



# MuscleHub

**A/B Test**

# The A/B Test

Currently, when a visitor to MuscleHub is considering buying a membership, he or she follows the following steps:

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

Janet, the manager of MuscleHub, thinks that the fitness test intimidates some prospective members, so she has set up an A/B test.

Visitors will randomly be assigned to one of two groups:

- **Group A** will still be asked to take a fitness test with a personal trainer
- **Group B** will skip the fitness test and proceed directly to the application

Janet's hypothesis is that visitors assigned to Group B will be more likely to eventually purchase a membership to MuscleHub.

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$H_0$  : There will be no significant difference between Group A and Group B eventually purchasing a membership.

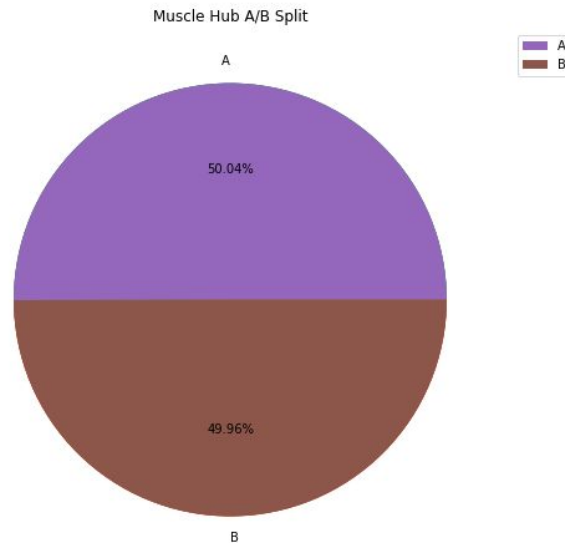
$H_a$  : Those who skip the fitness test (Group B) will be more likely to eventually purchase a membership.

# The Dataset

Janet of MuscleHub has a SQLite database, which contains several tables:

- **visits** : contains information about potential gym customers who have visited MuscleHub (5004 visitors with a roughly 50/50 split between **Group A** and **Group B**).
- **fitness\_tests** : contains information about potential customers in **Group A**, who were given a fitness test.
- **applications** : contains information about any potential customers (both **Group A** and **Group B**) who filled out an application.
- **purchases** : contains information about customers who purchased a membership to MuscleHub.

See also qualitative data (excerpts from interviews with visitors) on following slide.



# The Interviews

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**

## ***Fitness Test*** 🏋️

When I walked into MuscleHub I wasn't accosted by any personal trainers trying to sell me some mumbo jumbo, which I really appreciated. Down at LiftCity they had me doing burpees 30 seconds after I walked in the door and I was like "woah guys slow your roll, this is TOOOO much for Jesse!" I still ended up not signing up for a membership because the weight machines had all those sweat stains on them and you know, no thanks. — **Jesse, 35, Gowanes**

## ***Fitness Test*** 🏋️

I took the MuscleHub fitness test because my coworker Laura recommended it. Regretted it. — **Sonny "Dad Bod", 26, Brooklyn**

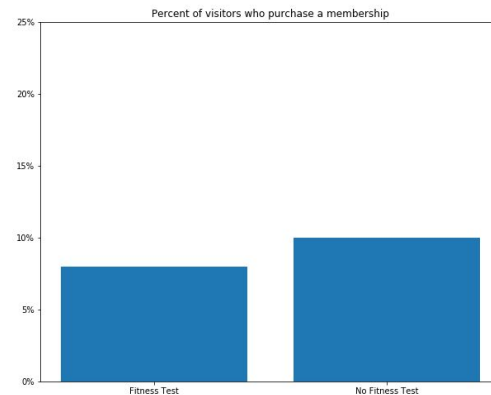
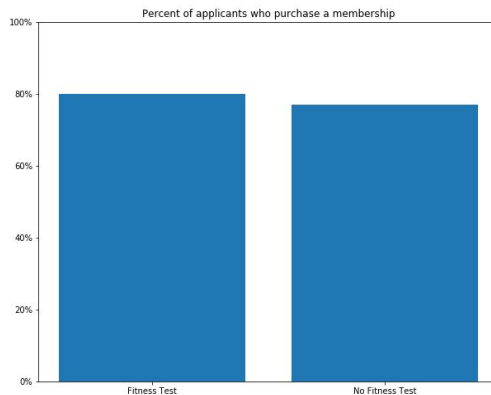
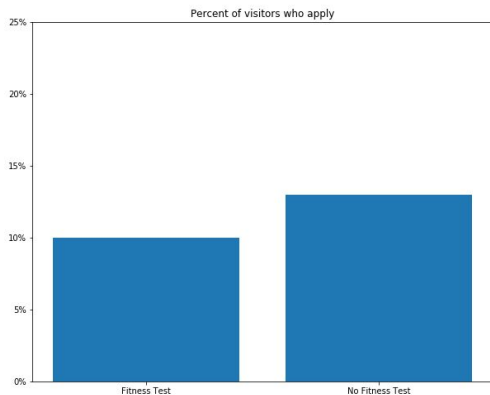
## ***Fitness Test*** 🏋️

I saw an ad for MuscleHub on BookFace and thought I'd check it out! The people there were suuuuper 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**

## ***Fitness Test*** 🏋️

# The Tests

Percent of <i>visitors</i> who apply					Percent of <i>applicants</i> who purchase a membership					Percent of <i>visitors</i> who purchase a membership				
Test Group	Application	No Application	Total	% With Application	Test Group	Member	Not Member	Total	% Purchase	Test Group	Member	Not Member	Total	% With Application
A	250	2254	2504	9.984%	A	200	50	250	80.0%	A	200	2304	2504	7.987%
B	320	2175	2500	13.0%	B	250	75	325	76.923%	B	250	2250	2500	10.0%
More people who skipped the fitness test (Group B) turned in an application.					People who took the fitness test (Group A) were more likely to purchase a membership <i>if</i> they picked up an application.					More people who skipped the fitness test (Group B) purchased a membership.				



# The Significance

Percent of <i>visitors</i> who apply					Percent of <i>applicants</i> who purchase a membership					Percent of <i>visitors</i> who purchase a membership				
Test Group	Application	No Application	Total	% With Application	Test Group	Member	Not Member	Total	% Purchase	Test Group	Member	Not Member	Total	% With Application
A	250	2254	2504	9.984%	A	200	50	250	80.0%	A	200	2304	2504	7.987%
B	320	2175	2500	13.0%	B	250	75	325	76.923%	B	250	2250	2500	10.0%
P-Value* : 0.0009647827600722304 Very strong evidence against $H_0$ .					P-Value* : 0.43258646051083327 Little or no evidence against $H_0$ .					P-Value* : 0.014724114645783203 Strong evidence against $H_0$ .				

\*Given the data type and number of samples, the P-Value was determined using Chi-Square Test for Independence.

# The Recommendation

There is strong/very strong evidence that visitors who skip the fitness test are more likely to eventually purchase a membership.

This is also backed up by the qualitative evidence shown in the interviews.

