

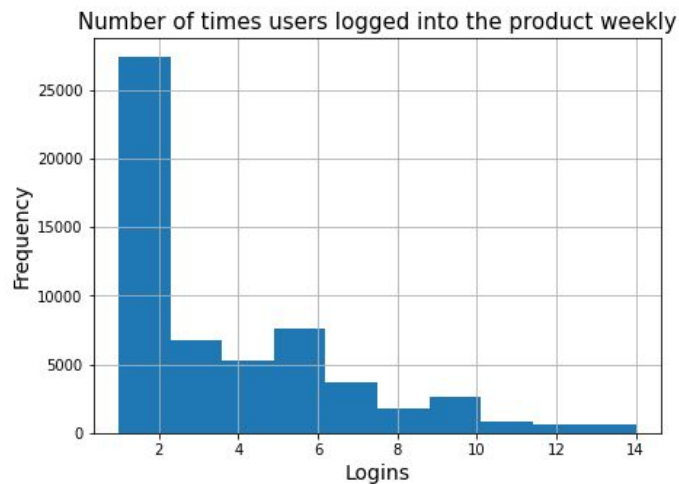
Relax Inc. Feature Importance Analysis

Relax Inc. would like to identify which factors predict future user adoption. An "adopted user" as a user who has logged into the product on three separate days in at least one seven day period.

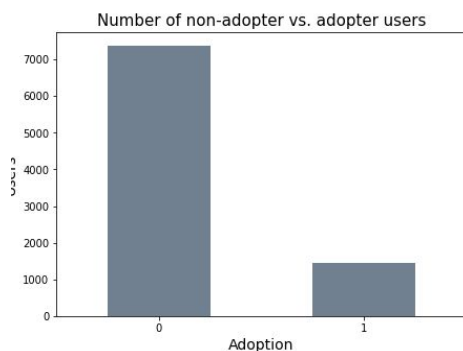
The data consisted of two files: the "take home user engagement" with login frequency data on 8,823 users and the "take home users" file with attribute data on 12,000 users.

The following Pandas DataFrames were constructed from the two files to analyze the data:

- 1) A dataframe to identify how many times per week a user id logged into the system. .The mean is 3.63 times a week.

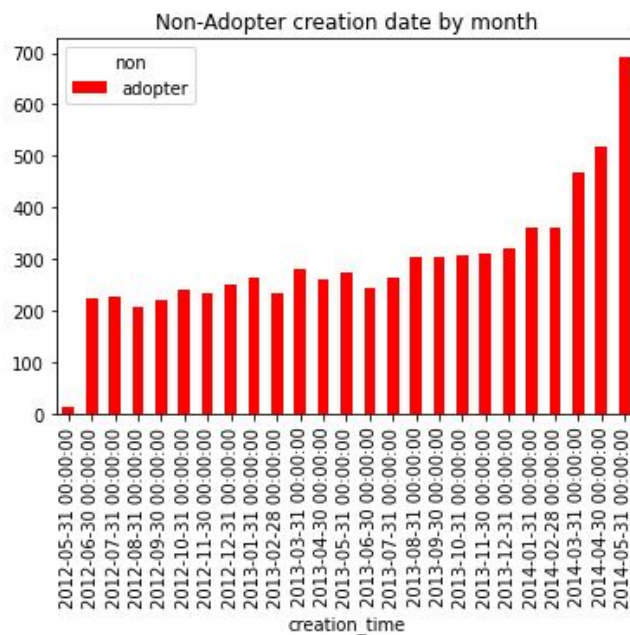
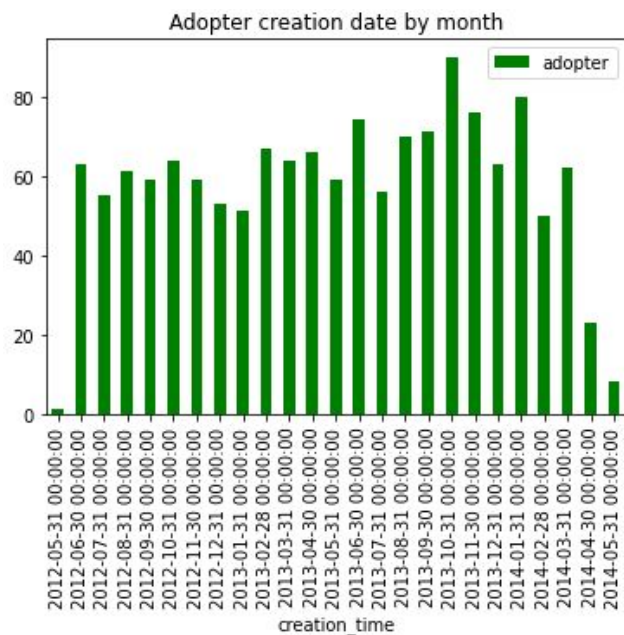


- 2) An adoption table to identify how many users (unique id's) logged in on three separate days in at least one seven day period. Those users were identified as adopters.



The adoption frequency table was merged with the attribute data table to determine which features were most important in predicting adoption. Different queries were conducted to find patterns in the data. For example, the following graphs show the difference in creation data by

month between adopters and non-adopters. The graphs show that there is an upward trend of non-adopters account creations towards the latest months.



Three different tests were conducted on the adopters and non-adopters data to determine which features are the most important in predicting future adoption behaviors: A chi2 test, a features importance test with trees classifier and a prediction model using a random forest model.

Like the initial data visualization indicated, time features patterns were important in predicting future adoption behavior.

The top features to predict feature user adoption behavior according to the analysis are:

- Last session creation time
- Creation time
- Organization id to which user belong
- Invited by user id

Conclusion

The feature importance analysis shows that product adoption is associated with the organization to which the user belongs and to the users that invited him/her to sign up for the product. Time features were top important features that might indicate an association with an organization project pipeline and product need.