

# A/B testing mobile app

## Test hypothesis

- The purpose of this test is to see if the conversion rate to purchase of premier features will increase if you offer a 50% discount
- We should run this test to determine whether introducing a "50% off" message on the subscription to premium features can significantly impact the conversion rate, than the current screen design.
- The change involves redesigning the subscription screen. The current design simply presents the weekly subscription at a price of \$4.99. The alternative design retains the same price but highlights that the \$4.99 is a 50% discounted rate, making the regular price appear to be \$9.98. This creates a perception of value and urgency, which may encourage more users to subscribe. The hypothesis is that the alternative design, which emphasizes a "50% discount," will lead to a higher conversion rate than the current design.

### Null hypothesis (H0) :

The conversion rate (i.e., the share of users who make a purchase) will not change for the current and alternative designs.

### Alternative hypothesis (H1):

An alternative design of the subscription screen where we offer a weekly subscription of premium features with the same price but show that it is "50% off" will increase the conversion from showing this screen to subscribing from 17% to 19.55%, which is a relative increase of 15%.

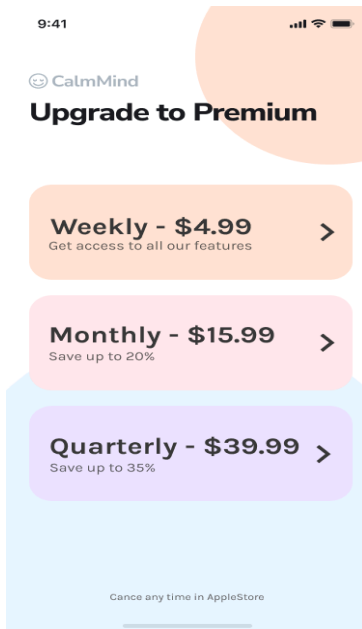
## Test description

- We include new users in the test, and we can divide them into 2 groups during registration, control group A and test group B.
- We will launch 2 versions of the app with 2 different weekly subscription offers for the weekly subscription of premium features.

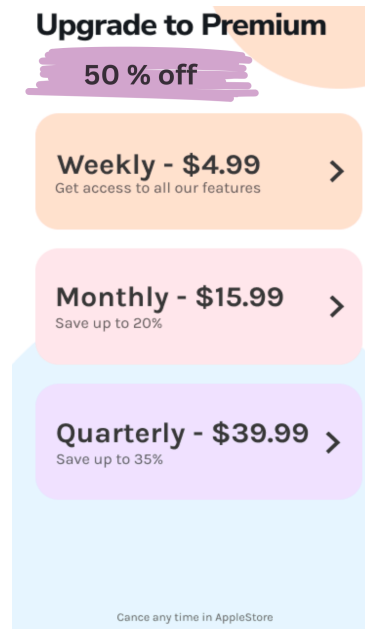
- The content and process of onboarding will remain the same, the model of weekly subscription of premium features will be different, for the control group A it will remain the same \$4.99, and for the test group B it will be displayed with a “50% discount” the same price.

## Design

### design for the control group A



### alternative design for the test group B



## Confidence and potential risks

### Reasons for Optimism:

I am confident that the test will have a positive effect, as discounts are well received psychologically. The user gets a sense of value for the product, as well as a sense of urgency, because they can get premium features at a better deal for them. The use of a discount can also attract a segment of users who are price-sensitive but willing to subscribe if they find the offer favorable.

### Reasons for Caution:

While discounting can increase short-term conversion rates, it can also set a precedent for users to expect discounts, which can damage long-term revenue or increase churn if users abandon a

purchase after the discount period. Also, users may think that the discount is a marketing ploy if they don't see the value of the product and can compare it to similar apps.

## Confidence

The confidence level of 65% reflects a moderate optimism that the proposed change will positively impact the conversion rate, because the use of discounts relies on strong psychological principles such as perceived value, attachment and urgency that drive conversion.


## Potential impact on key metrics

Medium ▾

- **Conversion Rate:** The introduction of the discount messaging could lead to a moderate increase in conversion rates. This is based on the likelihood that users will perceive the offer as a good deal and be more inclined to subscribe.
- **Revenue:** While an increase in conversions should lead to higher revenue, the long-term impact is less predictable, especially if the discount influences future user expectations or behavior.
- **User Perception and Satisfaction:** There could be positive effects if users feel they are getting a good deal, but this is less certain and depends on how genuine users perceive the discount to be.

## Risks

Medium ▾

- **Perceived Value and Brand Trust:** There's a medium risk that users may perceive the discount as a marketing trick if they believe the original price is inflated, which could harm brand trust.
  - **Long-Term Revenue:** There's also a medium risk that frequent discounting could lead to users expecting discounts and hesitating to pay full price in the future, potentially lowering long-term revenue.
  - **User Churn:** If the discount primarily attracts price-sensitive users who do not find long-term value in the subscription, this could lead to a moderate increase in churn after the discount period ends.
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## Affected metrics

### Primary metrics

- Metric 1: Conversion Rate from screen view to subscription =  $(\text{number of users who purchased the subscription} / \text{number of users who saw the subscription offer}) * 100$

This is the percentage of users who purchase the weekly subscription after onboarding.

### Secondary metrics

- Metric 2: Conversion to subscription renewal =  $(\text{number of users who renewed their subscription} / \text{number of users who have subscribed}) * 100$

This metric gives an understanding of whether users who have subscribed to a weekly subscription at a discount continue to pay for it or not.

- Metric 3: Average revenue per user =  $\text{total revenue} / \text{number of subscribers}$

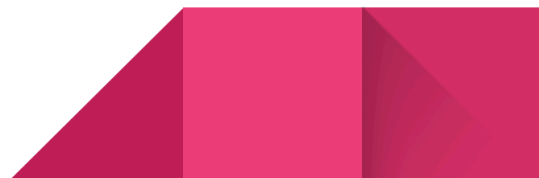
Revenue per user will likely increase if the conversion rate goes up, assuming the pricing remains consistent. Must be measured during a test.

- Metric 4: Retention Rate =  $(\text{number of users who return after a given time} / \text{number of users at the start}) * 100$

Need to track the retention rate of users who return to using the application after a certain period of time, during 30 days. Retention rate shows the percentage of users who continue to interact with the app after the first use.

- Metric 5: Percentage of onboarding passing =  $(\text{number of users who completed onboarding} / \text{number of users who have installed the app}) * 100$

It is necessary to measure this metric for the control group A and test group B in order to understand whether the percentage of onboarding is at the same level.



## Statistical significance <sup>100</sup>

Given that the daily number of users who install the application is 2000, of which only 34% reach the subscription page, we need 680 users per day ( $2000 * 34\%$ ) to conduct the test. According to the Speero AB test calculator, the required sample size for each group is 3475 users, and the test duration is 11 days for statistical significance. However, since we have a weekly subscription, it is better to run the test for 14 days. At the same time, we assume that the relative increase in conversion is 15%, which is 2.55% absolute increase ( $17 * 0.15 = 2.55$ ;  $17 + 2.55 = 19.55\%$ ). Set up the Confidence level 95 % and Statistical power 80% when conducting the test.

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Test statistic details and sample size and duration calculators (unlock from test data to use as stand alone tools)

Sample size calculator

Baseline conversion rate (control)  
 %

Confidence level ⓘ

Statistical power ⓘ  
 %

Conversion rate lift % ⓘ  
 %

Number of variants ⓘ

Required sample size per variant ⓘ  
3,475

Duration calculator

Baseline conversion rate (control)  
 %

Minimum detectable effect ⓘ  
 %

Number of variants

Number of daily visitors (total)

How long in total to run the test ⓘ  
11 days

Monthly monetary contribution based on data above

Average order value of one non-control variant  
 \$ ▾

Minimum detectable effect (MDE) ⓘ

Week	MDE
1	17.62%
2	12.31%
3	9.99%
4	8.63%
5	7.70%
6	7.02%

## Audience and Duration

The users we will be testing are new users of the app, who will be divided into control group A and test group B when they register with the app. Users are evenly distributed in control group A and test group B in a 50:50 ratio. It takes 11 days to reach an MDI of 15%. However, since we have a weekly subscription, it is better to run the test for 14 days.

## Potential outcomes

- The test will be considered successful when we reach statistical significance in 11 or 14 days, i.e. achieve the expected conversion rate increase of 15% or more.
- If the test results are not statistically significant, we can extend the test for another week, since the subscription is weekly, this factor may be influenced and look at the change in Conversion to subscription renewal, we may be able to see how many users return to us for renewal.
- In case, if the test results are not successful, the conversion is less than expected, we can recalculate the sample size and continue the test to obtain statistically significant results.
- If we cannot continue the test, we stop the test and conclude that the test results are not statistically significant and do not accept the changes.

## Conclusions

The test results will be considered statistically significant if the Conversion Rate from screen view to subscription increases from 17% to 19.55% or more for test group B for which an alternative subscription screen was shown with a “50% discount” on a weekly subscription for premium features, while the subscription price remained unchanged at \$4.99. And also if users who subscribed return to using the application and renew their subscription again.