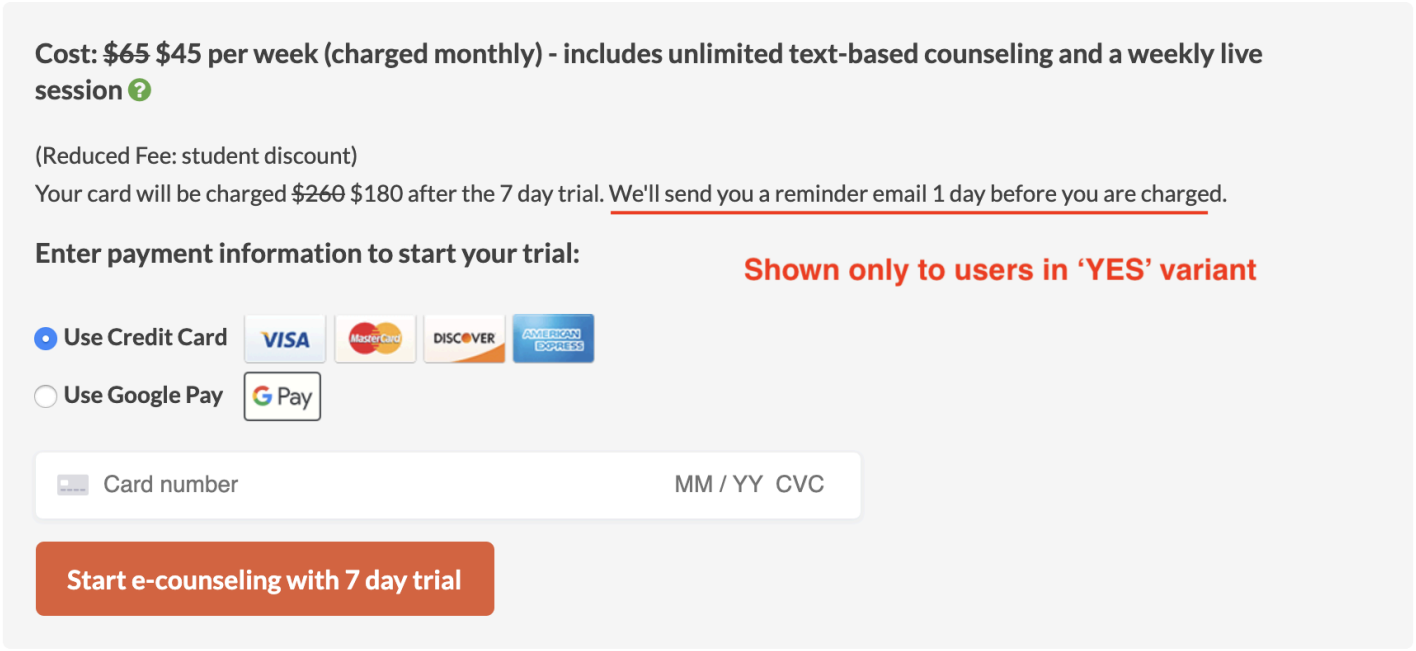
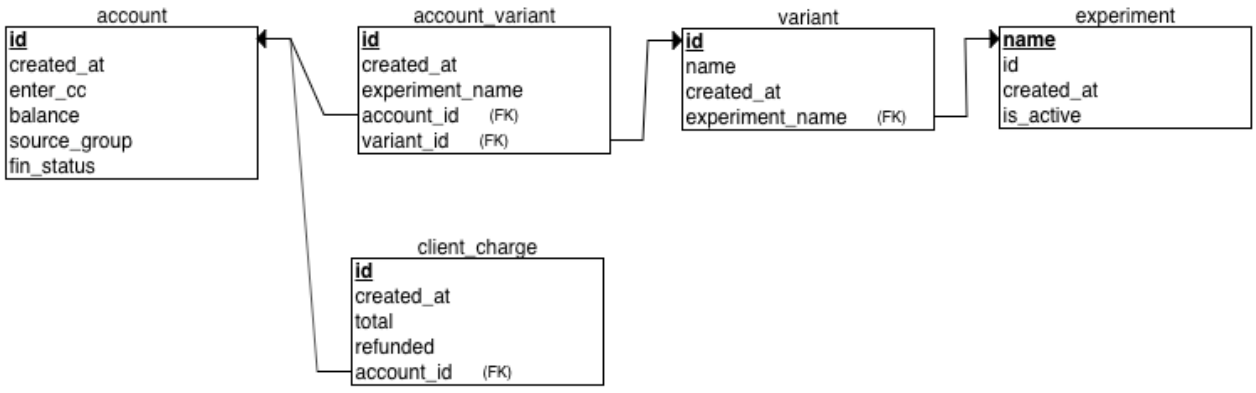
Problem 3: Experiment Challenge

We recently ran an experiment on BetterHelp users who had a 7-day trial. In one variant (the “YES” variant), we would send the users an email 24 hours before their trial expired, reminding them that the trial is about to end. In the other variant (the “NO” variant), the users did not receive this email. We randomly assigned the users to the two variants when they signed up (i.e created an account).

You can sign up at www.betterhelp.com/trial to see the onboarding flow. The screenshot below shows how the experience differs for users in the ‘YES’ variant.



There are five data tables used for this problem. All are found in the ‘Trial_Email_Reminder” database. Below is the relational schema.



Analyze the data and answer the following questions:

- What are the overall results for the most important metrics of this experiment?
- What are your recommendations for whether we should have a trial ending reminder and why (feel free to use objective + subjective reasoning)?
- Are there any specific cohorts of users that respond better/worse to this experiment?

Please use descriptive statistics and visualizations in your analysis. Also, assume this analysis is being delivered to a <u>non-technical audience.</u>

Data Description

Table	Column	Description
account	*id*	This is the user's account id. Each user only has one account.
account	*created_at*	This is the time when the user signed up for BetterHelp ("sign up" = entered their email)
account	*enter_cc*	1 = "entered credit card" ; 0 = "did not enter credit card" **Important:** If a user entered their credit card, then they started the 7-day trial.
account	*balance*	How much money the user has paid in **cents**. **Important:** If the user has any balance, this means that they converted to being a paying user. In other words, if the balance is 0, the user either canceled their trial before the trial period or was refunded after.
account	*source_group*	Which source we credit for bringing the user to BetterHelp (Facebook, SEO, podcast, etc)
account	*fin_status*	Financial status of the user (Good, Fair, Poor)
variant	*id*	This is the id for which variant a user is in
variant	*name*	"YES" or "NO" for if they received an email reminder that their trial is ending
account_variant	*variant_id/ account_id*	This table shows which variant (variant_id) the user (account_id) is in
experiment	*id/name*	The experiment id and name of this experiment.

client_charge	*refunded*	**Important:** 1 = “client was refunded”, 0 = “client was charged”
client_charge	*total*	The amount the client was charged for. If refunded=1, it means this charge was refunded.

“ The goal of the reminder email is to get more people to pay for the service after their trial ends ”

- What are the overall results for the most important metrics of this experiment?

Ans : Conversion rate is the most important metrics after the Trial period ends

Row	variant_name	total_users	converted_users	conversion_rate	Total_Refunds	Total_Pull_Back
1	NO	17000	14185	83.44	2265	2815
2	YES	17241	13590	78.82	755	3651

Total_users : Those who have opted for a trail

Converted _Users : Those who became paying customer after the trail

Total_Refunds : Number of refunds claim after the trail end

Total Pull Back : Number of people either canceled during the trail or asked for a refund after the trail

1. **Conversion Rates**:
   - The NO group (no reminder email) has a **higher conversion rate (83.44%)** than the YES group (with reminder email), which has a **conversion rate of 78.82%**.
   - This suggests that the reminder email did **not increase conversions** but instead may have had a slight negative impact on users becoming paying customers.
2. **Total Refunds**:
   - The NO group has significantly **more refunds (2,265)** than the YES group (755).
   - This indicates that users who didn’t receive the reminder email were more likely to ask for refunds after becoming paying customers.
3. **Total Pullbacks**:
   - The YES group has **more pullbacks (3,651)** compared to the NO group (2,815).
   - This shows that the reminder email may have prompted some users to actively cancel during the trial or shortly after

Overall Observations:

- While the YES group had fewer refunds, it also had a lower conversion rate and higher pullback rates.
- The reminder email may have unintentionally discouraged some users from continuing with the service or increased awareness about canceling during the trial.

- What are your recommendations for whether we should have a trial ending reminder and why (feel free to use objective + subjective reasoning)?

  Ans : As of now, we should drop the idea of having a reminder mail. The reminder email needs to be reframed or tested with a different message. Instead of just warning users about the trial's end, the email could emphasize

  - **Benefits of continuing the service**
  - **Success stories or testimonials to build trust**
  - **May be limited-time discount for converting before the trial ends**

Below is small analysis who did not convert as a paying user after signing up for the trail for both the No and Yes Segment

Row	variant_name	Non_Converted_users	Cancelled_within_trail	Cancelled_after_trail	Cancelled_within_trail_Pct	Cancelled_after_trail_Pct
1	YES	3651	2896	755	79.32	20.68
2	NO	2815	550	2265	19.54	80.46

Non_Converted_users : People who did not convert as a paying user after the trail
Cancelled within Trail : People cancelled the trail itself while they were in their trail period
Cancelled after Trail : People who were charged after the trial period and asked for a refund
Cancelled after Trail_Pct and Cancelled_within_Trail_Pct are just the percentage of the total Non_Converted_users

Non-Converted Users:
> The YES group (with reminder email) had **3651 non-converted users**, higher than the NO group (2,815). This means more users in the YES group chose not to become paying customers

Cancellations Within the Trial:
> In the YES group, **2896 users (79.32%)** canceled during the trial period
> In the NO group, only **550 users (19.54%)** canceled during the trial
> This shows that the reminder email led to a significant increase in cancellations during the trial period

Cancellations After the Trial:
> In the YES group, **755 users (20.68%)** canceled after the trial, significantly lower than the NO group with **2265 users (80.46%)**
> This indicates that the YES group users were more likely to cancel early, while the NO group users waited until after the trial to cancel

- Are there any specific cohorts of users that respond better/worse to this experiment?

Ans:

Financial status Cohort Analysis :

This is a straight data for conversion rate according to financial status

fin_status	variant_name	total_users	converted_users	conversion_rate
Fair	NO	6777	5674	83.72
Good	NO	6537	5780	88.42
Poor	NO	3686	2731	74.09
Fair	YES	6860	5210	75.95
Good	YES	6794	6133	90.27
Poor	YES	3587	2247	62.64

Here, reminder mail has led to a decrease in conversion rate across all the financial segments. Below is the more detailed break down of people who did not convert

Below is small analysis who did not convert as a paying user after signing up for the trail for both the No and Yes segment according to financial status

fin_status	variant_name	total_users	Cancelled_within_trail	Cancelled_after_trail	Cancelled_within_trail_Pct	Cancelled_after_trail_Pct
Fair	NO	1103	224	879	20.31	79.69
Good	NO	757	147	610	19.42	80.58
Poor	NO	955	179	776	18.74	81.26
Fair	YES	1650	1310	340	79.39	20.61
Good	YES	661	513	148	77.61	22.39
Poor	YES	1340	1073	267	80.07	19.93

Fin Status : Financial Status of the User

Non_Converted_users : People who did not convert as a paying user after the trail

Cancelled within Trail : People cancelled the trail while they were in their trail period

Cancelled after Trail : People who were charged after the trail period and asked for a refund

Cancelled after Trail_Pct and Cancelled_within_Trail_Pct are just the percentage of the total Non_Converted_users

Observations on (**Financial Status Cohort Analysis):**

> The reminder email led to significantly earlier cancellations for users with a fair financial status, but it did not increase conversion rates
> Users with good financial status also tended to cancel earlier when receiving the reminder email. The reminder might not have been effective in convincing this cohort to stay
> For users with poor financial status, the reminder email again shifted cancellations to happen earlier, but the conversion rate remained unaffected

Looking from a financial perspective, there is no significant difference. Reminder mail is leading to early termination of trail

Source_group Cohort Analysis:

Below Analysis is related to Source_group cohort :

source_group	variant_name	total	Converted	Conversion_Rate_Pct
Facebook	NO	3059	2596	84.9
Paid search	NO	5172	4474	86.5
SEO	NO	1162	873	75.1
affiliate	NO	1351	1090	80.7
free	NO	3729	3096	83.0
other	NO	726	477	65.7
podcast	NO	1801	1579	87.7
Facebook	YES	2961	2356	79.6
Paid search	YES	5345	4317	80.8
SEO	YES	1168	833	71.3
affiliate	YES	1405	1086	77.3
free	YES	3663	2827	77.2
other	YES	743	408	54.9
podcast	YES	1956	1763	90.1

Observation on **Source_group Cohort Analysis:**

> Podcast users respond best to the reminder email, showing an increase in the conversion rate

> Across most other source groups, the "NO" group (without the email) tends to have higher conversion rates

> The reminder email might only be effective for specific user segments, such as Podcast users

All in all, except Podcast users in Source_Group, the general trend indicates that the reminder email is resulting in less conversion rate. To tackle this issue, we should work on either the formatting or content or both.

Overall, at this point, we should refrain from sending reminder emails. Instead, we should focus on improving the email content and formatting while conducting A/B testing to identify variations that effectively enhance conversion rates. The ultimate goal should be to leverage reminder emails to drive an increase in the conversion rate