

## Relax Challenge Write-up

Relax Inc. wants to know what factors are most important in determining user adoption, as defined by users who have logged in at least three times over a period of at least one week.

To solve this, we tested two different models; a decision tree classifier, and a random forest classifier. The two models produced similar scores for feature importances. The same four features contribute to roughly 90% of the predictability of user adoption. It makes logical sense that “last\_session\_creation\_time” would be correlated with how often a user logs in, and “creation\_time” can give us an indicator to how long they have had to reach a minimum period of 7 days with witch to become an “adopted” user. However it is interesting to see that the organization that a user belongs to, denoted by “org\_id”, plays a critical role in becoming an adopted user. Further research into the organizations that work with Relax may reveal a couple of key partners that the company should make an effort to work with in the future. Likewise, it seems that when users are invited by certain people (“invited\_by\_user\_id”), they are more likely to become adopted users. There may be a few brand champions out there that Relax should pursue.

As an aside, I created the “invited\_by\_user” column to test whether simply being invited was an indicator of adoption. Somewhat surprisingly, this feature had little bearing on the outcome.

Decision Tree

feature	importance
org_id	0.279223
creation_time	0.231649
last_session_creation_time	0.227452
invited_by_user_id	0.169106
opted_in_to_mailing_list	0.028075
PERSONAL_PROJECTS	0.015887
SIGNUP	0.015392
SIGNUP_GOOGLE_AUTH	0.010965
invited_by_user	0.007979
ORG_INVITE	0.007119
enabled_for_marketing_drip	0.006737
GUEST_INVITE	0.000415

Random Forest

feature	importance
creation_time	0.245850
org_id	0.240261
last_session_creation_time	0.239983
invited_by_user_id	0.156521
opted_in_to_mailing_list	0.028922
enabled_for_marketing_drip	0.028104
GUEST_INVITE	0.012942
ORG_INVITE	0.012209
SIGNUP_GOOGLE_AUTH	0.010401
SIGNUP	0.009385
PERSONAL_PROJECTS	0.008675
invited_by_user	0.006748