## Approach for Analysis

- I created a [GitHub repo](#) containing the event data. I then made a [Google Colab Notebook](#), which I used to clone the repo and load the data into database tables.
- Finally, I used SQL to query the tables for exploration and initial analysis. The SQL Challenge answers can be found in the notebook in the "SQL Challenge" section.

Key Assumptions Made

- The `user_type` of `Paid` means that the user subscribed after the initial free trial period (i.e., converted). `Free` means that they did not (i.e., churned).
  - My assumption is that this works on the back end such that every user starts as `Free`.
  - If they subscribe, the `user_type` on their existing user record would be updated to `Paid` and a record is added for them in the `subscriptions` table
- A free trial is 30 days. After that period of time, users must choose whether to subscribe.
- For the SQL challenge, I made an assumption about how to interpret the first question. Please see the "SQL Challenge" section of my notebook for details.

User Engagement Summary

- User signups
  - Over 71% of our users are free users, meaning they do not have a subscription.
  - There was an increase in signups in September and October, driven by Free signups. Paid signups have been trending down overall, while Free are generally trending up.
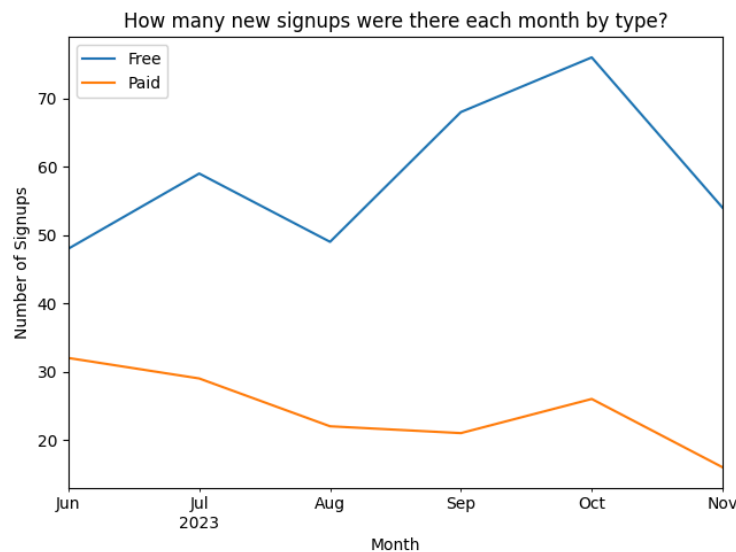
- Event trends
  - Looking only at the events performed in the platform, free users had a similar average number of events (4.9 vs. 4.5 for paid users) within the first 30 days.
  - Surprisingly, there was no difference in the average number of logins between the two groups in this time period.
  - Upload Photo and Invite User were the most common events overall.
- Conversion rates from free trials to paid accounts are decreasing month over month.
- Retention
  - Retention rate for paid users was 92% for the time period of interest (for the SQL challenge).
  - Overall, it is uncommon for paid users to end their subscription within the first 60 days. This happened 11% of the time.

Proposed Experiment

- Overall retention rates look good. The declining monthly conversion rate would be my focus for experimentation.
- First, I would establish my hypothesis for an experiment. I hypothesize that shortening the trial period (down from 30 days) could increase signups and conversion rates.
  - A shorter trial period may make the product appear more exclusive and of higher value to users.
  - It also keeps the product top of mind if the trial period is shorter.
- I would set this up so there are two landing pages for free trials that are randomized. They are identical except that one is for 10 days and another is for 30 days.
- Then, collect data for a long enough period of time and with enough users to reach the desired confidence level. Wait for the results to come in.
- Analyze the data for any differences in the groups in key metrics. Examples may include:
  - Free trial signup rate
  - Number of logins
  - Number of events performed
  - Number of pages visited
  - Conversion rate to a paid subscription
  - Retention rate after subscription

Data-Driven Recommendations

Though there is limited data to go on, there do appear to be areas for improvement. One is the low conversion rate among users. In particular, the declining rate over time is a concern. While retention rate was high, getting users to convert so that we have a chance to retain them in the first place is key.

My first recommendation is to investigate this conversion decline further using additional data points that are available.

- There may be other existing fields in our database that can help predict retention.

- For instance, if we have information on what channel the user came through (e.g., email, Google, referral, etc.), then we can compare retention rates across sources.
- It could be, as an example, that we are seeing more users find the site through Google. That is driving more free signups, but they are less likely to stay. If so, we can adjust our marketing strategy accordingly.

My second recommendation is to collect data about why users opted out of subscribing.
- When a free trial is canceled, a question asking about the reason for canceling (such as cost, difficulty using product, going with another product) could be shown.
- This data can help identify potential areas to focus on and inform appropriate actions.
- For example, assume cost is identified as a key reason for churn. In that case, we could experiment with different pricing models or tiers of pricing.