# MMM Daily Installs Forecast

## Problem

Understand the true impact of the marketing campaign on the client app daily installations.

## Solution

After data cleaning, feature engineering and the EDA phases, to predict the daily installations number, I train a multivariate linear regression model through the available predictors and newly created ones. A seasonality patter analysis is conducted on the data through a LOESS analysis. The seasonality pattern is then included in the final model.

## Next Steps

1. Account for more lagged predictors.
2. Retrieve additional predictors that may affect the number of installations.
3. Test the performance of a Neural Network model.
4. Increase the historical time span of the dataset.

## Key Insights

1. When the promotion takes place, the number of installations greatly increases.
2. Follows a slow decay and a stabilization to a number of installations larger than the one present before the promotion took place.
3. The number of installs shows a weekly seasonality.
4. Increasing the money spent on Google or Facebook does not strongly relate to an increase of installations when the promotion is not taking place.
5. There is a positive correlation between the number of installations and its lagged values. A linear regression model was therefore built.
6. The best model can explain 72.1% of the test dataset variance and it produces predictions which differ on average by 14.1% from the actual values.
7. Thanks to the marketing campaign, the app was installed 40380 additional times.
8. Thanks to the marketing campaign, the app daily installations increased by 7.7% for a total of 70.000$ spent in 4 weeks.

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