

Duolingo Take-home Assignment

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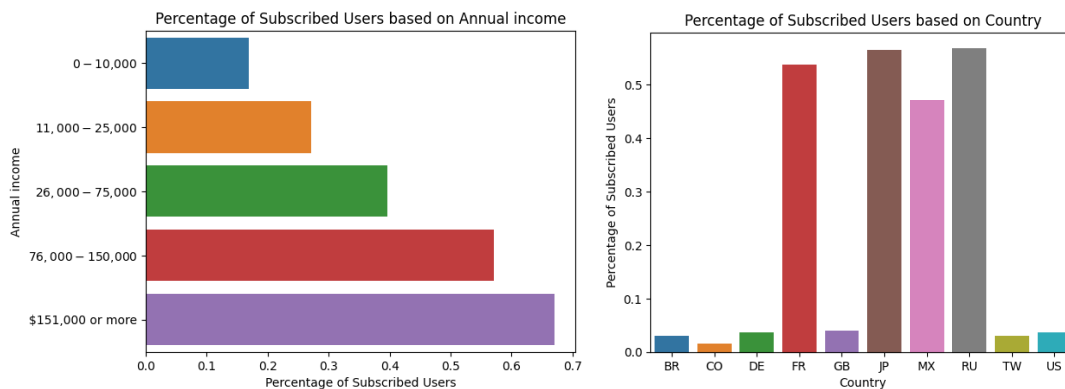
Metrics

I explore user segments/personas and each subgroups's level of engagement based on two metrics:

1. **Longest streak:** longest streak (number of days in a row you have completed a lesson/daily goal) earned by users, as provided by the App Usage dataset.
2. **Percentage of active days:** the actual number of days users were active on the Duolingo platform (provided as 'n_days_on_platform') divided by the number of days past since the users started using Duolingo (calculated based on 'duolingo_start_date')

These metrics are important since users with a high percentage of active days and long streaks but *without* subscription can be targeted to increase freemium-to-subscription conversion rates. Users with greater propensity to be active will probably take greater advantage of premium features regarding streaks, hearts, and targeted practice.

Initial Findings

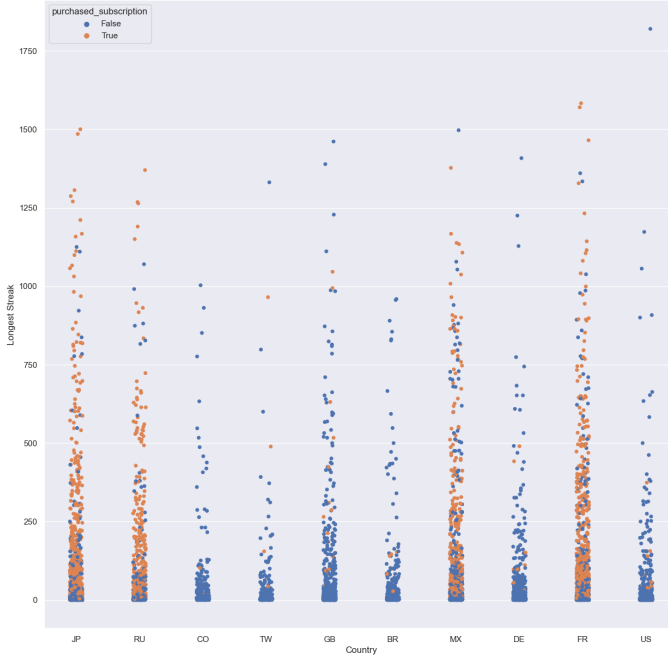


1. ~50% of users in **France, Japan, Mexico, and Russia** are subscribed to Duolingo Plus; other countries, such as **Taiwan, USA, Brazil, Germany, Colombia, and Great Britain**, have less than 10% of their users subscribed
2. Richer users are much more likely to subscribe to Duolingo Plus.

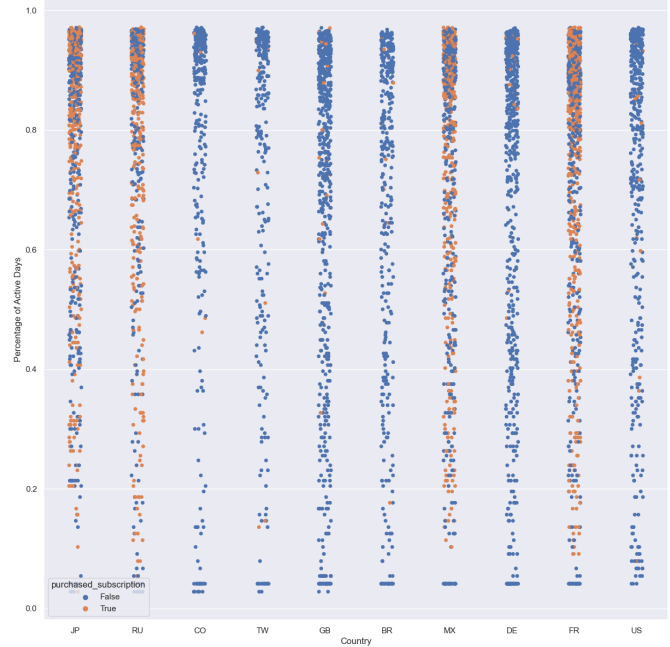
Proposed Major Personas

- **Highly engaged**
 - **high annual income and subscribed:** 'Super' fans of Duolingo. This group has the highest mean average of longest streaks AND percentage of active days among income groups.
 - **low annual income, and not subscribed:** those who may find the subscription too expensive and/or the subscription not appealing enough despite high usage rate
 - **in FR, JP, MX, RU and subscribed:** another group of 'super fans', with many long streaks and high usage rates. Those who find Duolingo useful and deem Duolingo subscription a worthwhile investment.
 - **in TW, US, BR, DE, CO, GB and not subscribed:** those who find Duolingo fun and/or useful and yet don't find the Plus subscription appealing enough perhaps due to price and/or content
- **Moderately engaged**
 - **subscribed:** in subgroups where Duolingo is generally popular (high income brackets and Japan, France, Russia, Mexico), we observed subscribed users despite moderate to low engagement
 - **not subscribed:** casual Duolingo users
 - **in the lower income brackets:** who find Duolingo somewhat useful but not engaged enough
 - **In certain countries:** perhaps due to local competition in respective countries with better prices and content, varying educational settings, cultural and linguistic differences
- **Barely Engaged:** those who have the app but aren't active, found mostly in low income brackets

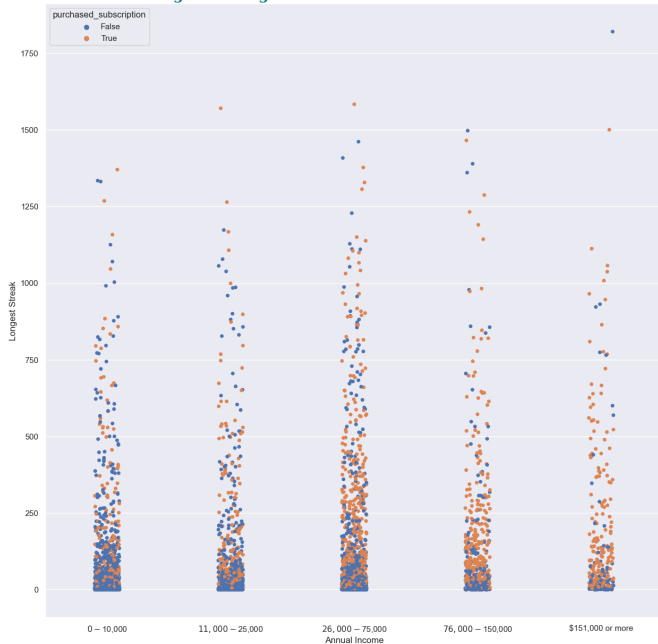
Length of Longest Streaks for Countries



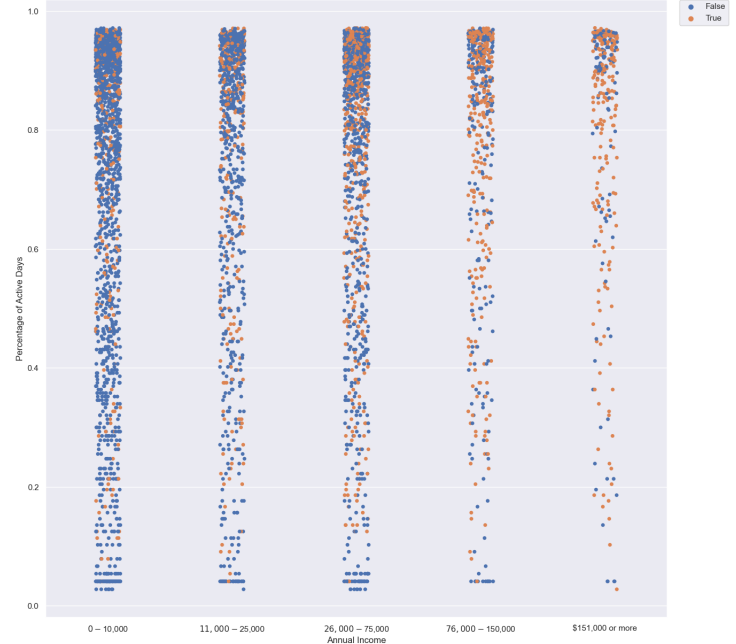
Percentage Active Days on Duolingo Across Countries



Length of Longest Streaks Across Income Brackets



Percentage of Active Days on Duolingo Across Income Brackets



Longest streaks and percentage of active days across countries and income brackets
(orange denotes a subscribed user; blue a non-subscribed user)

Product Recommendation

- **Lower price barrier for existing plans: target highly engaged, non-subscribed, low income groups**
 - Discounts for inviting friends, upon email verification when friend makes a new Duolingo account
 - Add more price levels to Duolingo Plus subscription with varying levels of unlocked features
 - Offer yearly price that is cheaper than monthly price, which could also drive long-term commitment
- **Localized market research at countries: target countries with highly engaged, non-subscribed users**
 - Explore if there are other language-learning apps that users are paying for; compare and compete
 - Not all countries' users will demand the same languages (e.g. American users will generally sign up to learn non-English languages as opposed to those from non-English speaking countries). Inspect popular languages in countries where Plus-conversion rate is low despite high usage rate; improve and expand upon existing lesson plans and perhaps add more language lessons, at a country-level