MuscleHub A/B Test

Peter Shin

Background

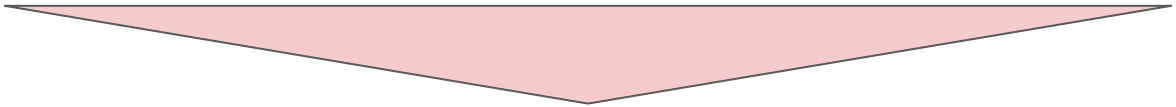
Janet is the manager of MuscleHub, a fancy gym

Janet wants to increase memberships by increasing the conversion rate of interested visitors into paying members

Janet believes she can increase the conversion rate by improving (shortening) the process by which visitors become members

Existing Process (Funnel) for Prospective Members

1. Visit MuscleHub
2. Take a fitness test with a personal trainer
3. Fill out an application for the gym
4. Send in payment for first month's membership



Is Step #2 necessary? And would removing it increase conversions?

Janet's Hypothesis

IF we run an A/B test in which half of MuscleHub visitors ("Group A") follow the usual steps to become a member while the other half ("Group B") skips the fitness test step…

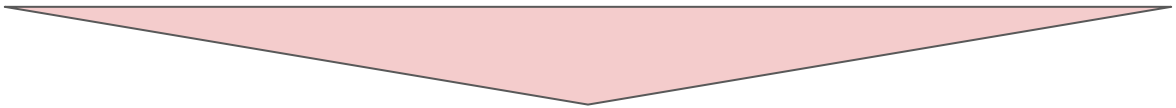
THEN visitors assigned to Group B will be more likely to eventually purchase a membership to MuscleHub…

BECAUSE some visitors who otherwise would have become members end up not doing so due to the intimidating nature of the fitness test.

Supporting Evidence for Janet's hypothesis

"I saw an ad for MuscleHub on BookFace and thought I'd check it out! The people there were suuuuuper friendly and the whole sign-up process took a matter of minutes. I tried to sign up for LiftCity last year, but the fitness test was way too intense. This is my first gym membership EVER, and MuscleHub made me feel welcome."

— Shirley, 22, Williamsburg



How many more potential new members like Shirley are out there?

Experiment Setup

- A/B Test took place from July 1, 2017 until September 9, 2017

- Total sample size = 5004 visitors
  - 2504 in control group (took fitness test)
  - 2500 in test group (no fitness test)

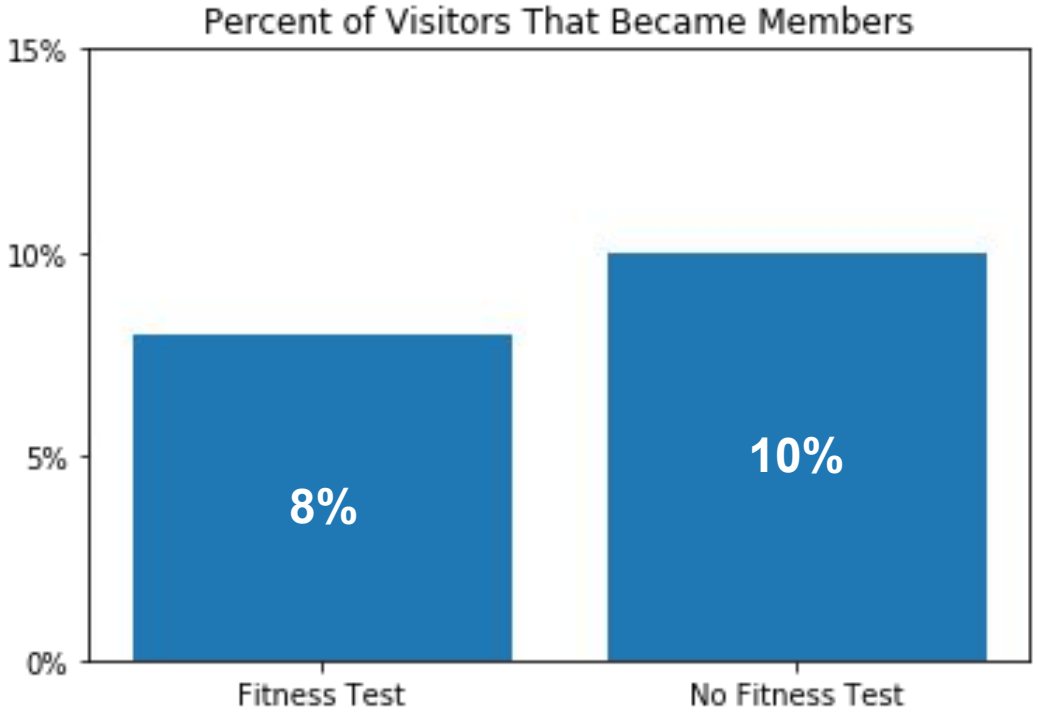
- Chi Square test
  - Categorical data: “became member” vs “did not become a member”
  - Two conditions: Control group vs Test group

- Null hypothesis: “There is no significant difference in conversion rate between visitors who take the fitness test, and those who skip the test.”

Experiment Dataset

id	first_name	last_name	gender	email	visit_date	fitness_test_date	application_date	purchase_date
0	Kim	Walter	female	KimWalter58@gmail.com	7-1-17	2017-07-03	None	None
1	Tom	Webster	male	TW3857@gmail.com	7-1-17	2017-07-02	None	None
2	Edward	Bowen	male	Edward.Bowen@gmail.com	7-1-17	None	2017-07-04	2017-07-04
3	Marcus	Bauer	male	Marcus.Bauer@gmail.com	7-1-17	2017-07-01	2017-07-03	2017-07-05
4	Roberta	Best	female	RB6305@hotmail.com	7-1-17	2017-07-02	None	None
…	…	…	…	…	…	…	…	…
5003	Charles	Carver	male	CC2490@gmail.com	9-9-17	2017-09-12	None	None

Hypothesis Test Results



p = 0.0147

Significant!

Recommendations

- Repeat experiment to see if significance can be reliably replicated
  - p value of 0.0147 means null hypothesis is unlikely, does NOT ensure that it is incorrect

- If significance holds, make fitness test optional going forwards
  - Rationale → Some customers prefer the test
  - *“I always wanted to work out like all of the shredded people on the fitness accounts I see on Instagram, but I never really knew how to start. MuscleHub’s introductory fitness test was super helpful for me! After taking the fitness test, I had to sign up and keep coming back so that I could impress my trainer Rachel with how much I was improving!”* — Cora, 23, Hoboken

- Regularly monitor and compare “no fitness test” conversion rate to historical baseline for “took fitness test” condition, using binomial test