Relax Inc. take home assessment report

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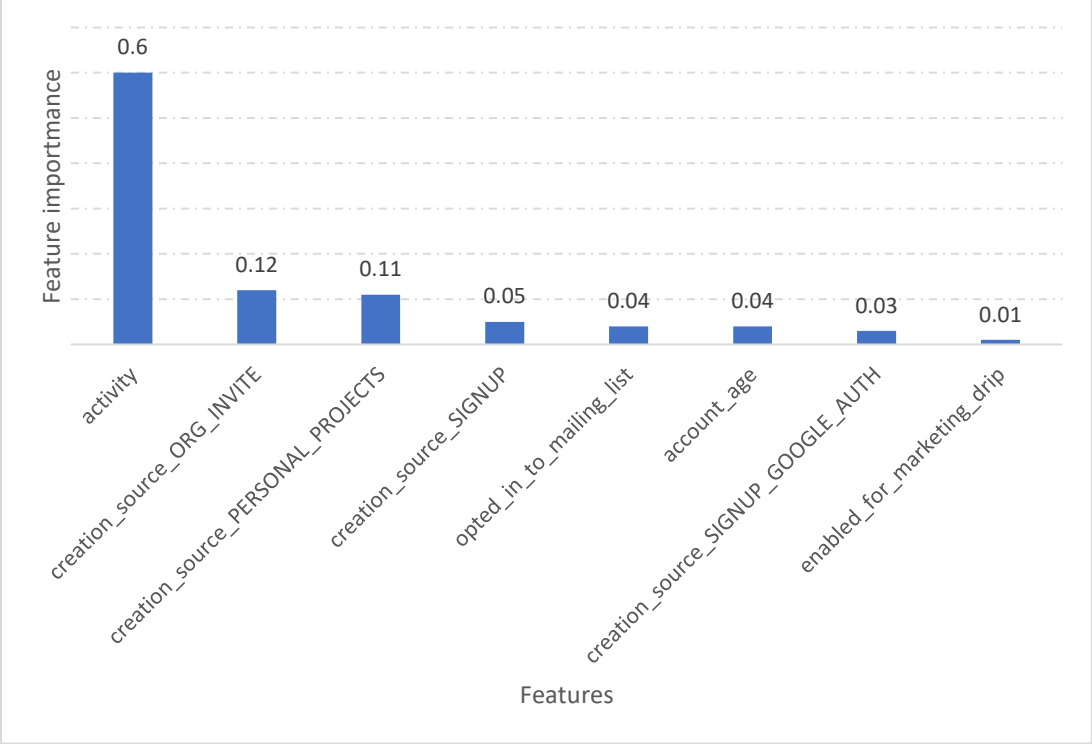
Relax Inc. makes productivity and project management software that's popular with both individuals and teams. Founded by several former Facebook employees, it's considered a great company to work at. In this dataset, I am asked to write a function to find the adopted user, where an "adopted user" as a user who has logged into the product on three separate days in at least one seven day period. From the implemented function, I observed that 13.8% users adopted the service. The return rate is relatively low. Next, I am asked to identify the factors that predict future user adoption. To do that first I needed to clean the dataset. I followed the following steps for cleaning the dataset:

- First, I dropped some irrelevant columns such as name, email and so forth.
- I converted the categorical feature ‘creation_source’ into dummy variables.
- Coverted creation_time and last_session_creation_time columns to datetime and defined two new features
    - To check how active the user is after account creation. If the time difference between the recent login and the account creation time is high, it is highly likely that the user is an adopted user and
    - Check the age of the user account.
- Used the SMOTE algorithm to make the imbalanced class balanced
- Then used the random forest classifier to find the factors that predict future user adoption.
- Classification accuracy 0.9513, recall 0.7527 and f1-score is 0.8468 using 150 number of estimations, and max_depth of 5.



From the plot above, we can see that the engineered feature ‘activity’ was the most important factor.