

Relax Inc. Take-Home Challenge: User Adoption Analysis

Objective

The goal of this analysis is to identify which factors predict **future user adoption**, where an *adopted user* is defined as a user who logs into the product on **three separate days within any seven-day period**.

Data & Methodology

Two datasets were used: a user table containing account attributes and a daily login table capturing user activity. Users were labeled as adopted by examining their login histories and checking for any rolling seven-day window with at least three distinct login days.

The adoption label was merged back into the user table to create a single, user-level dataset. Feature engineering focused on signup method, organizational context, marketing settings, and account lifecycle attributes. Raw identifiers (e.g., user ID, organization ID) were intentionally excluded from modeling to avoid data leakage and ensure generalizability.

Exploratory analysis was followed by a **logistic regression model**, chosen for interpretability and ease of explaining feature effects.

Key Findings

Several factors strongly predict whether a user becomes adopted:

- **Invitation-based signup** is a major driver of adoption. Users invited into organizations are significantly more likely to adopt than users who sign up independently.
- **Organizational context matters.** Users belonging to larger organizations show higher adoption rates, suggesting that team usage and collaboration increase engagement.
- **Creation source is predictive.** Users joining via organization invites or shared workspaces are more likely to adopt than users signing up organically.
- **Marketing email settings** (mailing list opt-in and drip campaigns) show limited predictive power compared to social and organizational factors.

Overall, adoption appears to be driven more by **social and team-based onboarding** than by passive marketing efforts.

Model Performance & Limitations

While the model achieves reasonable overall accuracy, adoption is a relatively rare outcome, making accuracy a misleading metric. Recall for adopted users is low, indicating the model is better suited for identifying high-level drivers than for precise individual prediction.

Additionally, login events are the only behavioral signal available; richer in-product activity data would likely improve predictive power.

Recommendations

- **Encourage invitation-driven onboarding**, particularly within teams and organizations.
- **Focus on early activation**, as social context strongly influences sustained engagement.
- **Leverage organization-level signals** (e.g., org size or activity) rather than individual identifiers.
- **Expand behavioral tracking** beyond logins to better understand how users engage with the product.

Future Work

Future analysis could incorporate detailed product usage events, test causal interventions through A/B experiments, and track adoption persistence over longer time horizons.