Prediction of real estate property prices in Montreal

Nissan Pow Emil Janulewicz L. Dave Liu

Prediction Question

Predict the selling price of properties

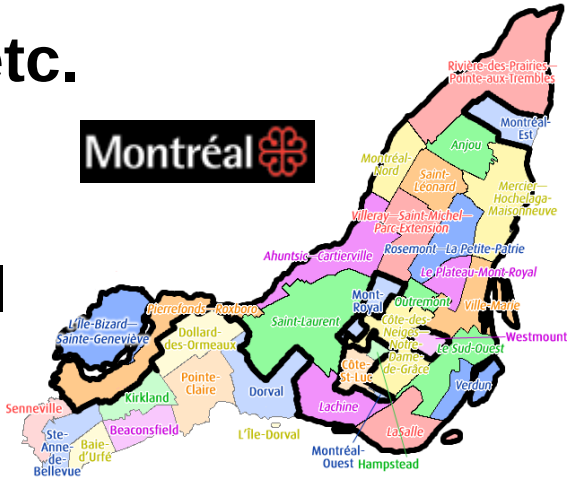
Motivations: **Suggest appropriate**

1. **Selling prices for the sellers**
2. **Buying prices for the buyers**

Data sets

1. Property listings in Montreal from real estate website

- **The <u>targets</u>: Prices**
- **The <u>features</u>: Area, # Rooms, etc.**



2. Bounding polygons from Montreal Open Data to incorporate additional demographics

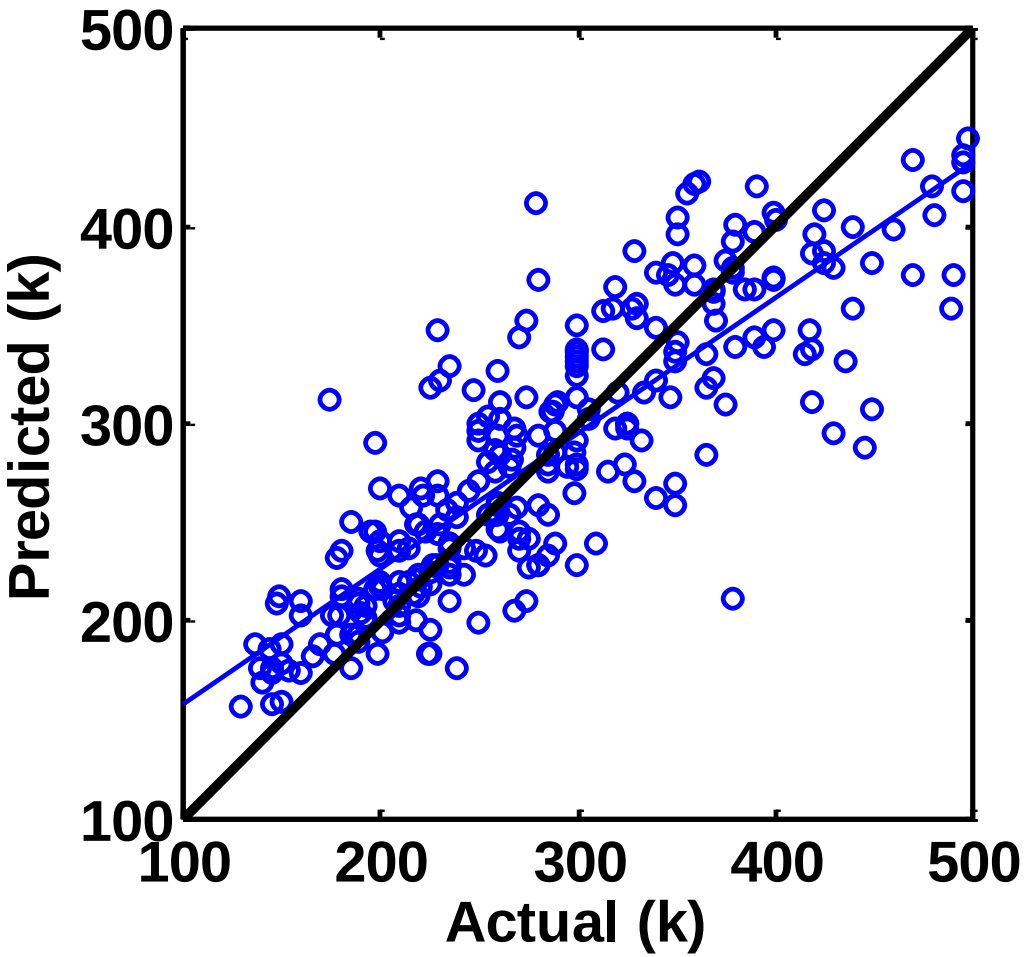
- **The <u>features</u>: Income, Crime rate, etc.**

Machine learning methods

Regression of the prices

- **Linear regression**
- **k-Nearest Neighbours**
- **Support Vector Regression (SVR)**

Preliminary Results (SVR)



Currently at 0.13 error

Goal: **Predict within 0.05 error.** (Caplin et al. 08)

Preliminary Results (Cont'd)

TABLE 1: Variance Accounted For (VAF) of different features.

Feature	Area	# Rm	# Bedroom	# Bathroom	Pool
VAF	0.472	0.141	0.158	0.329	0.110

The living area and the number of rooms (bathrooms) account for the most of the variance in price.

Future directions

- **Incorporate demographic data based on the defined Montreal boroughs**
- **Implement additional features such as higher order terms and their interactions** **(Boston housing price dataset)**
- **Implement neural network for regression** **(Quinlan 93)**