

Relax Take Home Challenge Report

Our Task

We were asked to explore 2 datasets ("takehome_users" and "takehome_user_engagement") with data on 12,000 users who signed up for the product in the last two years and to define factors which will predict future user adoption. The criteria for an adopted user are those who have logged into the product 3 separate dates in at least one 7 day period. (See supplemental notebook for complete codes)

Our Process

We begin with EDA and find any correlation with any feature variables to our target (the adopted user). We converted date columns to datetime objects to take advantage of timestamp information. We created an "adopted_user" column as our target variable with indicating users who fit the criteria above for the adopted user.

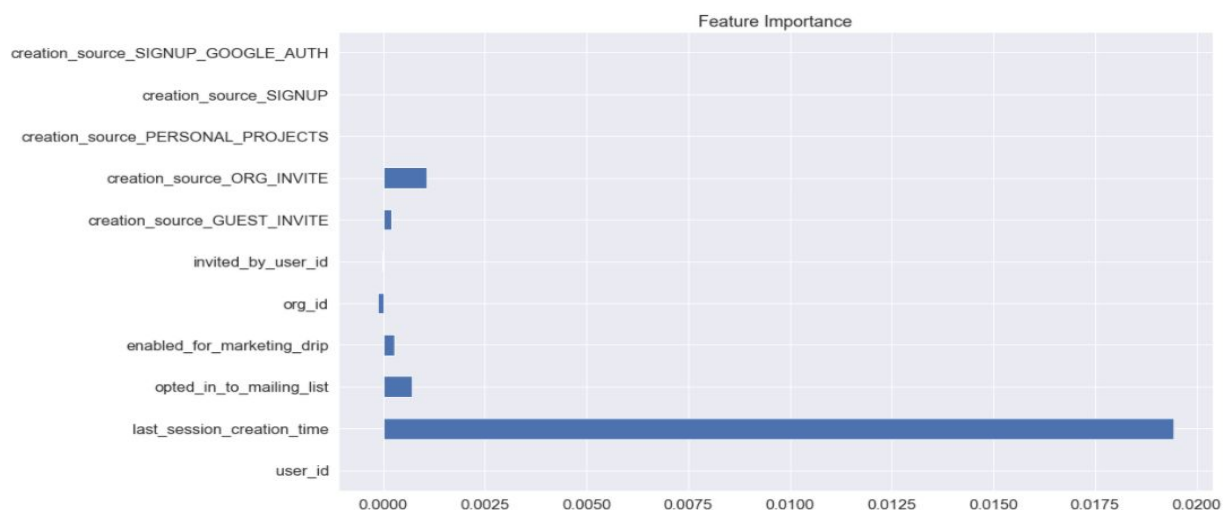
Next we visualize our data and see that adopted users and non adopted users were evenly distributed with the adopted users being a little more than half the total users. The majority of adopted users created their account via organizational invites. The 2nd most adopted users created their account via web signup.

Building a Predictive Model

Since this is a classification problem, we tried a few classification algorithms: Logistic Regression, K-Nearest Neighbors and Random Forest algorithm to see which will perform best. The results are pretty close but Logistic Regression with cross validated scores of 53.70% for accuracy, 53.90% for precision, 97.90% for recall and 69.50% for f1.

Feature importance:

Last session creation time came out the highest feature to influence adopted users. Next came users who created their account via organizational invite and third were users who opted in to the mailing list.



Conclusion and Future Improvement

We were able to gather some insight from our data through EDA and visualization. We were able to use classification algorithms to create predictive models to identify future adopted users. To improve the model, it would be good to get additional features that's not captured in the data.