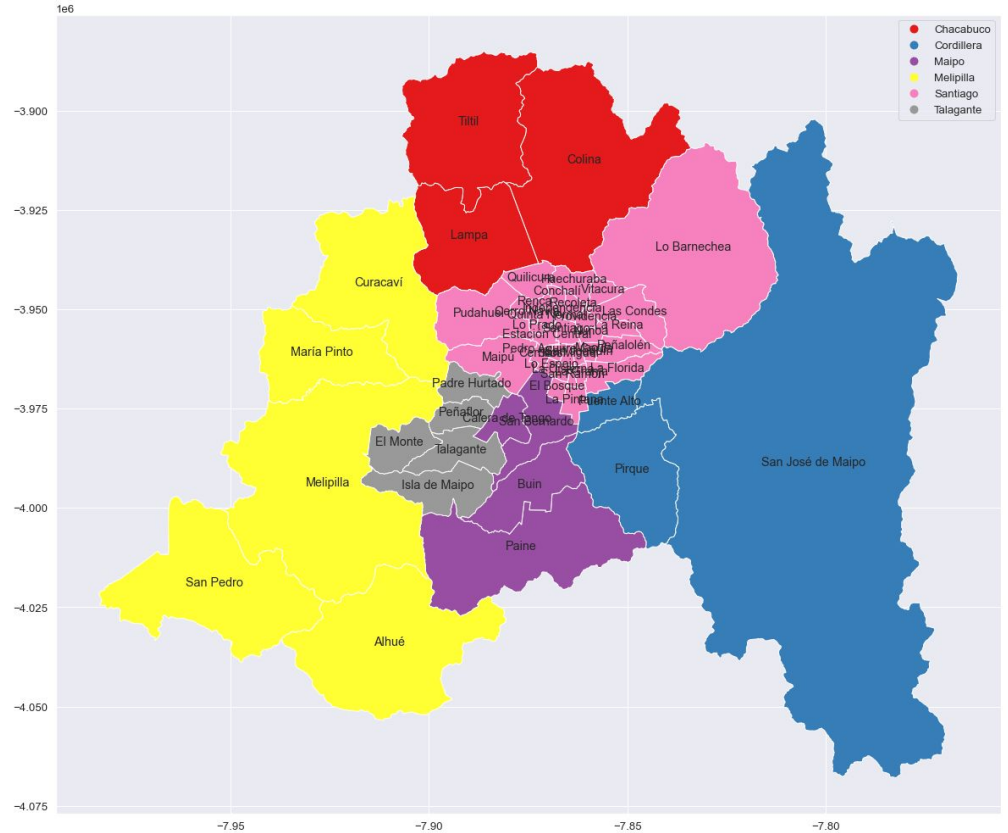


Housing Prices in Santiago, Chile

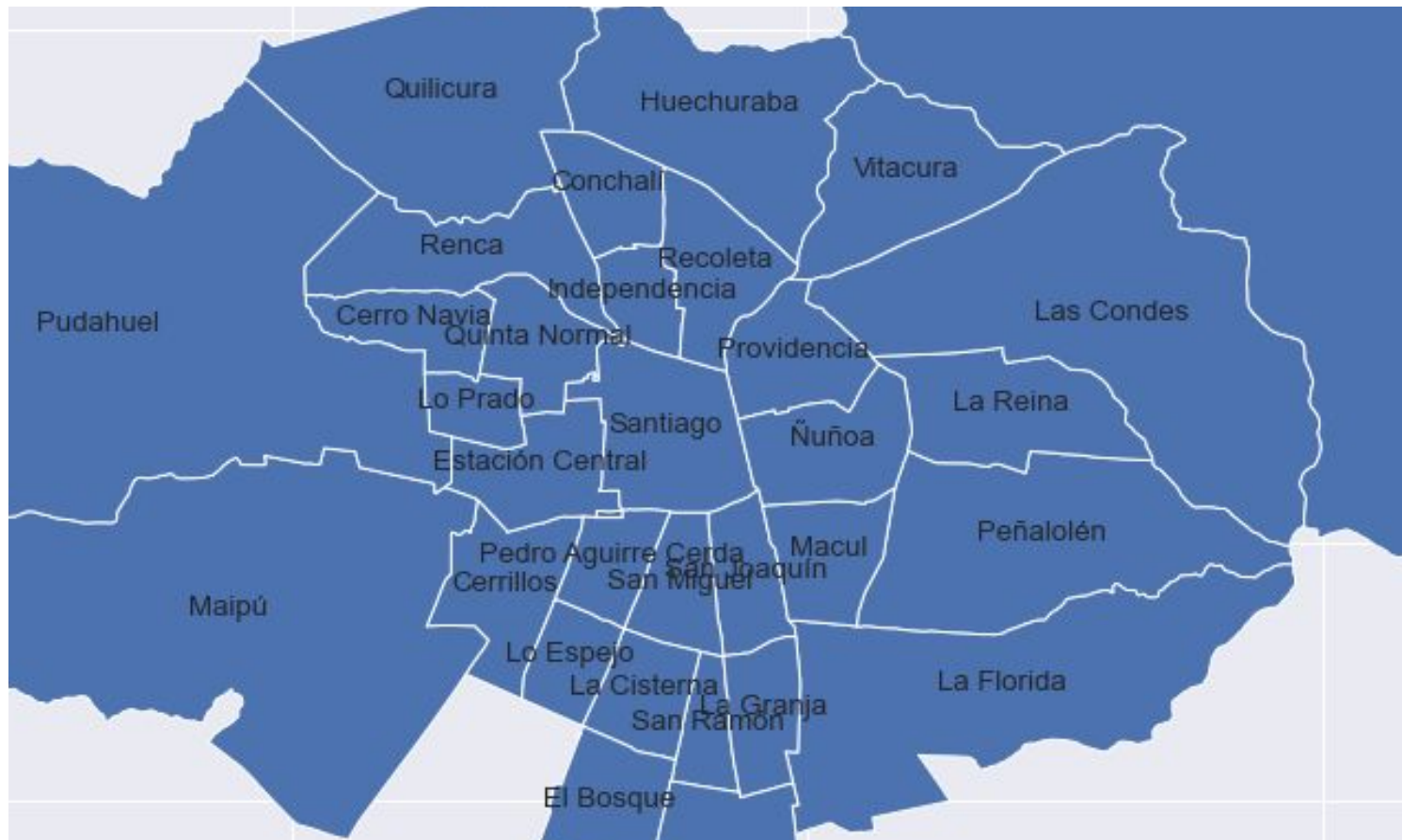
Robert Walker




Chile's Metropolitan Region



The inner *comunas* forming the city of Santiago:




Examples of listings on chilepropiedades.cl

 Chilepropiedades

Comprar (Todas) ▼ Casa ▼ Región Metropolitana(R) **BUSCAR**

Publica gratis Ingresar Registrarse

★ DESTACADO



18/11/2020

Quinta Normal, Salvador Gutiérrez *Publicación Reciente*

Vendo amplia casa. Cuenta con 5 dormitorios, living comedor, cocina, baño. Patio, lavadero. Puede ser conversable. Sector antiguo y tranquilo; cercano a escuelas, consultorio, comercio, supermercados, locomoción. Superficie construida, 140m2 aprox., terreno, 250m2 (10 x 25); no paga contribucione...


Código: 3957056

Venta propiedad usada / Casa / Quinta Normal


☆ AGREGAR A FAVORITOS

140.000.000 CLP

Terreno: 250 m²
Superficie Construida: 140 m²
Habitaciones: 5
Baños: 1



★ DESTACADO



18/11/2020

Quinta Normal, Quinta Normal *Publicación Reciente*

Vendo acogedora y amplia casa de dos pisos en Quinta Normal, cercana a Avda. San Pablo, Estación Metro Blanqueado; 220m2 terreno y 150m2 construidos aprox. Consta de living comedor, tres dormitorios; todo con piso flotante; dos baños, hermosa cocina equipada; aire acondicionado, sala de lavado, p...


Código: 4683568

Venta propiedad usada / Casa / Quinta Normal


☆ AGREGAR A FAVORITOS

135.000.000 CLP

Terreno: 220 m²
Superficie Construida: 150 m²
Habitaciones: 3
Baños: 2




★ DESTACADO



Maipú, Los heroes

86.726.760 CLP

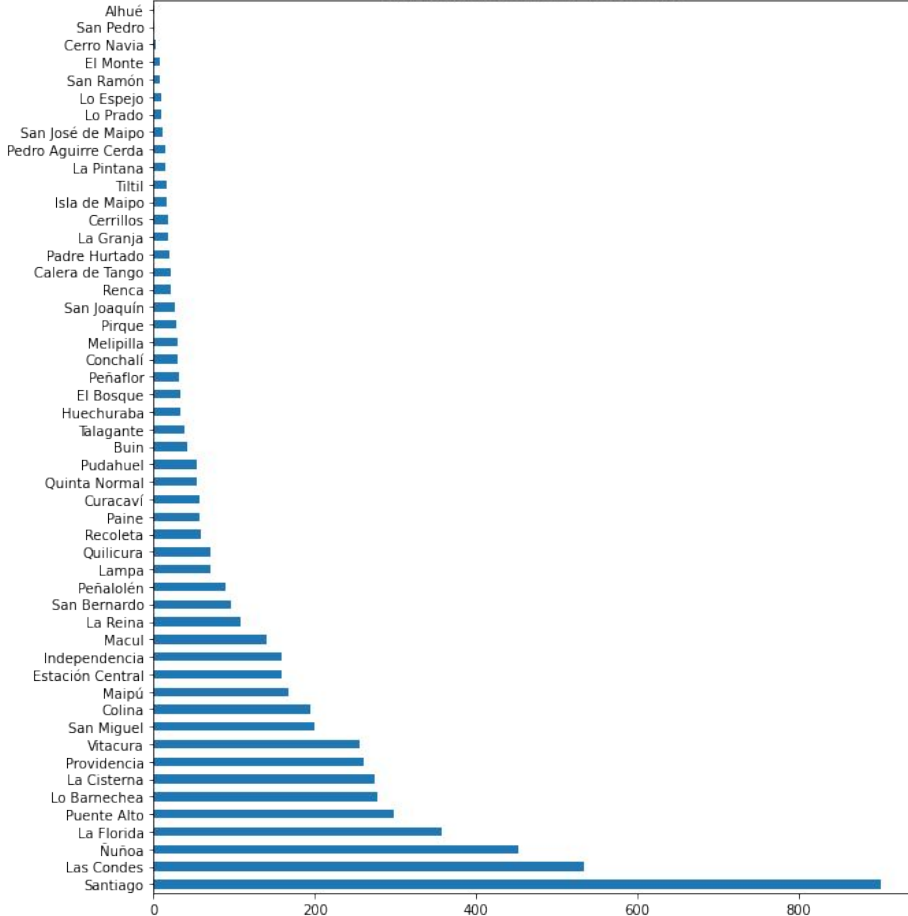


Q. BUSCAR EN MAPA

Columns in the dataset after cleaning

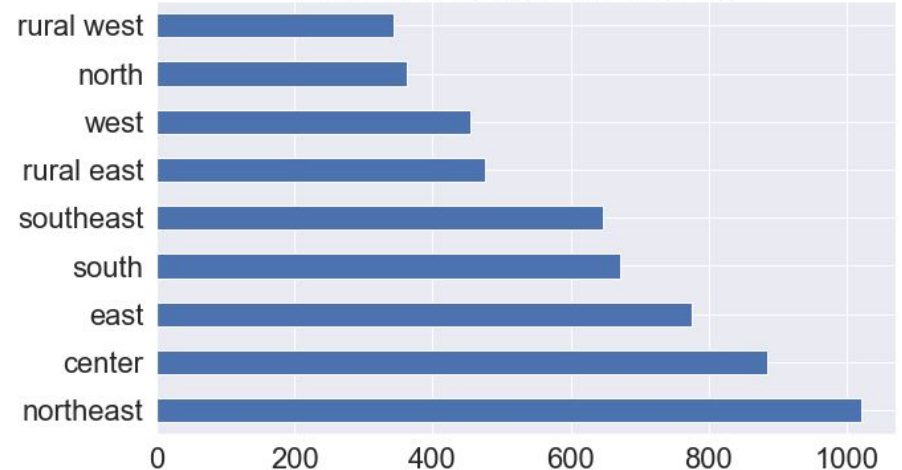
date	date the listing was posted
comuna	local municipality in Chile
house	binary column, 1 for house, 0 for apartment
new	binary column, 1 for new home, 0 for used home
total_area	square meters, size of the property for houses, area for apartments
built_area	square meters, only for houses, area of the footprint of the house
bedrooms	number of bedrooms in the house
bathrooms	number of bathrooms in the house
furnished	binary column, 1 for furnished, 0 for unfurnished
address	street address of the property
description	description of the property, usually a few lines
days_old	days since listing was posted, derived from date column
price_uf	price in <i>unidades de fomento</i> (UF), used for property in Chile

Number of Listings in Each Comuna

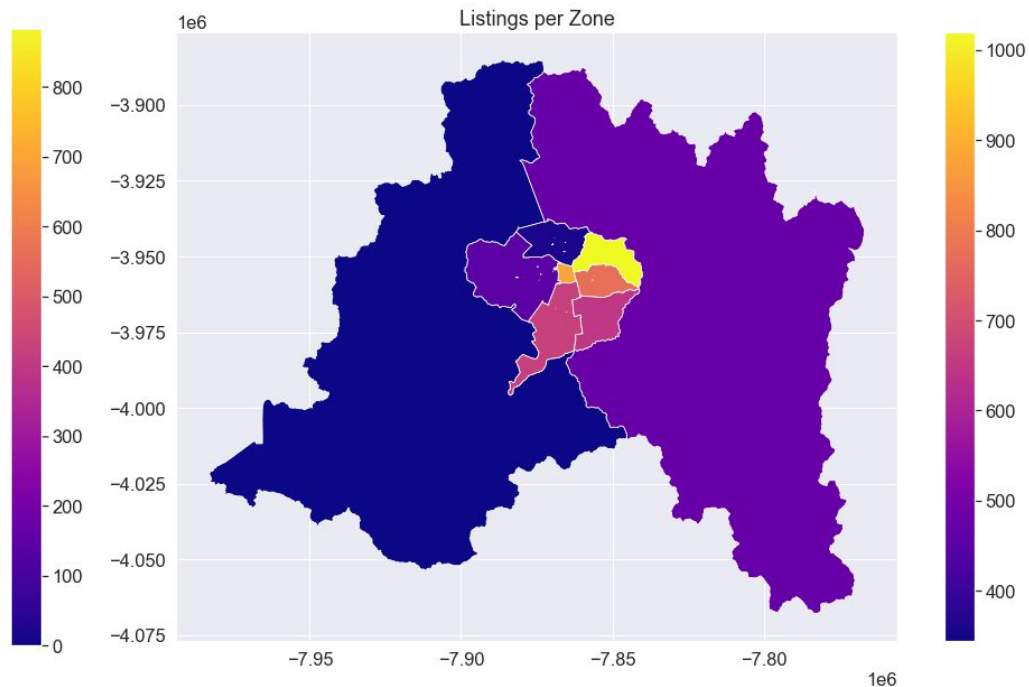
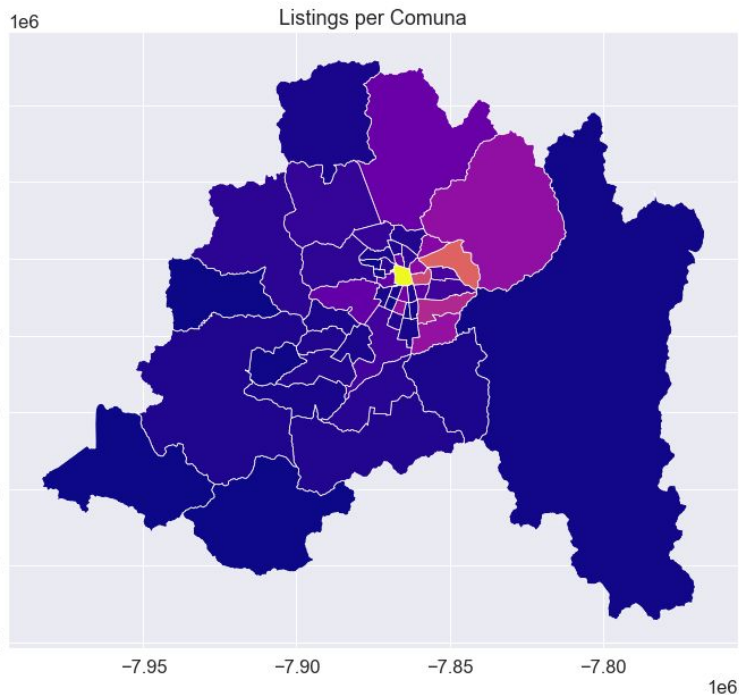


Which *comunas*/zones have the most listings?

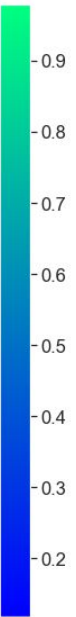
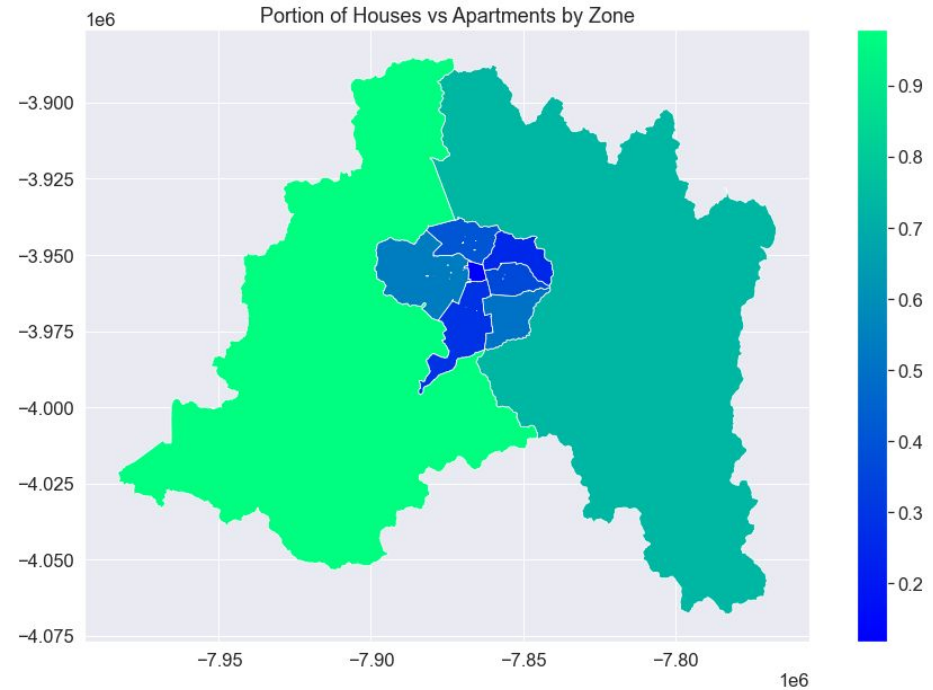
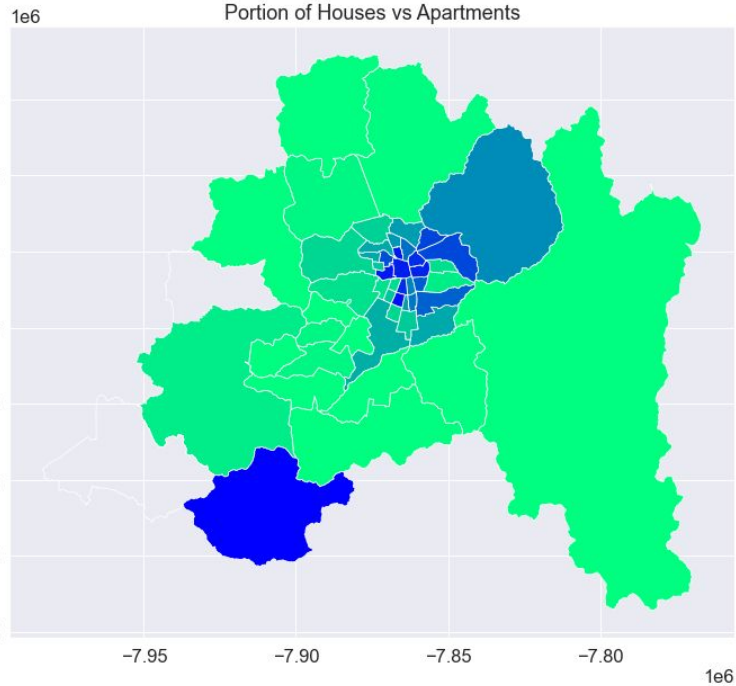
Number of Listings in Each Zone



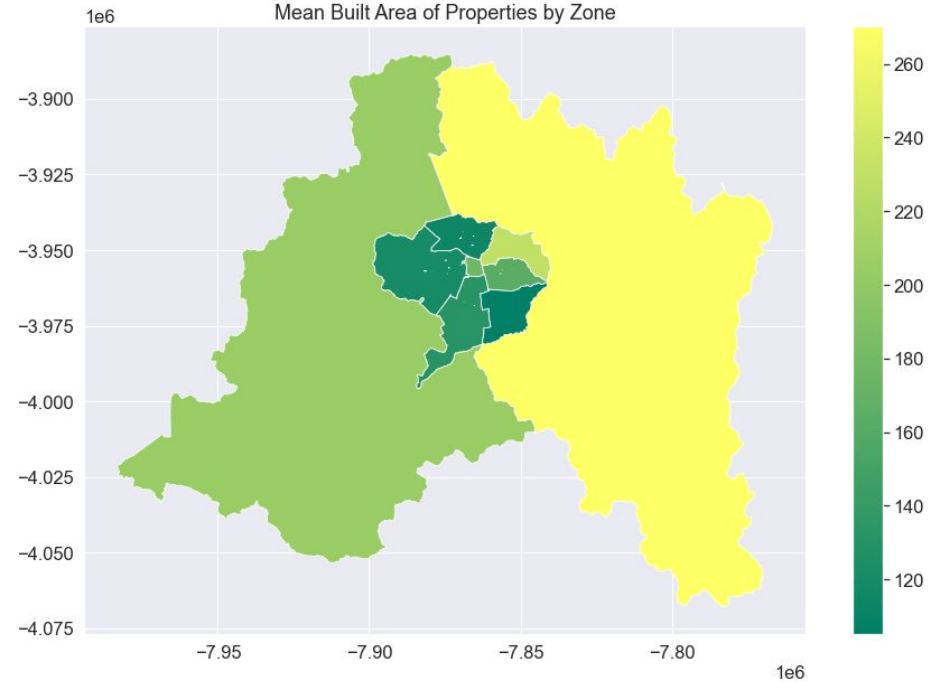
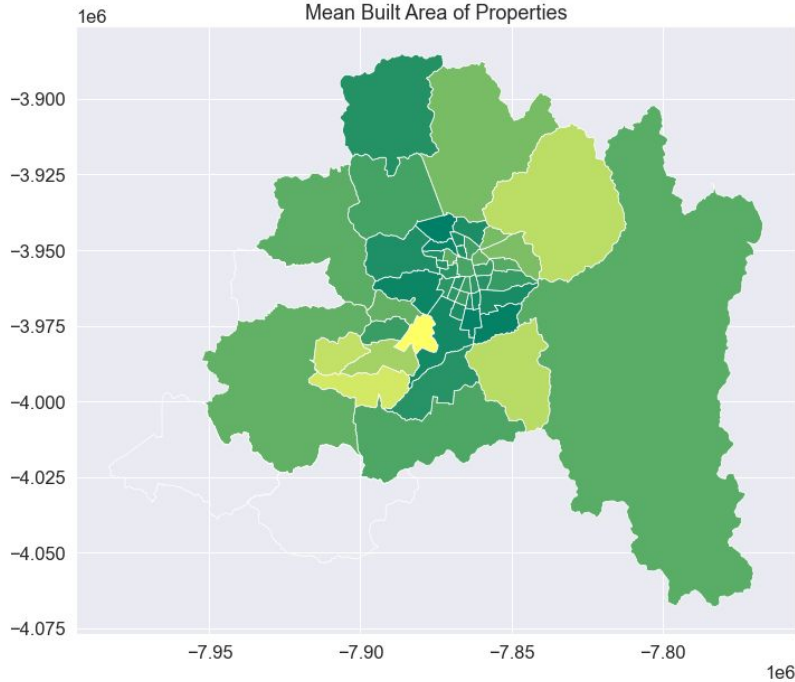
Total number of listings in each *comuna* (left) and zone (right)



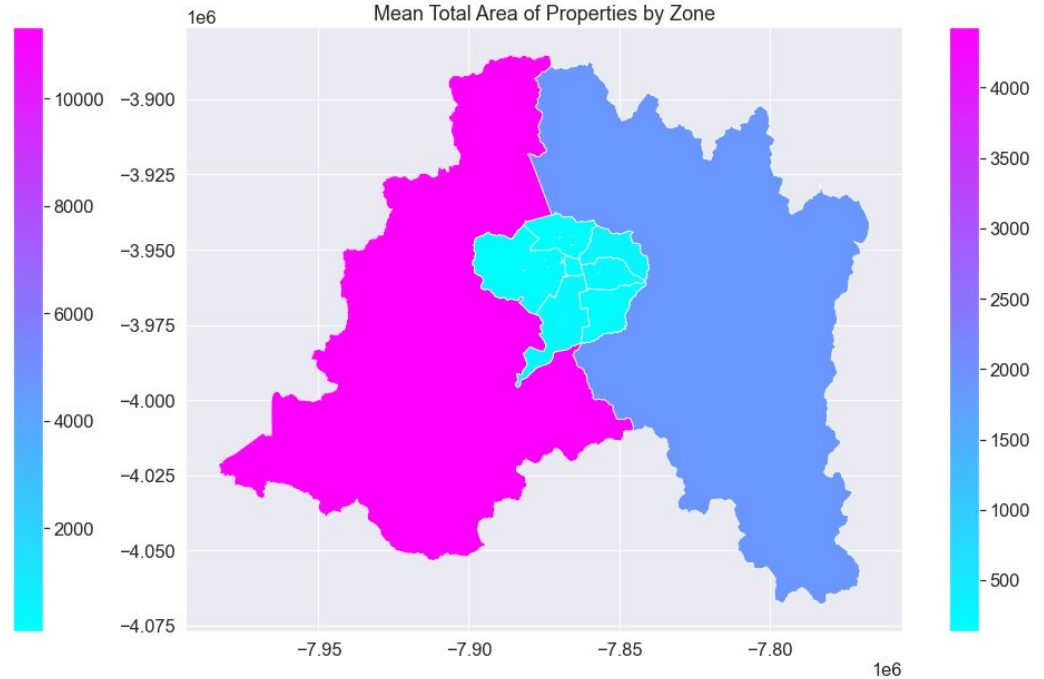
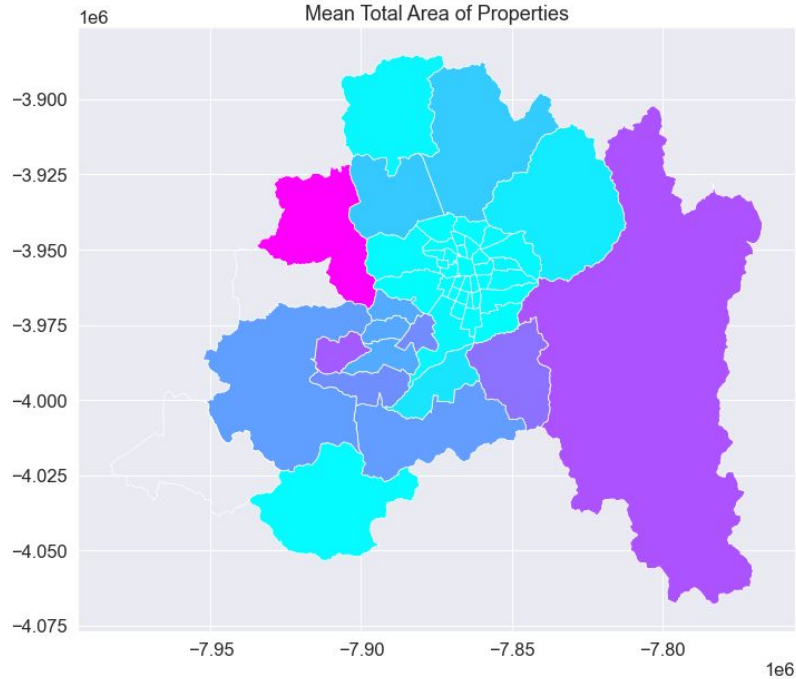
Ratio of houses to apartments in each *comuna* (left) and zone (right)



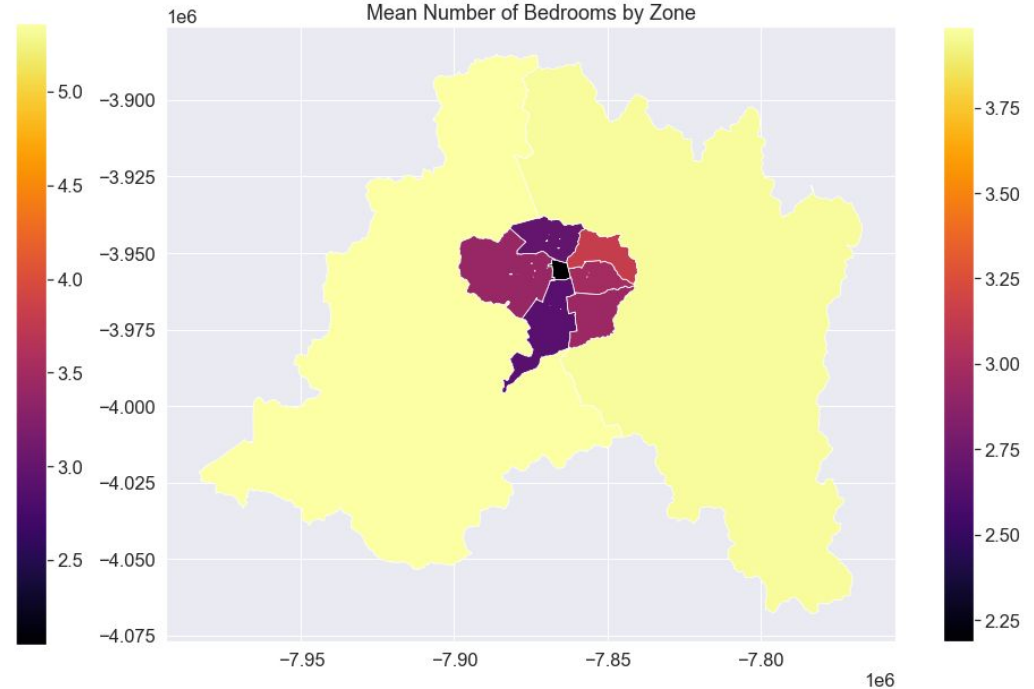
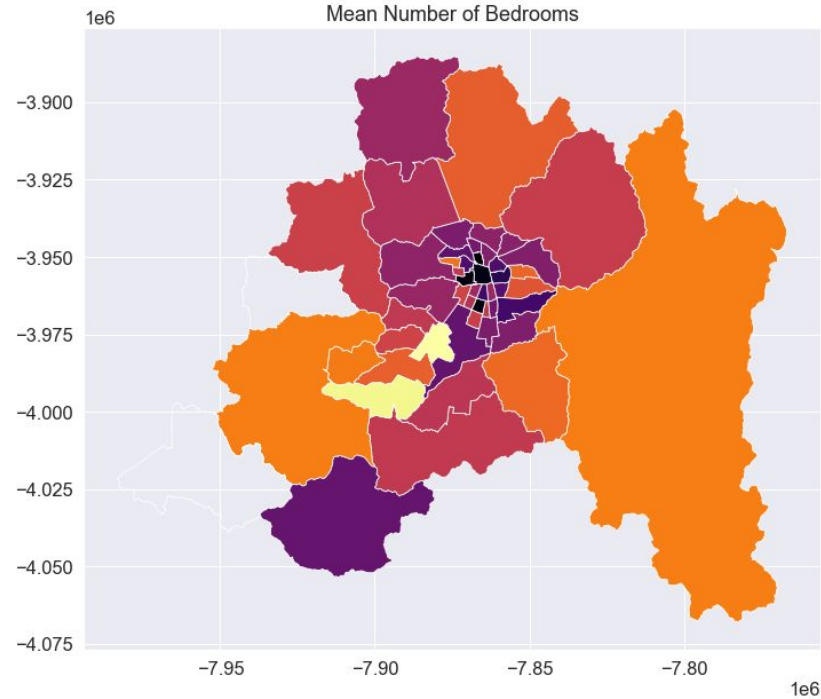
Average built area in each *comuna* (left) and zone (right)



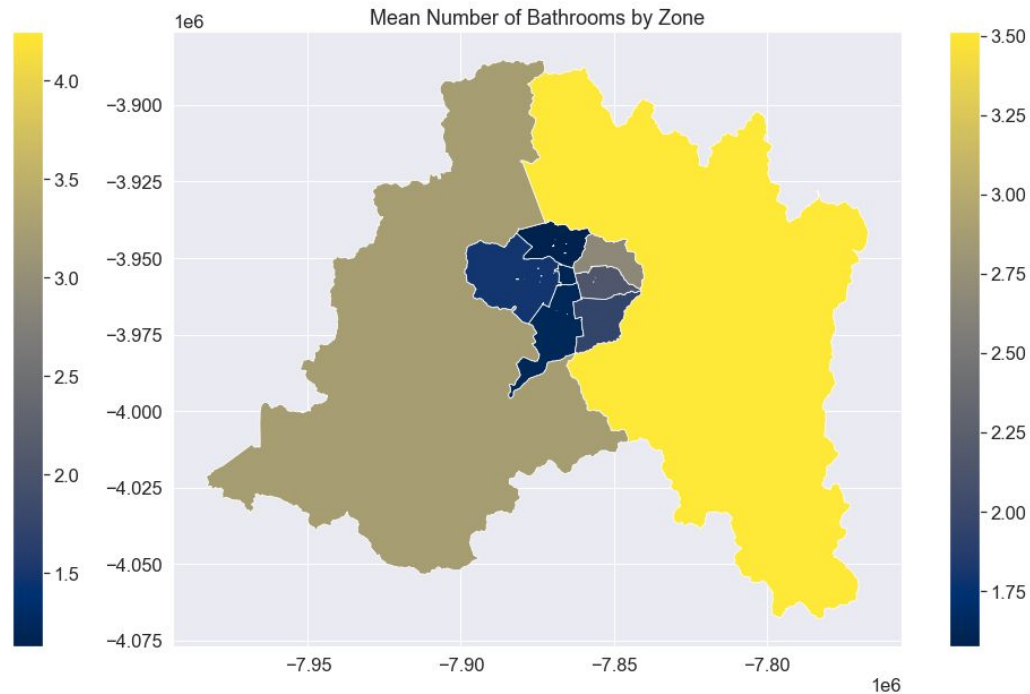
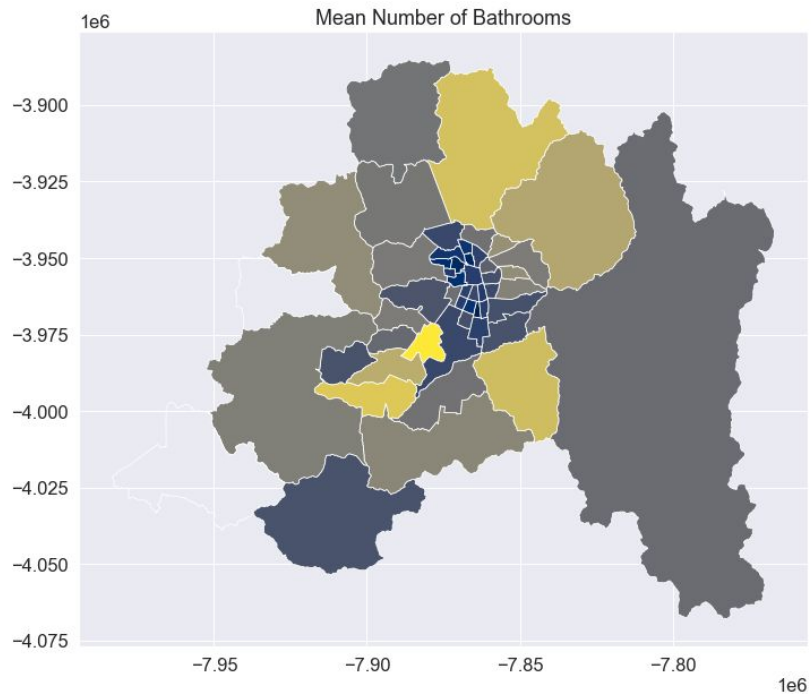
Average total area in each *comuna* (left) and zone (right)



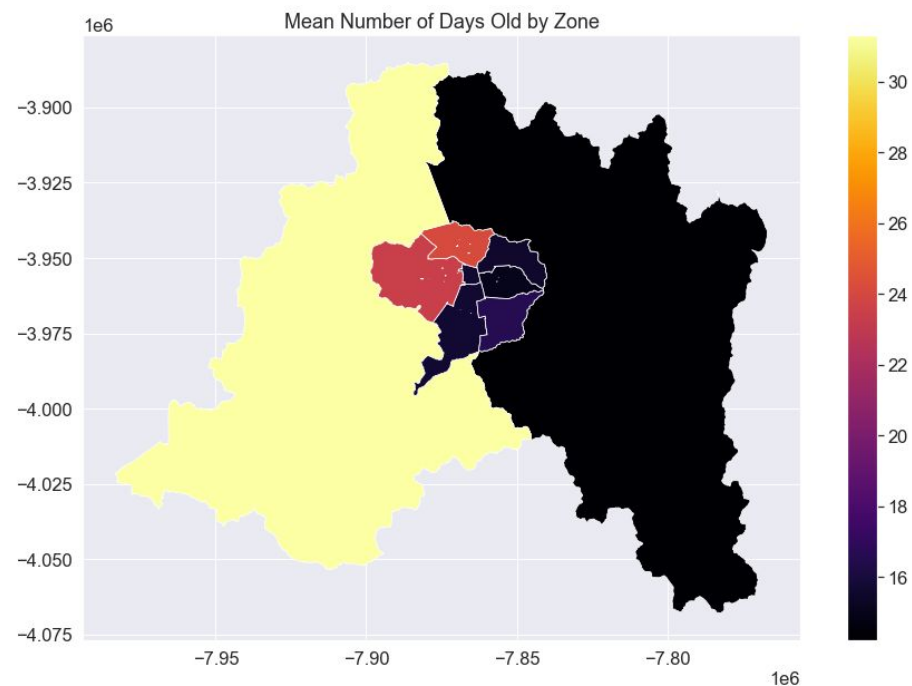
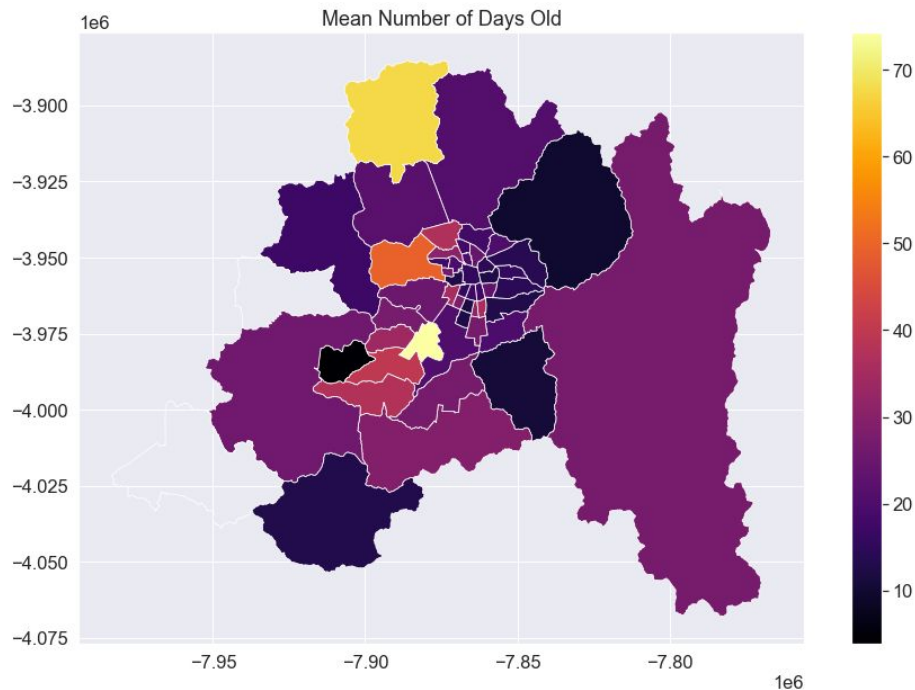
Average number of bedrooms in each *comuna* (left) and zone (right)



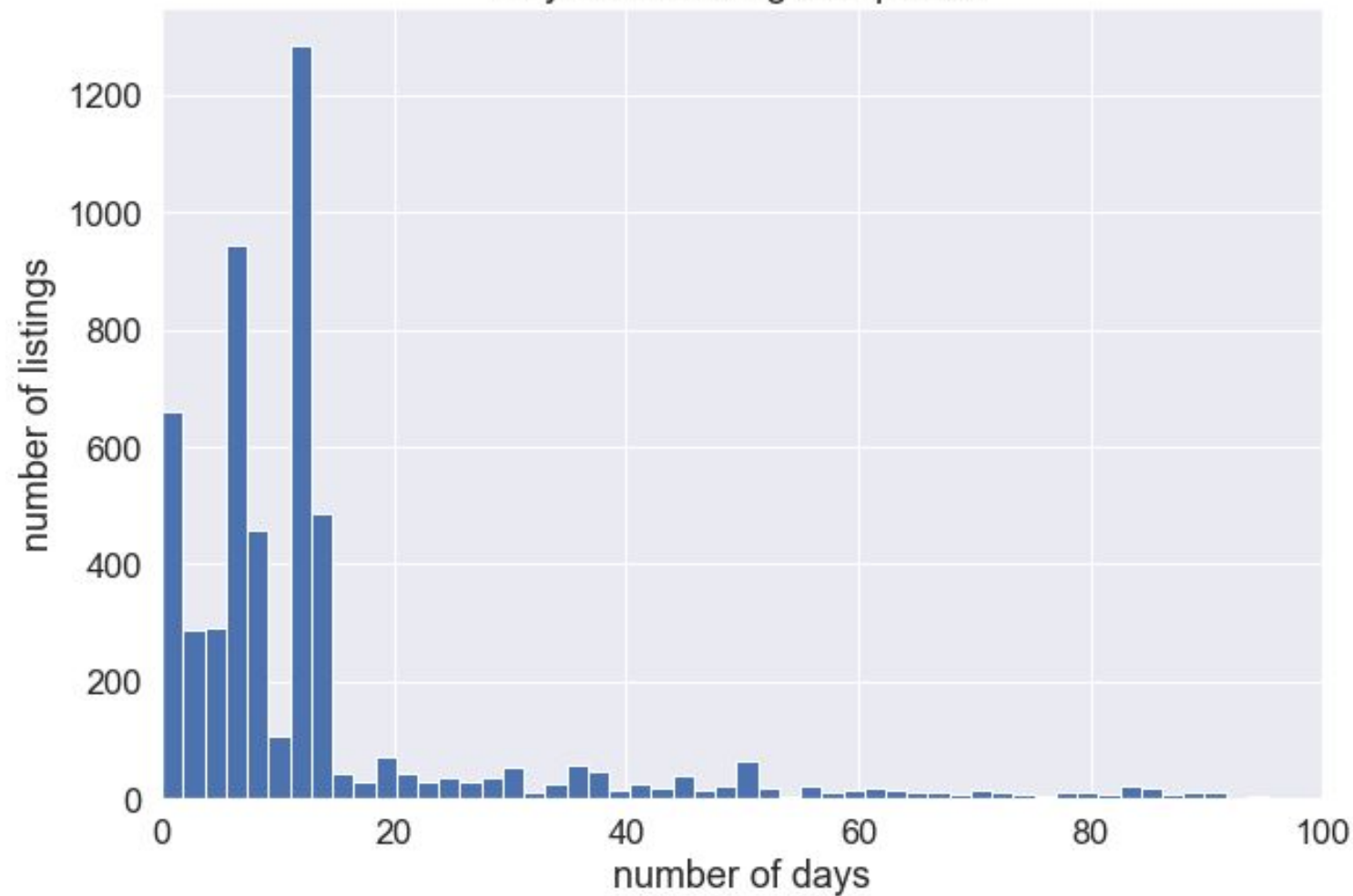
Average number of bathrooms in each *comuna* (left) and zone (right)



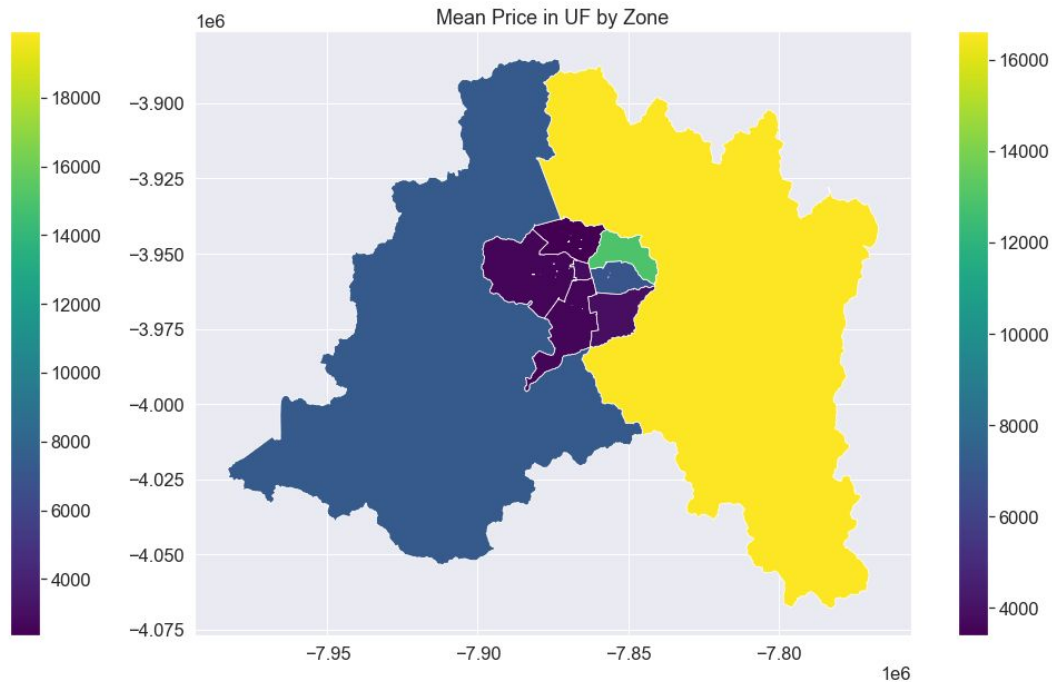
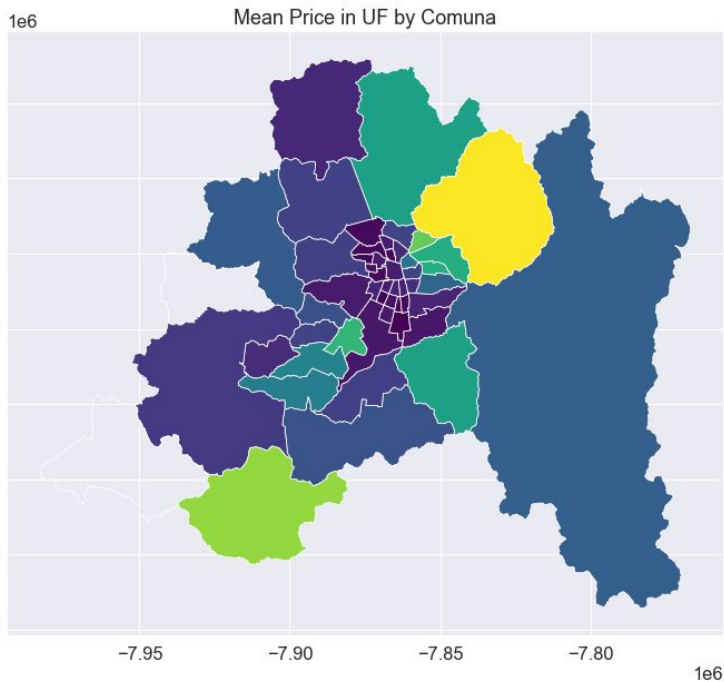
Average number of days since listing was posted in each *comuna* (left) and zone (right)



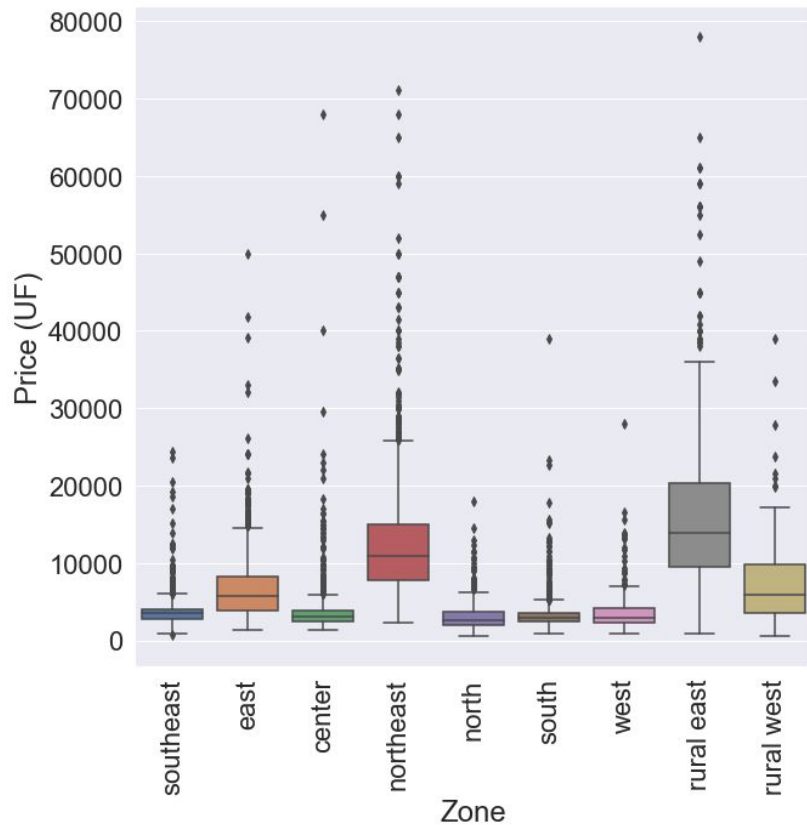
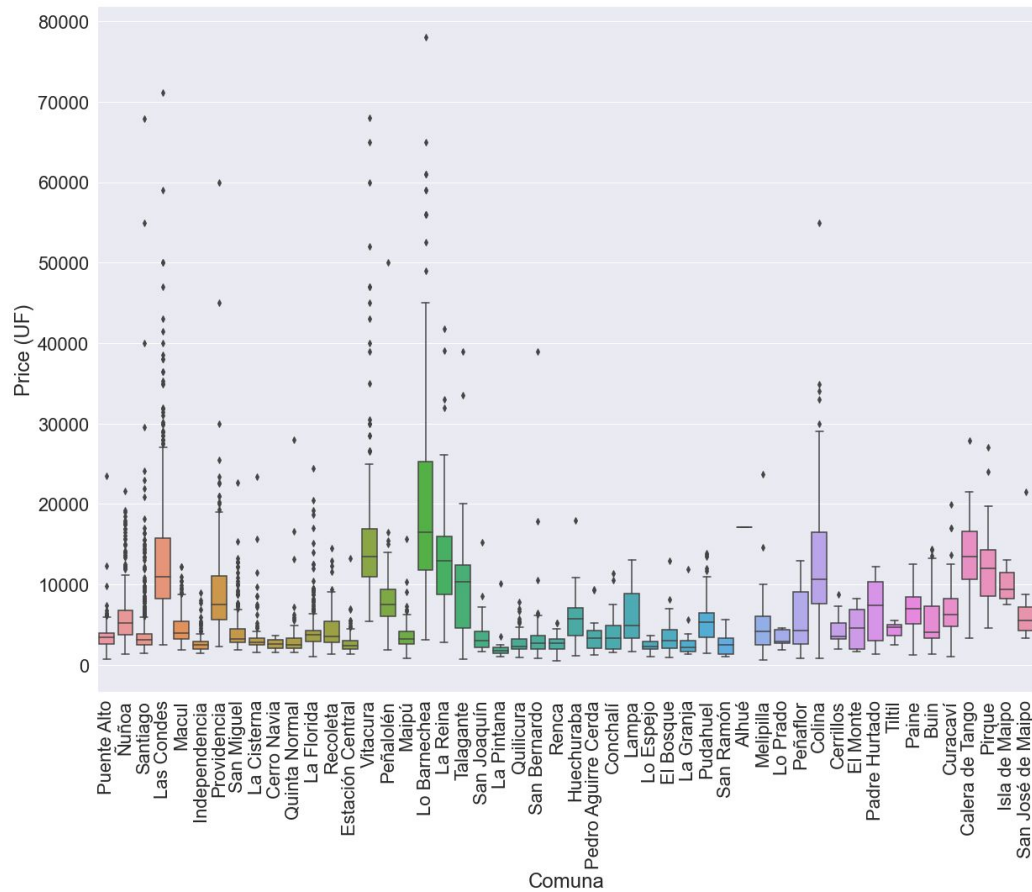
Days since listing was posted



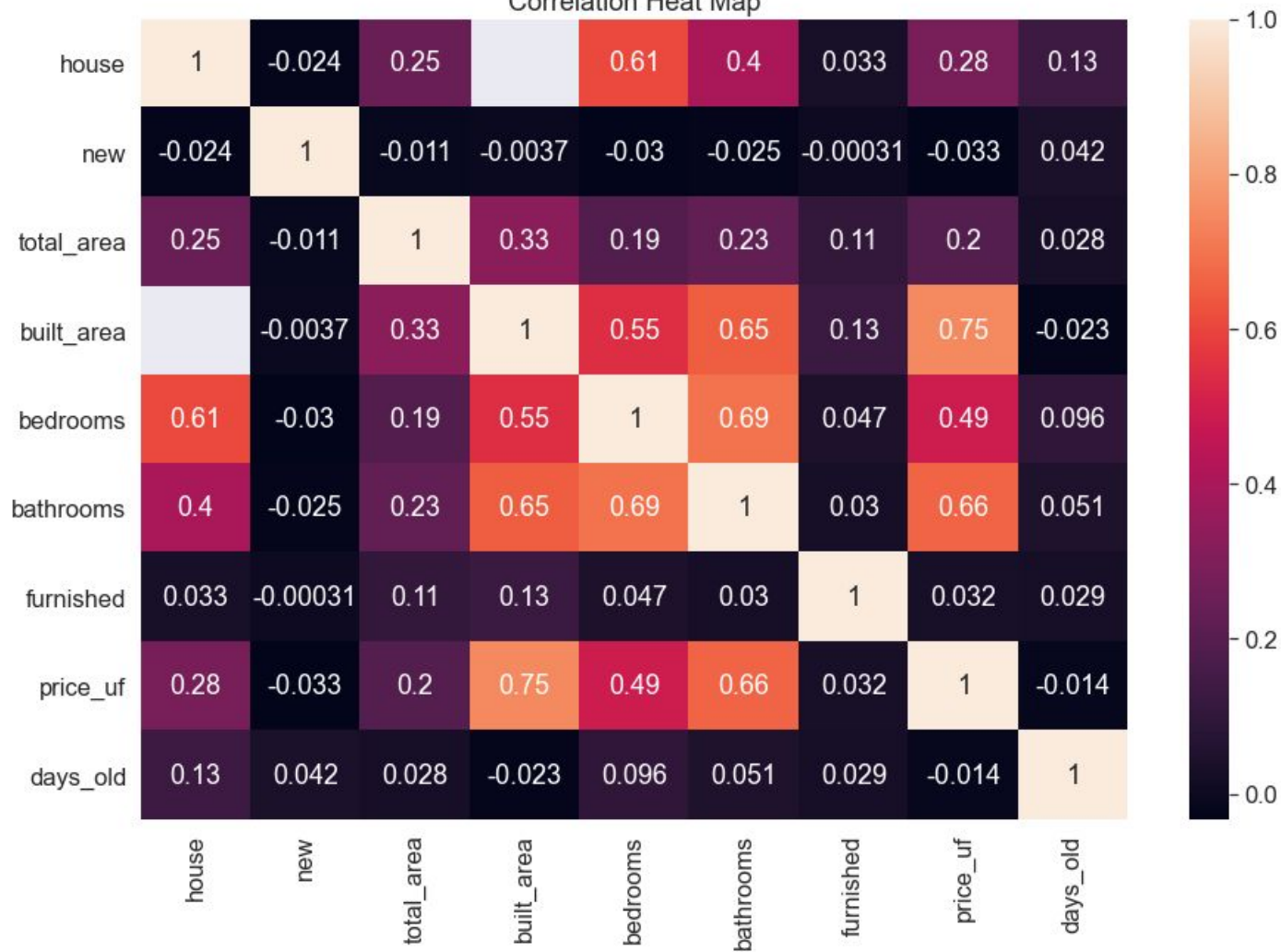
Average price of in each *comuna* (left) and zone (right)



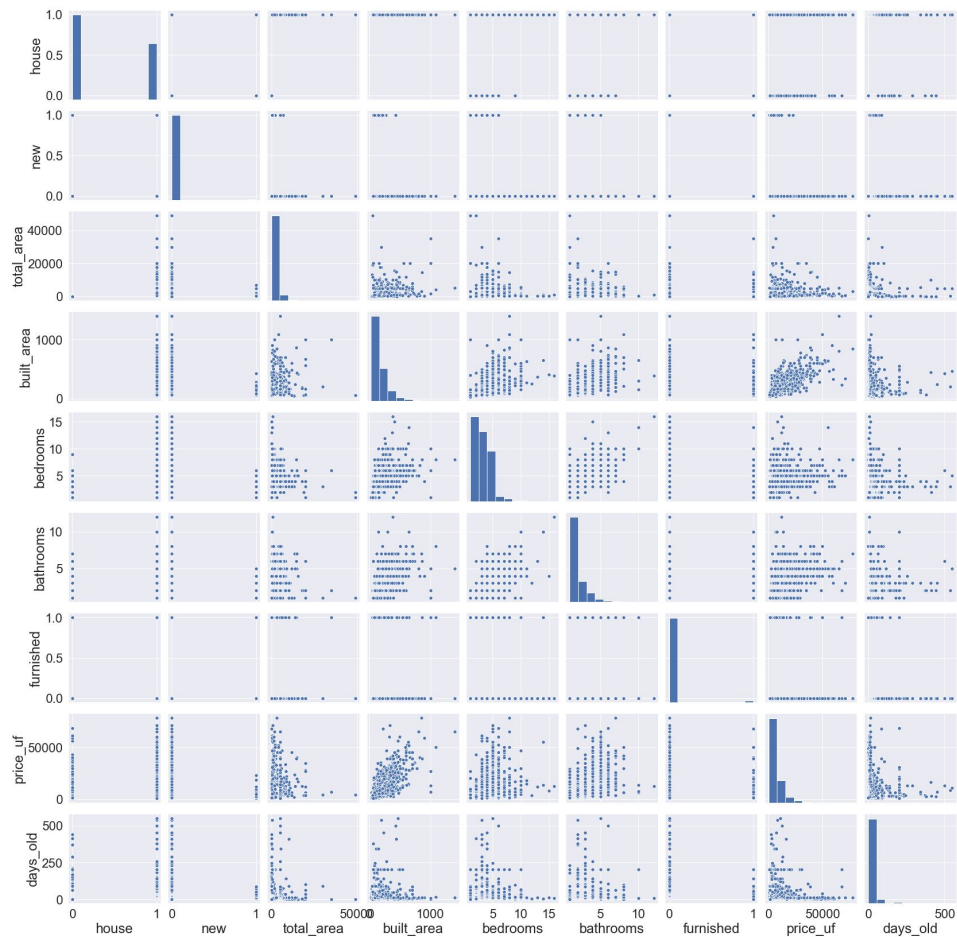
Spread of price in each *comuna* (left) and zone (right)



Correlation Heat Map



Pair plot showing relationships between features



Modeling

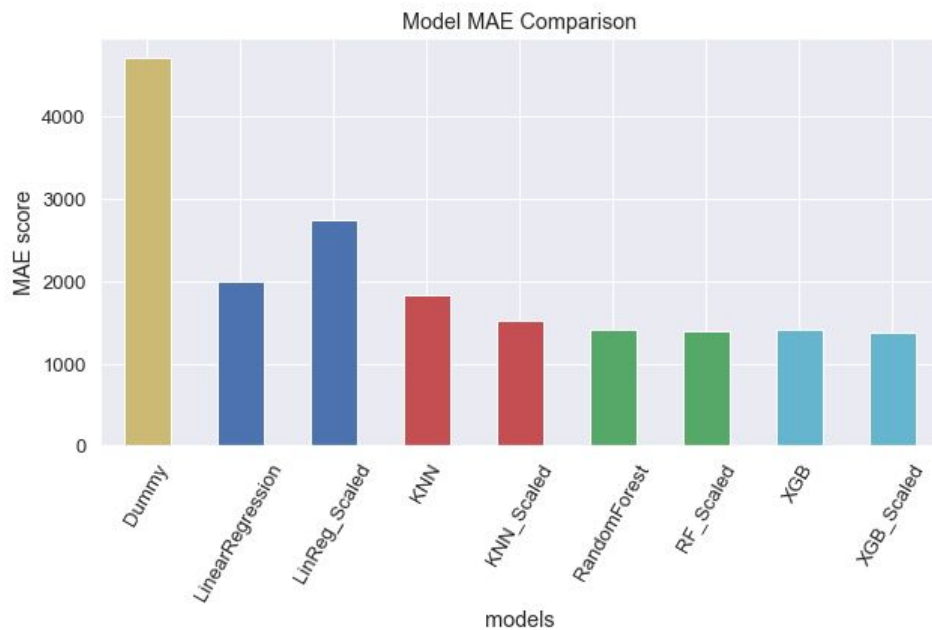
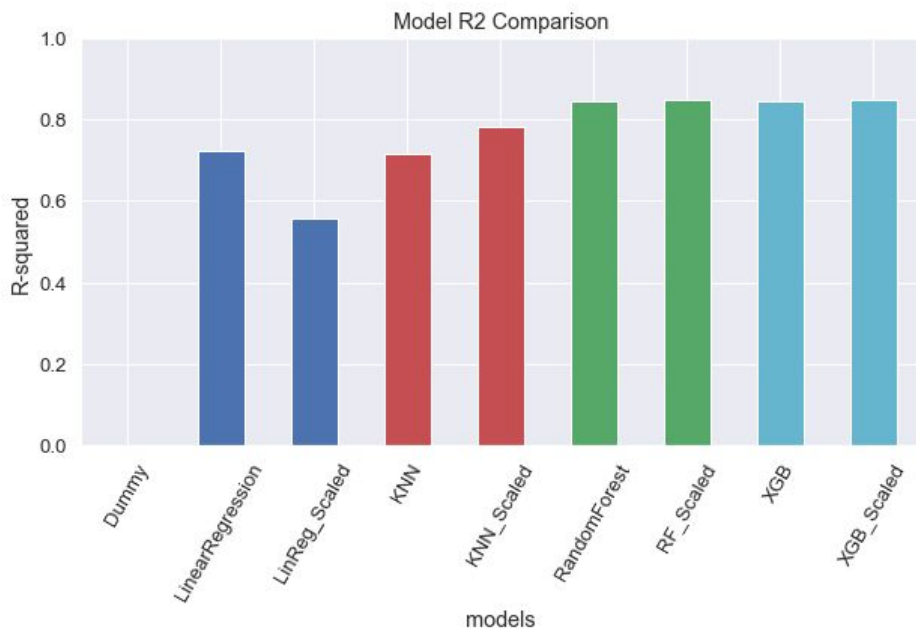
Features used:

house, total_area, built_area, bedrooms, bathrooms, zone_east, zone_north, zone_northeast, zone_rural east, zone_rural west, zone_south, zone_southeast, zone_west

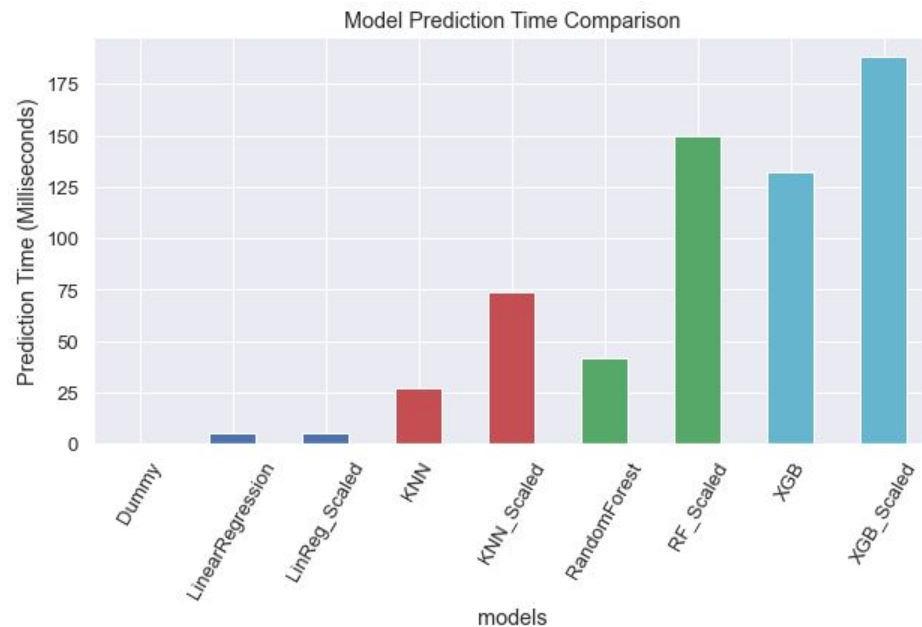
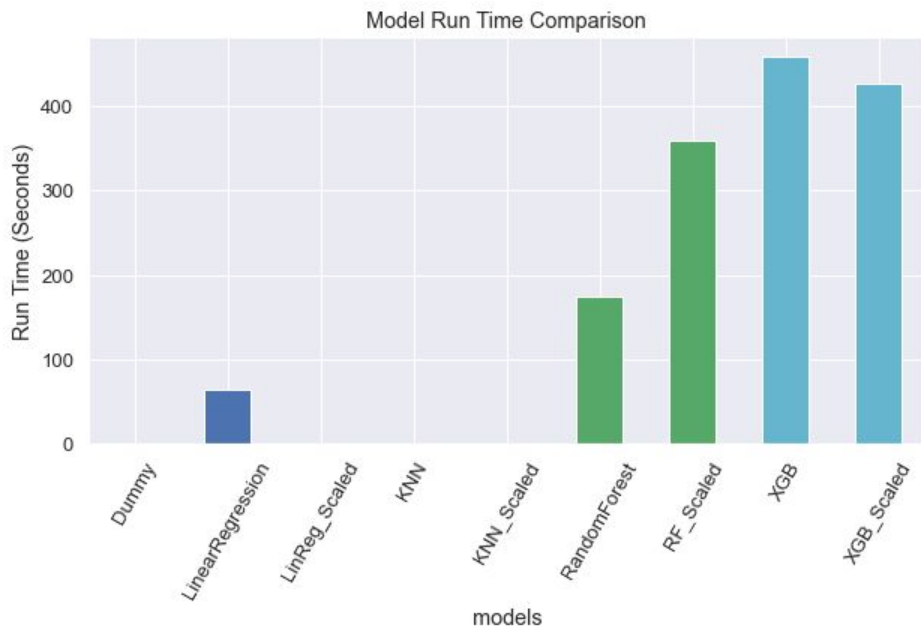
Models used (all with original data and scaled data):

- Linear Regression with Grid Search cross-validation
- K Nearest Neighbor with Grid Search cross-validation
- Random Forest Regressor with Randomized Search cross-validation
- XGBoost with Randomized Search cross-validation

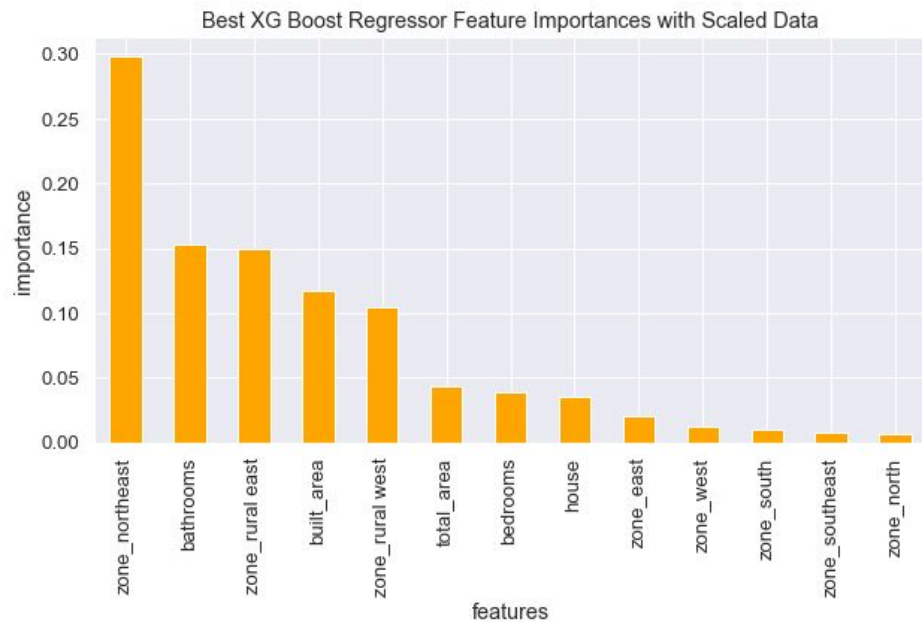
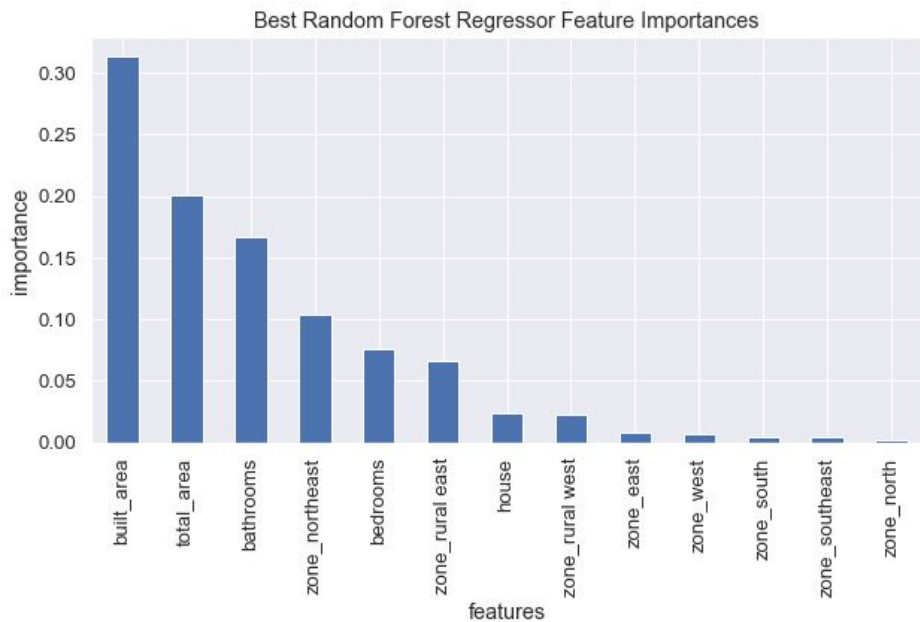
Comparison of models based on R-squared (left) and Mean Absolute Error (right)



Comparison of models based on training time (left) and prediction time (right)



Feature importance for Random Forest Regressor (left) and XGBoost Regressor (right)



Acknowledgments

Source of housing data:

chilepropiedades.cl

Source of map data for visualizations:

Biblioteca del Congreso Nacional de Chile

[https://www.bcn.cl/siit/mapas vectoriales](https://www.bcn.cl/siit/mapas_vectoriales)