# BUYING A HOME IN COPENHAGEN

CAPSTONE PROJECT PRESENTATION – GESINE WANKE
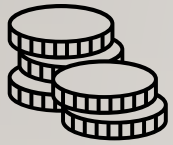
# WELCOME TO COPENHAGEN !

- Constantly ranked one of the top cities to live for the great quality of live

- Safe, clean and beautiful

- Rated the worlds greenest city
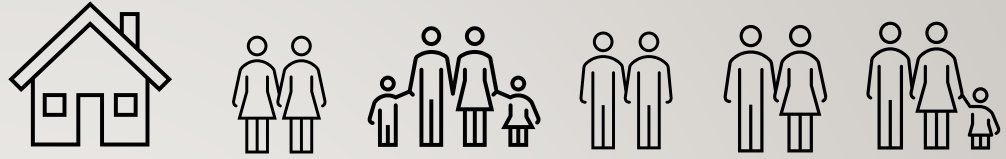
- Free social security and education

# BUYING A HOME

- Financial commitment:
  - Affordable
  - Not overpriced for neighborhood
  - Increase in value

- Attractive neighborhood
  - Short daily commute
  - Easy access to public transport
  - Individual preferences: schools, out-door spaces, bars, cafés

# THE PROJECT

- Aim
  - Help find an attractive neighborhood
  - Help compare offers from financial perspective

- For who?
  - Someone who wants to find his/her future neighborhood
  - Someone who wants to find alternative neighborhoods to consider
  - Someone who wants to evaluate an explicit offer

# DATA ANALYSIS

- Jupyter Notebook – Python 3.6

- Data processing: numpy, pandas, sklearn

- Data visualization: folium


- Price & Price increase comparison for City districts
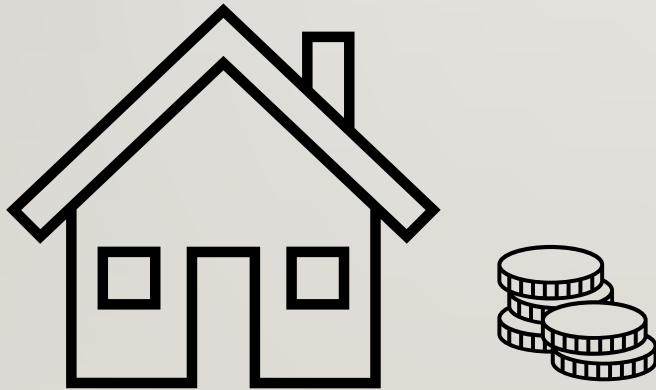
- Similarity of neighborhoods in Copenhagen

# DATA SOURCES

- Copenhagen district boarders: opendata.dk[1]

- Housing price history for copenhagen districts: Boliga.dk[2]

- Geo-data for neighborhoods (metro-stations): Wikipedia.org[3]

- Venues in neighborhoods: Foursquare.com[4]

# HOUSING PRICES

- Prices per square metre linkted to map via district names

- Average price increase over the last 5 years linked to map

# SIMILARITY OF NEIGHBORHOODS

- Venues around metro stations (as marker for neighborhoods)

  - Radius 2 km (Copenhagen biking distance, sufficient number of venues)

  - Max. 100 venues

  - At least 70 venues per neighborhood

  - Frequency count of venue cathegories

- K-means for similarity clustering on most common venues

- 5 clusters



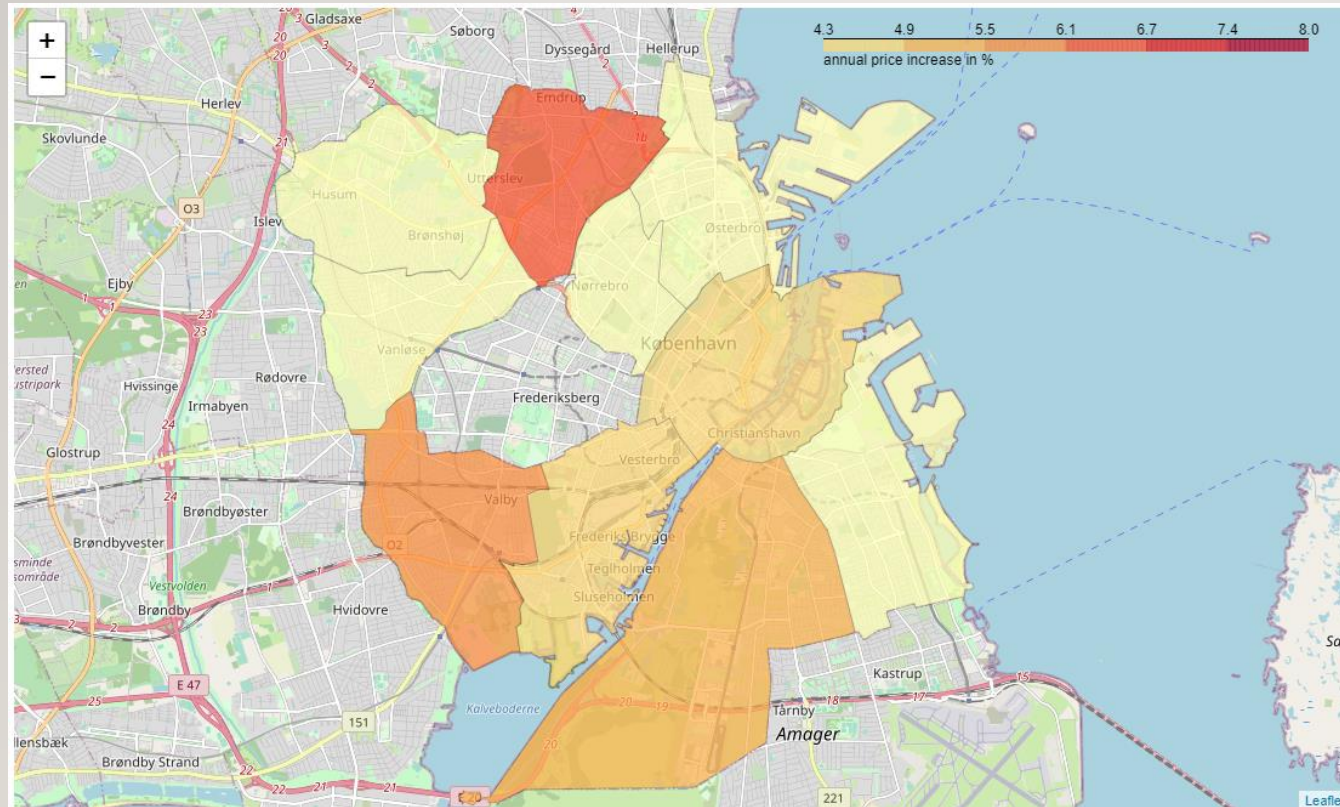Bike parking at Nørrebro metro station

# ANALYSIS RESULTS
# APARTMENT PRICE PER SQUARE METRE
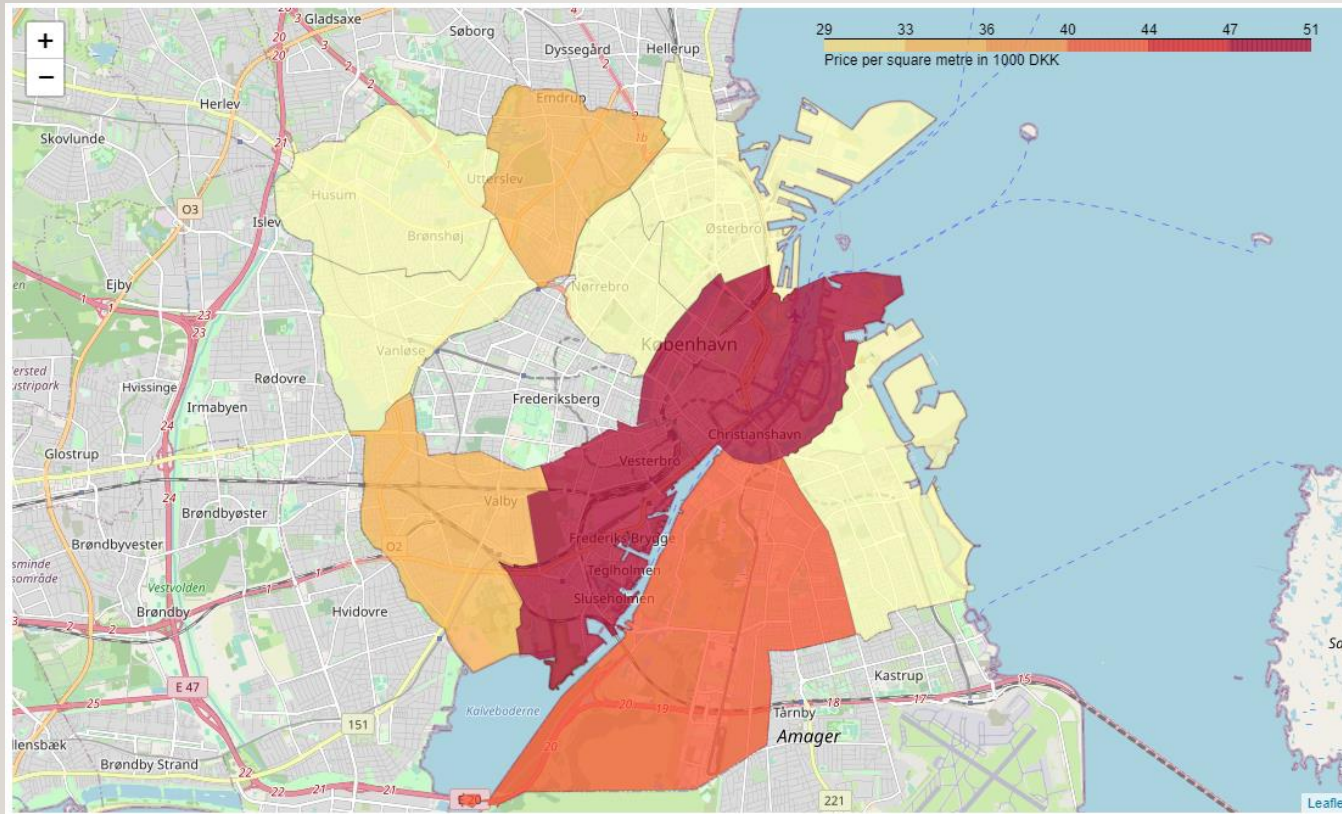


- Appartments in the center are most expensive

- Cheaper and medium priced appartments can be found in the north

# ANALYSIS RESULTS
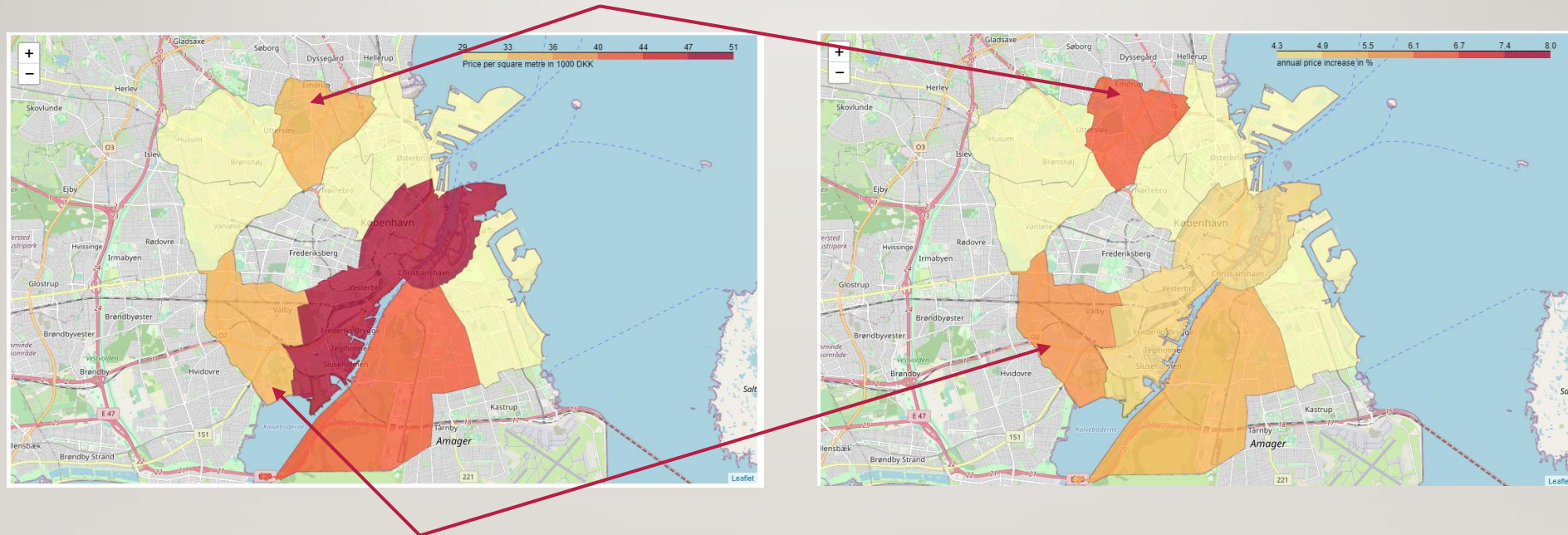# AVERAGE APARTMENT PRICE INCREASE



- Highest price increase in the north (Bispebjerg)

- South west medium price increase

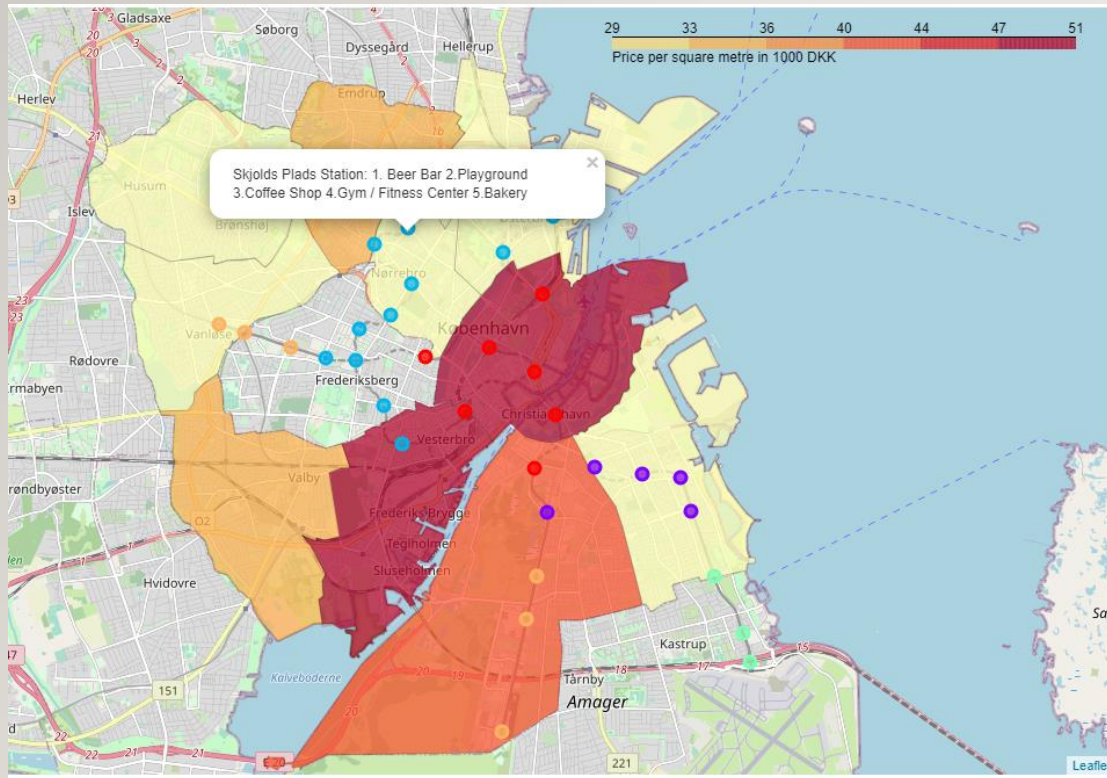# ANALYSIS RESULTS
# FINANCIAL PERSPECTIVE

- Bispebjerg: medium price and high increase



- Valby: medium price and medium increase

# ANALYSIS RESULTS
# NEIGHBORHOOD SIMILARITY



- Blue: Young People and Families:
  - Bars, cafés also gyms and playgrounds

- Red: Cultural center and Tourist area
  - Theatres, Tourist venues, speciality Restaurants

- Purple: Outdoor spaces and family homes
  - Beach, parks also cafés and grocery shops

- Yellow: Family daily living
  - Grocery stores, schools, playgrounds

- Green: Business commuters
  - Airport venues but also outdoor area

# CONCLUSION


https://www.expatexchange.com/Denmark/city/37/4109/Expat-Guide-to-Living-in-copenhagen

- Great help to evaluate
  - Offers for apartments
  - Attractiveness of future neighboods
  - Consideration of alternative neighborhoods

- Future work:
  - Greater detail for price data would be preferable (smaller areas)
  - Some neighborhoods in the districts are not covered: Consideration of S-train network as well as metro network would increase number of considerable neighborhoods

**Thank you for your attention**

# SOURCES

- 1 https://www.opendata.dk/city-of-copenhagen/bydele
- 2 https://www.boliga.dk/boligpriser
- 3 https://en.wikipedia.org/wiki/List_of_Copenhagen_Metro_stations
- 4 https://foursquare.com