yes.

- Example:

Germany – about 8 Mio.
moves every year [1]

Corresponding to 10%
of the entire population



[1] <https://blog.immobilienscout24.de/infografik-der-deutschen-liebsten-hobby/>. Checked on 28-01-2019.

[2] Picture taken from <https://kids.nationalgeographic.com/content/dam/kids/photos/Countries/A-G/Germany-Country-Map-UPDT.ngsversion.1458590934915.jpg>, Date: 04-02-2019

Introduction

- My personal Situation – I will move from **Darmstadt (DA)** to **Karlsruhe (KA)**



But which neighborhood to choose there?

Data Sources and Procedure

- I. Getting names and population densities of neighborhoods of both DA and KA
- II. Searching for all kind of venues within 800 m distance from the neighborhoods' centers
- III. Develop an agglomerative, hierarchical clustering model
- IV. **Dendrogram: Which neighborhoods in KA and DA are similar to each other?**

- Wikipedia
- geoPy
- www.gpskoordinaten.de
- <https://tools.wmflabs.org/geohack>

- <https://developer.foursquare.com>

Features

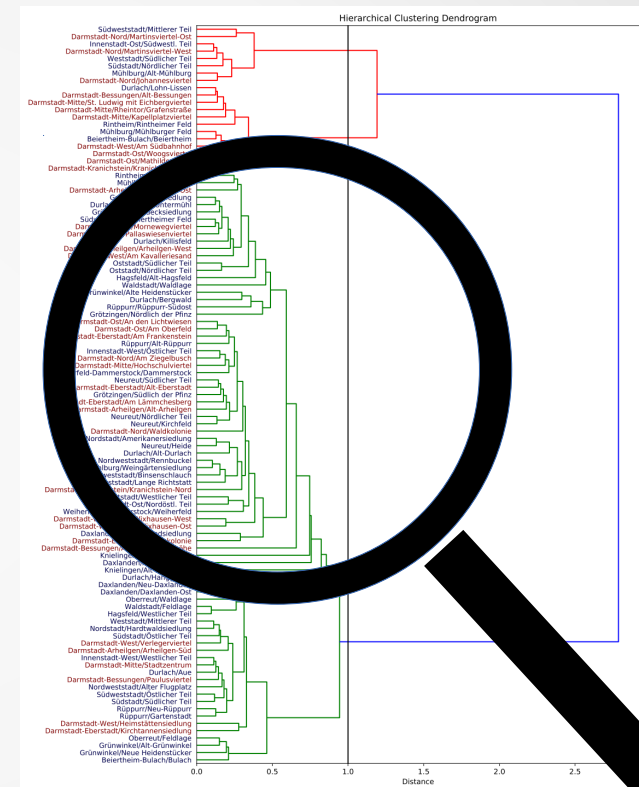
Cluster model

Results / Dendrogram

- Detail 1:



- Detail 2:



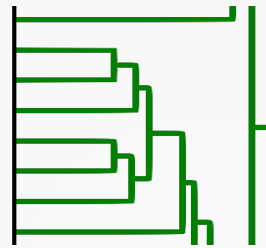
- Full dendrogram (high. res.) can be found at

https://github.com/SteSa1987/coursera-ibm-capstone/blob/master/full_report.pdf

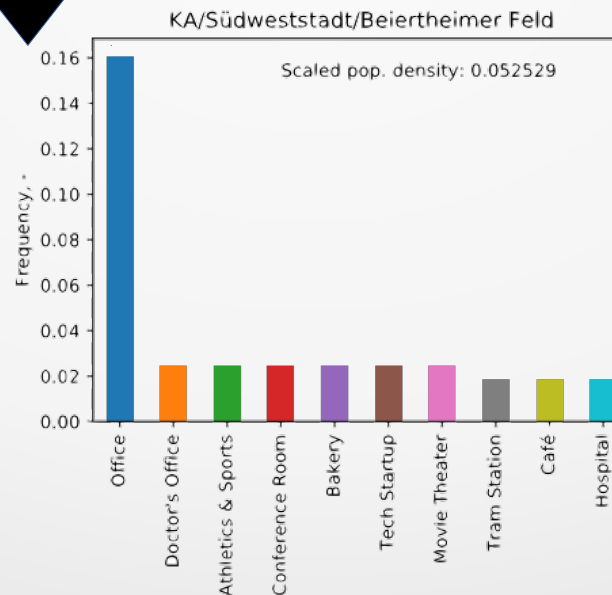
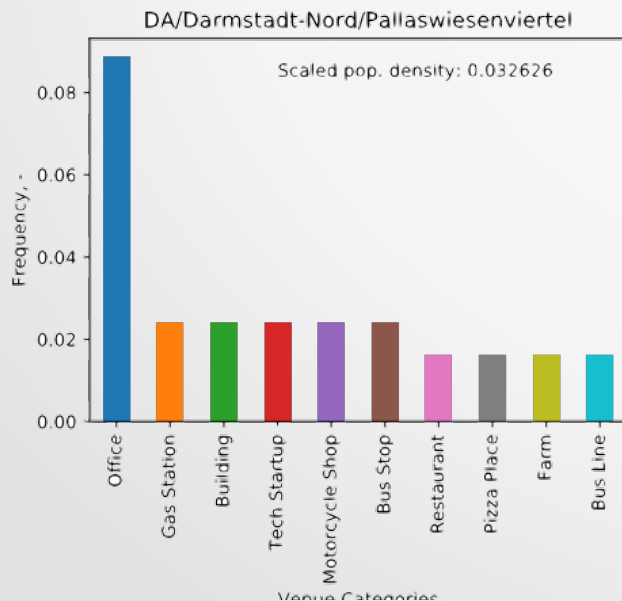
Results / Detail 1

- I currently live in DA/Pallaswiesenviertel. Which neighborhood in KA is similar to it?

Darmstadt-Arheilgen/Arheilgen-Ost
Grünwinkel/Albsiedlung
Durlach/Dornwald-Untermühl
Grünwinkel/Hardecksiedlung
Südweststadt/Beiertheimer Feld
Darmstadt-Nord/Mornwegviertel
Darmstadt-Nord/Pallaswiesenviertel
Durlach/Killisfeld



Südweststadt /
Beiertheimer Feld

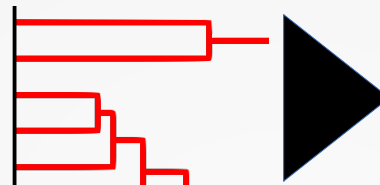


Mainly
commercial
districts

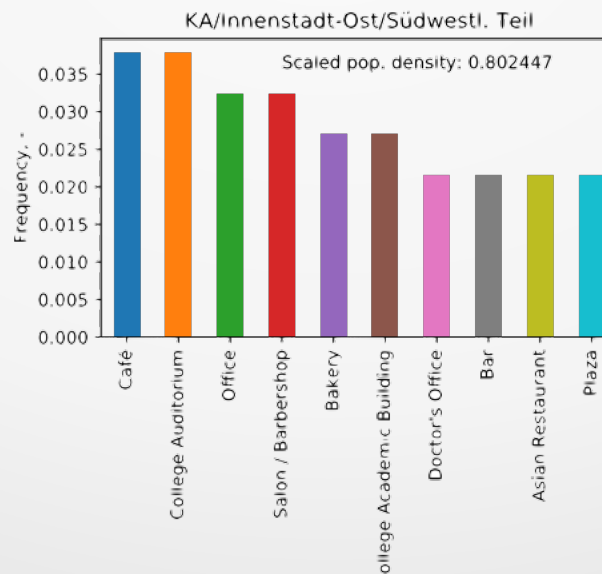
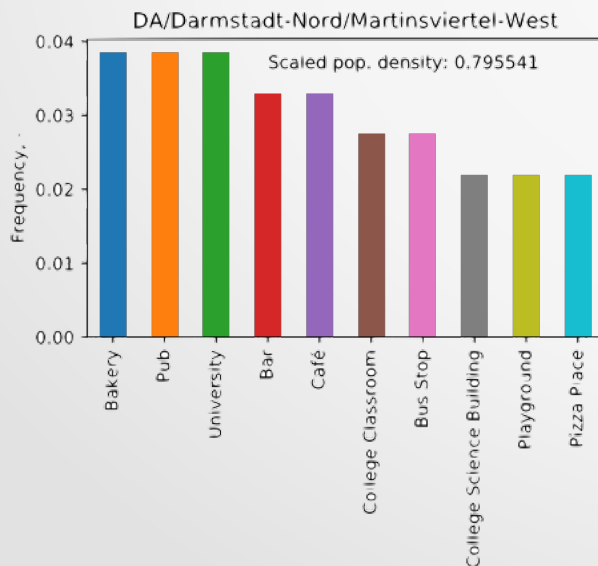
Results / Detail 2

- Which neighborhoods in KA and DA are most similar to each other?

Südweststadt/Mittlerer Teil
Darmstadt-Nord/Martinsviertel-Ost
Innenstadt-Ost/Südwestl. Teil
Darmstadt-Nord/Martinsviertel-West
Weststadt/Südlicher Teil



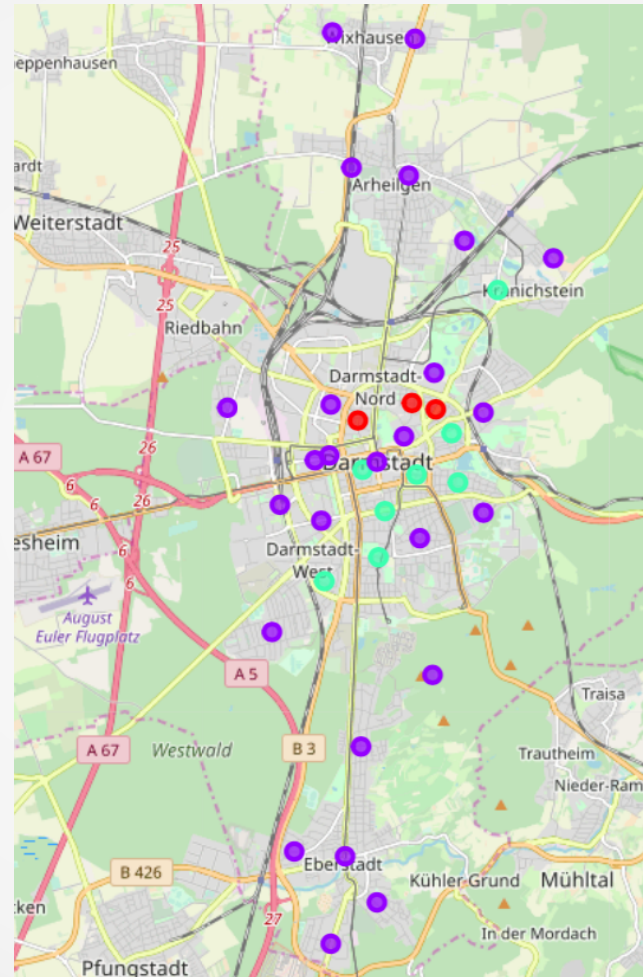
DA: Martinsviertel-West
KA: Innenstadt-Ost/Südw. Teil



Mainly
young people,
students

Results / Cluster Categories

- Darmstadt:



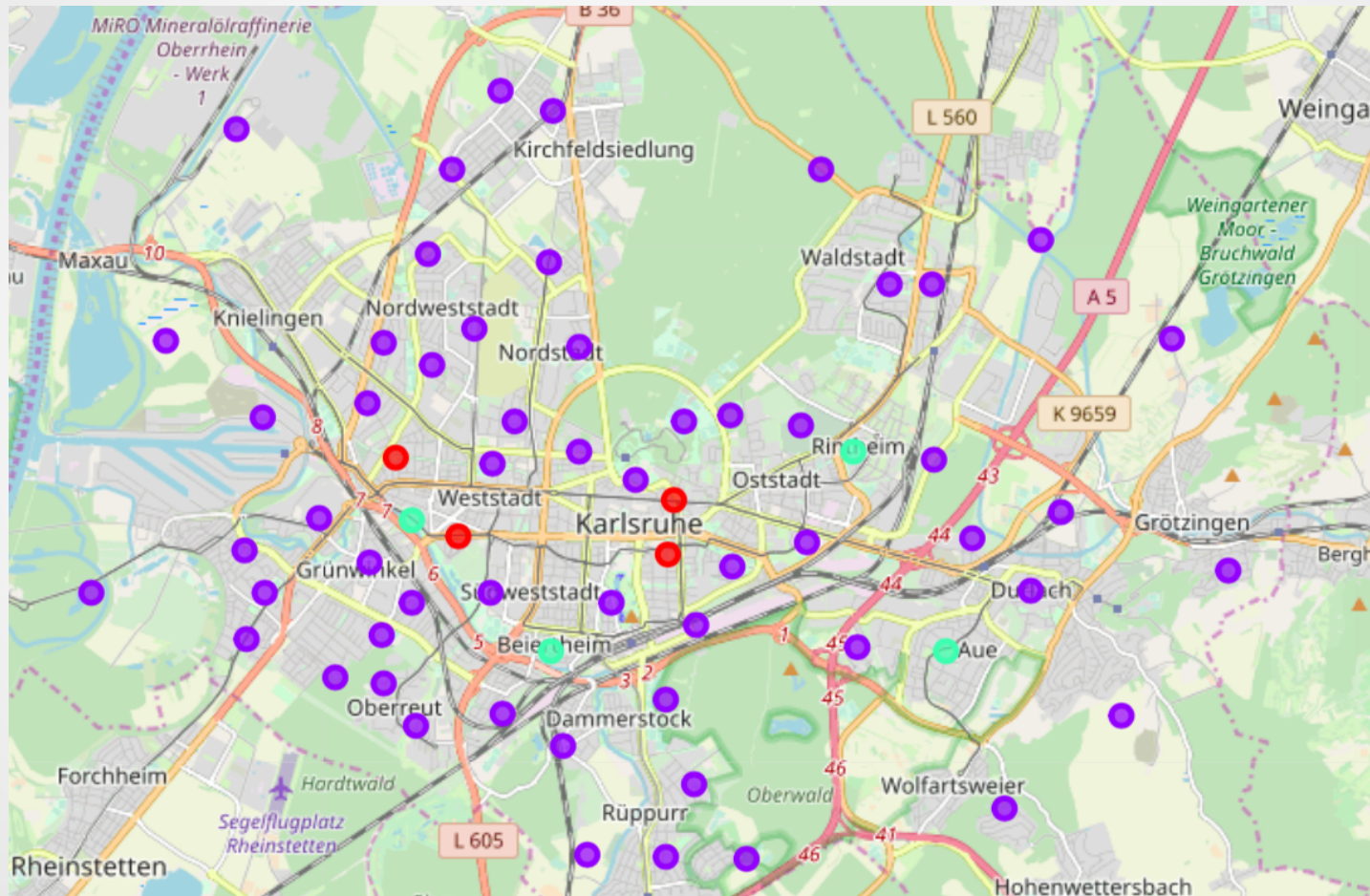
● Shared residential & commercial areas

● Residential areas, mainly younger people

● Residential areas, mainly elder people

Results / Cluster Categories

- Karlsruhe:



● Shared residential & commercial areas

● Residential areas, mainly younger people

● Residential areas, mainly elder people



Thank you!