

# **RECOMMENDING RENTAL HOUSES**

İhsan Köse

2020, Turkey

# FINDING HOME IS NEVER EASY

- There are lots of parameters to think such;
  - Price
  - Age
  - Size
  - Room Count
  - Borough



# GOALS

- Create a machine learning program that recommends houses based of parameters,
  - Price
  - Age
  - Size
  - Room Count
  - Borough

# DATA

- Real Estate Ads Webpage – Hurriyet Emlak
- Nominatim – Location Coordinates
- Foursquare – Borough Venues



# METHODOLOGY

- Scrape data from real estate webpage
- Wrangle it and filter outliers
- Create houses dataframe
- Get coordinates of boroughs by Nominatim
- Create boroughs dataframe
- Cluster the houses based on parameters
- Get venues and categories for each borough
- K-Cluster house ads based on main parameters
- K-Cluster boroughs based on venues
- Get users preferences and store them
- Filter houses by user preferences and recommend 5 houses to user.

# RESULTS

```
Please enter your search criterias approximately:  
RENT[TL]:3000  
SIZE[m2]:130  
AGE[Years]:5  
ROOM#[3+1=4]:4  
Enter your favourite borough:Bornova  
user cluster: 2
```

Input user preferences

One of the 5 houses below is suitable for you

[Recommended House 1](#)

[Recommended House 2](#)

[Recommended House 3](#)

[Recommended House 4](#)

[Recommended House 5](#)

|      | House Cluster | Price | Size | Borough  | Room# | Age | P/m2 | Latitude  | Longitude | Venue Cluster |
|------|---------------|-------|------|----------|-------|-----|------|-----------|-----------|---------------|
| 1184 | 2             | 3750  | 170  | Bornova  | 4     | 12  | 22.0 | 38.467898 | 27.260805 | 0             |
| 3098 | 2             | 3300  | 182  | Gaziemir | 4     | 0   | 18.0 | 38.321982 | 27.132703 | 0             |
| 3061 | 2             | 2500  | 135  | Gaziemir | 4     | 13  | 19.0 | 38.321982 | 27.132703 | 0             |
| 1415 | 2             | 2700  | 150  | Bornova  | 4     | 10  | 18.0 | 38.467898 | 27.260805 | 0             |
| 3049 | 2             | 2200  | 155  | Gaziemir | 4     | 5   | 14.0 | 38.321982 | 27.132703 | 0             |

Recommend 5 Houses and Links



**THANK YOU**