Forecasting future house prices

Team members:
- Mohamed Amine MKHAIBOU
- Anna Lebedeff
- Khoa Nugyen
- Sami Valkamaa

Oriented by:
- Mr. Jorma Laaksonen
- Mr. Juha Vesanto
- Mr. Roope Ruusuvuori

Presentation map

OP Project GOAL

Communication channels

Data sources

Format of data

Next steps

OP Project GOAL

- **Goal :**
 - ✓ **Predict housing prices one year from now => (end of 2021).**

- **Requirements :**
  - ✓ Ability to follow the development **quarter-to-quarter** => (Q1/2021, Q2/2021, Q3/2021, Q4/2021).
  - ✓ Ability to follow the development **per region** => Postal code / Province.
  - ✓ Ability to follow the development **per type of housing** => Flats (one-room flat, two-room flat, three-room flat+), row houses (Terraced houses).

21/09/2020

Communication channels

- ✓ Telegram

- ✓ Google drive

- ✓ Google Colab

- ✓ Microsoft Teams
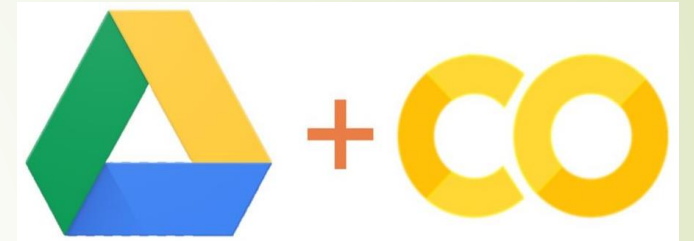
Data sources

▪ **Main source :**

   ✓ **Tilastokeskus => Statistics Finland's PxWeb databases**

▪ **Possible DBs :**

Data sources

- **Main source :**

  ✓ **Tilastokeskus => Statistics Finland's PxWeb databases**

- **Possible DBs :**

112p -- Average prices of old dwellings in housing companies and numbers of transactions by postal code area, 2010Q1-2020Q2*

| Select variable | About table |

Mark your selections and choose between table on screen and file format. Marking tips
For variables marked ✱ you need to select at least one value

Information ✱	Postal code ✱	Building type ✱	Quarter ✱
Total 2 Selected 0	Total 1,664 Selected 0	Total 6 Selected 0	Total 42 Selected 0
Price per square meter (EUR/m2) Number of sales	00100 Helsinki Keskusta - Etu-Töölö (Helsinki) 00120 Punavuori (Helsinki) 00130 Kaartinkaupunki (Helsinki) 00140 Kaivopuisto - Ullanlinna (Helsinki) 00150 Eira - Hernesaari (Helsinki) 00160 Katajanokka (Helsinki)	Blocks of flats, one-room flat Blocks of flats, two-room flat Blocks of flats, three-room flat+ Blocks of flats total Terraced houses total Building types total	2020Q2* 2020Q1* 2019Q4 2019Q3 2019Q2 2019Q1
Search ▶ ☐ Beginning of word	Search ▶ ☐ Beginning of word	Search ▶ ☐ Beginning of word	Search ▶ ☐ Beginning of word

Tilastokeskus

Data sources

- **Main source :**

  ✓ **Tilastokeskus => Statistics Finland's PxWeb databases**

- **Possible DBs :**

112r -- Average prices of old dwellings in housing companies and numbers of transactions, quarterly, 2006-, 2006Q1-2020Q2*

Format of data

- **Sequencing:**
  - ✓ **Choose the filters => Make an overview on results => Download the table as CSV file => Use the CSV file.**

Format of data

- **Sequencing:**
  - ✓ **Choose the filters => Make an overview on results => Download the table as CSV file => Use the CSV file.**

Average prices of old dwellings in housing companies and numbers of transactions, quarterly by Building type, Number of rooms, Region, Information and Quarter

	Price per square meter (EUR/m2)				
	2018Q1	2019Q3	2019Q4	2020Q1*	2020Q2*
Blocks of flats					
One-room flat					
Helsinki 1	8,051	8,369	7,914	8,437	8,506
Helsinki 2	6,245	6,721	6,644	7,032	6,976
Espoo-Kauniainen 2	4,261	4,014	4,858	...	...
Espoo-Kauniainen 3	3,627	3,458	3,638	3,730	...

Format of data

Tilastokeskus

- ▪ **Sequencing:**
  - ✓ **Choose the filters => Make an overview on results => Download the table as CSV file => Use the CSV file.**

```python
import pandas as pd
```

```python
table = pd.read_csv("014_112r_2020q2.csv", sep = ';')
table
```

112r -- Average prices of old dwellings in housing companies and numbers of transactions, quarterly, 2006-, 2006Q1-2020Q2*

Region	Building type	Number of rooms	2018Q1 Price per square meter (EUR/m2)	2019Q3 Price per square meter (EUR/m2)	2019Q4 Price per square meter (EUR/m2)	2020Q1* Price per square meter (EUR/m2)	2020Q2* Price per square meter (EUR/m2)
Helsinki 1	Blocks of flats	One-room flat	8051	8369	7914	8437	8506
Helsinki 2	Blocks of flats	One-room flat	6245	6721	6644	7032	6976
Espoo-Kauniainen 2	Blocks of flats	One-room flat	4261	4014	4858	...	...
Espoo-Kauniainen 3	Blocks of flats	One-room flat	3627	3458	3638	3730	...

Next steps

✓ Extract 4 DBs: **Building type(Number of rooms)**

1. Terraced houses (total);

2. Blocks of flats (one-room flat);

3. Blocks of flats (two-room flat);

4. Blocks of flats (three-room flat+);

✓ Add the postal code of each region.

✓ Perform an EDA (Explanatory Data Analysis) on each DB.

✓ Preprocessing the data (Impute NA values, ..).

✓ As we have a regression problem, we will try first the Linear regression model.

21/09/2020

Thank you for your kind attention ☺