# Business case

A private (non-business) seller who has just sold an item on eBay may be particularly receptive to a marketing message to buy on eBay. After all, the seller just had a positive selling experience and is in a good mood with respect to eBay, and he just made some money that's burning a hole in his pocket.

By contract, eBay sends several transactional email messages for each successful auction, e.g.:

* “Congratulations, your item has just sold.”
* “The buyer has requested your payment details.”
* “The buyer has completed the payment, please ship your item.”

Due to their transactional nature, these emails have a high open rate and are thus a perfect candidate for including a buying-focused marketing message.

Against this background, your business partner has asked you whether you think there's potential in including a buying marketing message in transactional emails. The high-level question she asks is: “Do you think sellers who just sold an item will be responsive to a buying marketing message, and if yes, which sellers should we target?”.

# Data set

In order to answer this question, you construct a data set that collects all private auctions that were completed successfully in a given time period. Please refer to the separate document containing column names and variable descriptions. All behavioral variables (bids, searches, item views, purchases) only take into account behavior in the same high-level category where the auction was listed, since you want to relate the potential buying marketing message to the successful sale, e.g. “Why not celebrate the sale of your camera lens by rewarding yourself with a new camera case?”. Additionally, all variables with a \_2d\_ or \_ 7d\_ component (see separate document) are constructed such that they exclude activity on the end date or start date of the auction itself.

# Assignment

The goal of this case study is for us to understand better how you think, analyze a problem, and how you code. It is up to you how you want to approach the case, but to give you a bit of direction here are a few possibilities:

* Exploratory analysis of the data set
* High-level understanding of the data distribution and its commercial potential
* Predictive model
* Clustering

However, to stress this again, it's up to your imagination, and you should feel free to be creative or come up with other approaches.

# Rules

Please provide us with all your output materials (code, scripts, text, Jupyter notebook, mark-down documents), even if it's not completely finished. Please comment your code extensively. Understanding how and why you did something is more important for us than the end result of your analysis.