# Relax Inc. Take-Home Challenge

The main objective of this assignment is to determine the factors that can be used to predict user adoption in the future. The provided data includes two dataframes: "takehome_users" which contains information on 12,000 users who signed up for the product in the last two years, and "takehome_user_engagement" which summarizes the user activity, recording each time a user logs into the product. To consider a user as "adopted," they must have logged into the product for at least three separate days within a single seven-day period. The pandas library provides a rolling function that generates a window based on actual observations, excluding any missing dates from the calculations. This window may span more than seven calendar days in a seven-day period. To include missing dates, the time series should be resampled to a daily frequency and the fillna method should be used to fill in any missing values before calculating the rolling window.

Out of all the users, 1602 have adopted the platform, making up 13% of the total user base. The distribution of total visits indicates that most users only visit the platform a few times, as the pattern is right-skewed. Surprisingly, 3177 users have not logged in even once after creating their account. This suggests that a significant portion of users are not actively engaging with the platform.

Distribution of total_visits
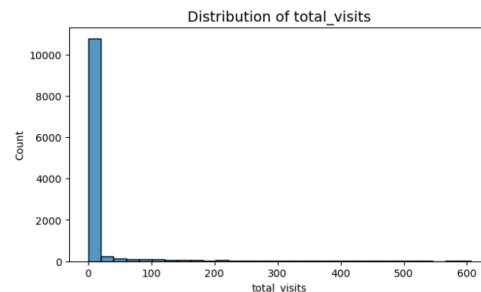
I used a logistic regression model to predict user adoption. Here's an analysis of the feature importance based on the coefficients:

Total Visits

The number of visits to the platform is the most significant factor that affects user adoption, with a positive coefficient of 1.482. This means that users who visit the platform more frequently are much more likely to become adopted users. Therefore, encouraging users to visit the platform more often could be a critical strategy for increasing user adoption.

Creation Source

Different user creation sources have varying impacts on user adoption. Users who joined through the GUEST_INVITE or SIGNUP methods are slightly less likely to adopt compared to other methods, as indicated by their negative coefficients. On the other hand, users who joined through ORG_INVITE, SIGNUP_GOOGLE_AUTH, and PERSONAL_PROJECTS have a slightly higher chance of adoption, as indicated by positive coefficients. Further exploration of these channels may be beneficial in order to understand how they can be leveraged to improve user adoption.

Invite Count

invite_count has a positive coefficient, suggesting that users who invite others more times are slightly more likely to adopt.

Marketing Factors

Features such as enabled_for_marketing_drip and opted_in_to_mailing_list have relatively low coefficients, indicating a weaker influence on user adoption. However, considering their positive coefficients, marketing strategies might have a slight positive influence on user adoption.

Feature Importance (Logistic Regression)