Adbot Forecasting Challenge

The objective of this challenge is to accurately predict the number of clicks a client's ad receives, one and two weeks into the future (in digital marketing, clicks refer to when someone views the advert and follows one of the hyperlinks in that advert). In our time series modeling, we started with naive forecasting, using techniques such as mean, shifting, and median, and using the last values as the forecast of the future values. Using the median value, in the individual ID columns yielded the best score among the naive forecasting techniques. Later on, we tried recurrent neural networks but because we were supposed to provide a sensitivity report showing the features used in time series modeling that highly influenced the forecasted value.

To produce a sensitivity report, we resorted to gradient boosting techniques specifically using LightGBM regressor using lagged and rolling window features to train a gradient boosting model for our time series forecasting. Using the lagged and rolling window features we were able to have future values that we use for our predictions. In the sensitivity report, lagged_clicks_15, weekly_impressions_max, lagged_clicks_21, lagged_clicks_16, and lagged_clicks_22 are the top 5 features that highly contributed to the forecasted values. Our LightGBM forecasting model achieves a RMSE of 13.46 on both the public and private leaderboard

Lightgbm features importance (top 50):