**Analysis of User Adoption Feature Importance**

This task analyzes the provided data to identify factors predicting user adoption, defined as a user logging into the product on three separate days in at least one seven-day period. [Full notebook here](https://github.com/kgraghav/Springboard/blob/45864b06f700f00b23c4a4ecd67e693d46397c28/36/relax_challenge/relax_challenge.ipynb).

**Methodology:**

1. **Data Preparation:**
   * Merged 'takehome\_users.csv' and 'takehome\_user\_engagement.csv' based on user ID.
   * Identified ‘adopted’ users (target column)
   * Created numeric dataframe for classification using dummies.
   * Imputed missing values in 'invited\_by\_user\_id' with -1, representing no invitation.
2. **Feature Importance Analysis:**
   * Employed permutation importance from an XGBClassifier to evaluate the impact of each feature on model performance.

**Findings:**

The analysis revealed the following factors as the most significant predictors of user adoption:

1. **'last\_session\_creation\_time':** The timestamp of a user's most recent login
2. **'creation\_time':** The time of account creation.
3. **'org\_id':** The organization a user belongs to might suggest shared usage patterns or organizational policies affecting adoption.
4. **'invited\_by\_user\_id':** Being invited by an existing user could imply social influence or collaborative use cases, potentially boosting adoption. However, this factor's impact may vary as the user base expands.
5. **'time\_stamp':** The timestamp of each login event provides granular information about user activity and contributes to identifying adoption patterns.