Sell or rent out?

Budapest BI Forum 2016 ingatlan.com Data Visualization Challenge

Concept

When to sell or rent out the property, is a crucial question not just for real estate investors but for regular home owners as well. Are the prices at top yet? How much should I ask for my flat? How long it is going to take to sell my flat? Our submission helps to answer these questions base on the listing and watch list data provided by ingatlan.com. Beyond that our goal was to provide a bit of a technological demo of what the open source R environment is capable of.

Notes and presumptions

After data cleaning we have realized that ~75% of the listings and ad monitors target Budapest. For the sake of the visuals, we decided to focus only on flats offered or demanded at Budapest.

We have also found numerous outliers (e.g., for sale @5 MFt/sqm; flat in 71112546th district; flat from 10.12.5 MFt). We have also removed these rows without further consideration.

We have also calculated price per sqm for the demand. We have calculated this based on the given price and area range in the ad monitors

Presentation

Our submission consists of a Shiny app with two dynamic pages: an infographic analysis page and a point-n-click "filter game" page.

Infographic analysis
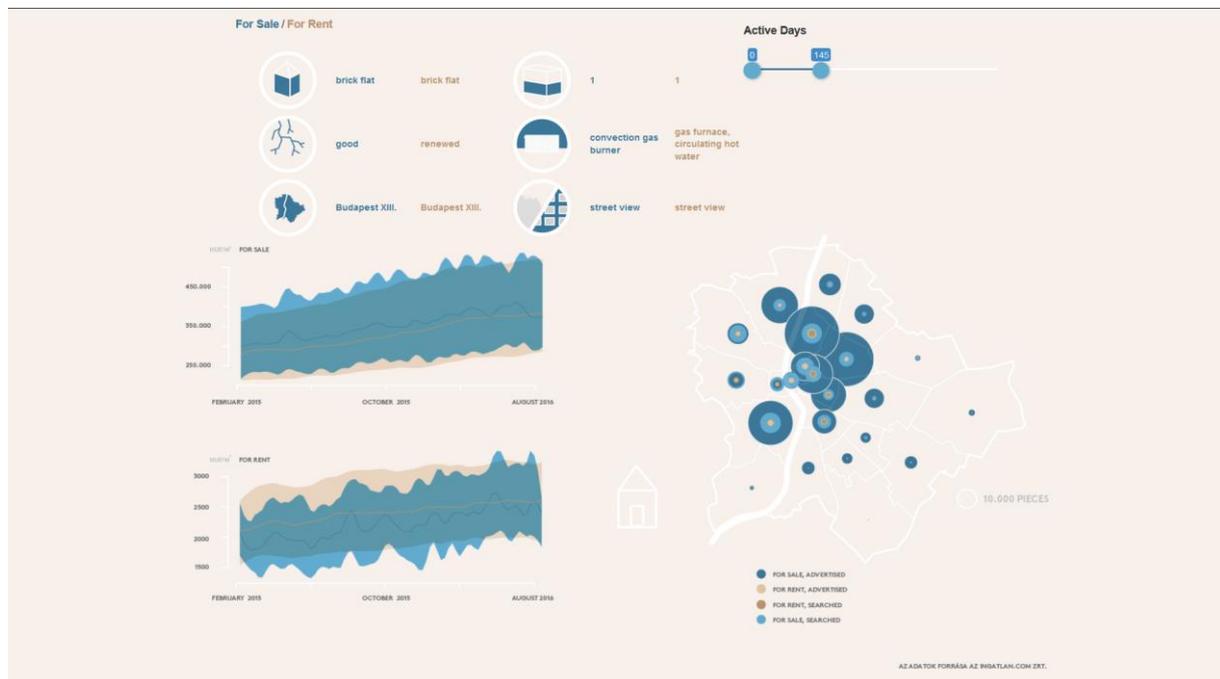
On the infographic analysis page there are three static charts:

- Trend in the price per sqm of properties for sale, both demand and supply[1]
- Trend in the price per sqm of properties for rent, both demand and supply
- Number of properties for sale & for rent per district, both advertised & searched

Beyond the static charts, we have implemented a dynamic parameter dashboard. The range selected on the slicer represents a range of active days of the listings; and the parameters on the right are the dominant parameter values of ads with active days within that range. So we can find that flats that are sold within 10 days are most probably brick flats from the 13. district on the first floor with street view.[2]

Point-n-click filters
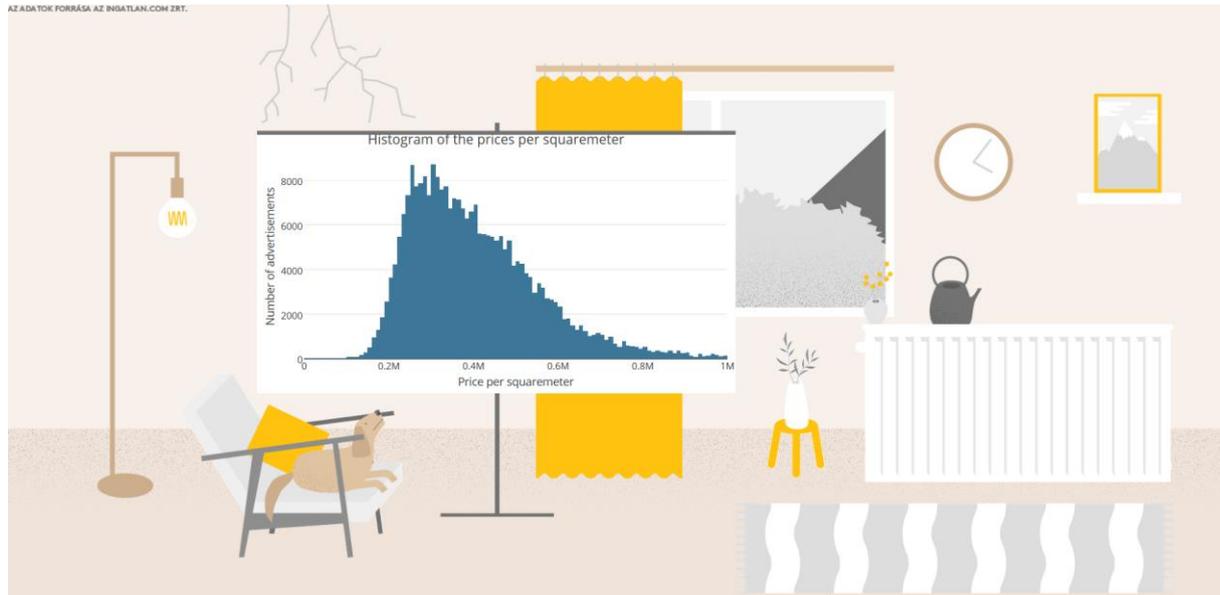
Our submission's other page implements a kind of point-and-click game as a Shiny app. The context takes us to a cozy living room, where we see a whiteboard with a Plotly plot, that shows a histogram of the process per sqm. Users are able to filter the listings dataset with object to be explored. By clicking on these objects pop-ups appear the allows us to select filter conditions that affect the presented histogram.

Conclusion

Whether to sell a flat now or rent it out depends largely on the specific parameters of the flat; but in general, based on the trend plots – and especially on the slight breakdown at the end – we might want to sell soon.

Used technologies

Our submission was prepared entirely in R language, developed in RStudio with Shiny[3]. Some of the static charts were recreated with a graphical design tool, to amplify the "infographic look-and-feel".

Beyond base R, the submission uses the following R packages for data manipulation, calculation and visualization: shiny, plotly, stlplus, statmod, h2o.

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[1] The ribbon on the trend charts represents the interquartile range of price per sqm.
[2] Obviously this interpretation assumes that if an ad is removed then the advertised flat is sold.
[3] Submission is deployed at shinyapps.io; URL is available separately in the submission, according to the instructions for submission (as it would reveal the identity of submitter).