

## Relax Inc. Take Home Challenge

For Relax, Inc. an adopted user is one who has logged into the product on three separate days in at least one seven day period. To figure out which users were 'adopted', a function was created that was applied to the engagement table, which is a usage summary table that has a row for each day that a user logged into the product. The function was a 6-step process that was applied to each row iteratively to determine if the user was adopted.:

After identifying the 1602 users of the original 12,000 users that were adopted, that array containing the returned values was then encoded as True/False and added as a target feature to the user table that contained data on 12,000 users who signed up for the product in the last two years. This table contained 10 features such as how their account was created, when they created their account, and whether they opted into receiving marketing emails.

To identify which factors predict future user adoption, a RandomForest classifier was created to see how well the model could predict whether a user was adopted. According to the classification report, the model was able to correctly predict the minority class with f1 score of 87%. According to the model, these are the top-5 features that determined if a user was adopted:

	importance
<b>last_session_creation_time</b>	0.297026
<b>creation_source_ORG_INVITE</b>	0.059914
<b>creation_source_PERSONAL_PROJECTS</b>	0.054564
<b>org_id</b>	0.047426
<b>invited_by_user_id</b>	0.039091

The last session creation time is the most important factor to determine if the user was adopted. Further research is needed to understand what about the last session creation time is determining if the user was adopted. Below is a graph showing the distribution of the last session creation time for the users.

