

Capstone #1 - MuscleHub

By Joe O'Malley

AB Test

Background

Janet, the manager of Musclehub, is evaluating her store's current process for customer acquisition. Currently, the following steps for prospective customers are:

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

The fitness test has the potential to intimidate some of Muscle Hub's prospective members. In order to determine if this is the case, Janet has performed an A/B test and asked us to evaluate the results.

A/B Test

Musclehub's prospective customers will randomly be assigned to two groups, in approximately equal amounts:

- Group A - prospective customers who take a fitness test
- Group B - prospective customers who skip the fitness test and go straight to the application

This distribution can be seen in appendix A. Janet's hypothesis is that visitors assigned to Group B will be more likely to eventually purchase a membership to MuscleHub and I am determining whether or not to accept this hypothesis.

Summary of Dataset and background info

The data for Janet's A/B test is kept in a SQL Database spread across 4 different tables. The tables and their descriptions are below:

- **visits** - contains information about potential gym customers who have visited MuscleHub
- **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. Not everyone in visits will have filled out an application.
- **Purchases** - contains information about customers who purchased a membership to MuscleHub.

The largest table is “visits”, and we narrowed this data down to visits that occurred after July 1st, 2017 because that is when the A/B test started. From there we joined the 4 different tables, which get smaller and smaller, reflecting the attrition rate of potential customers at the various stages.

Finally, there is Qualitative Information that includes comments by the various types of visitors to Musclehub which hopefully will help explain the data we are seeing.

Hypothesis Tests and their results

The first hypothesis test was to determine if more customers group A or group B turned in applications and if this result was statistically significant. The null hypothesis was that there is no difference between the groups in successfully submitting an application.

Results of test 1: We found that, on a percentage basis, more people from Group B turned in an application. This can be seen in appendix B. Additionally, the p-value was equal to 0.001, so we reject the null hypothesis and determine that the result is significant

Results of test 2: We found that, on a percentage basis, people who took the fitness test were more likely to purchase a membership if they picked up an application. This can be seen in appendix C. Additionally, the p-value was equal to 0.43, so we accept the null hypothesis because result is not significant.

Results of test 3: We found that, on a percentage basis, when we consider all people who visit MuscleHub we see that Group B is more likely to become a member than group A. This can be seen in appendix D. Additionally, the p-value was equal to 0.015 so we reject the null hypothesis because result is significant.

Summary of Qualitative Data

Prospective customers seem to be divided into two categories. Those who are interested in becoming serious weightlifters (but do not know where to start) appear to be more likely to join as a result of the fitness 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!” - Cora, 23, Hoboken

The other type of prospective customer seems to be the casual person who works out and is less interested or intimidated by the fitness test.

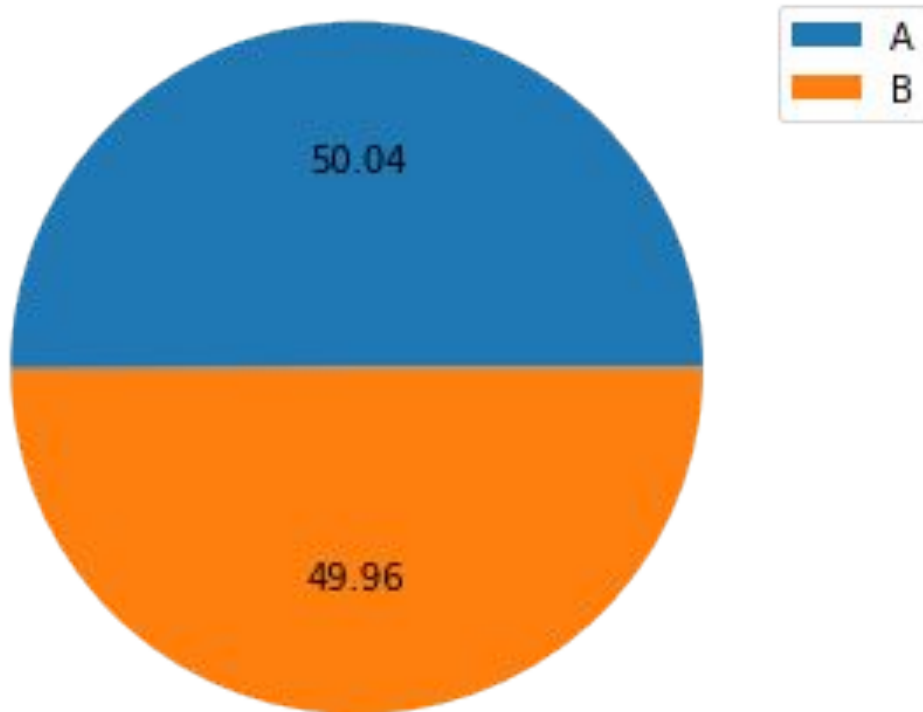
“I took the MuscleHub fitness test because my coworker Laura recommended it. Regretted it.” - Sonny “Dad Bod”, 26, Brooklyn

“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

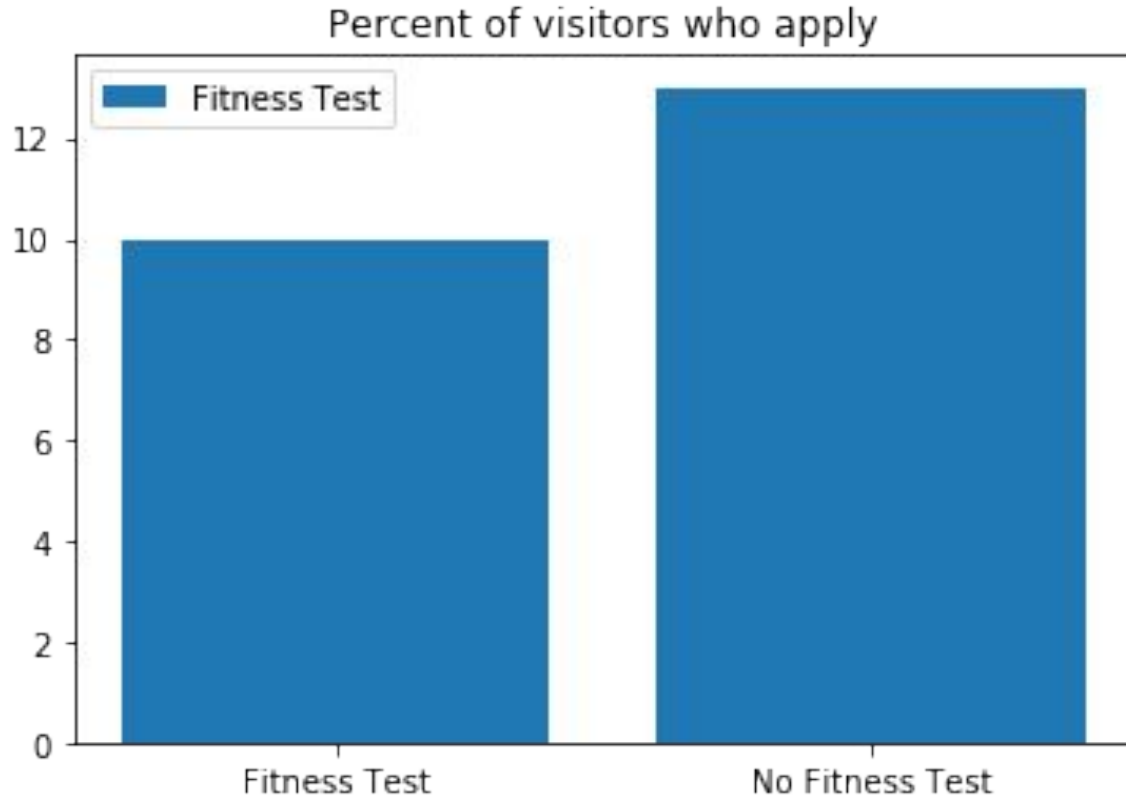
Recommendation for MuslceHub

We recommend that MuscleHub forgo that mandatory fitness test but leave it as an option for the more serious weightlifters interested in becoming members. The quantitative and qualitative data seem to indicate that the casual person who works out is more likely to join without the mandatory fitness test. By forgoing the mandatory fitness test, MuscleHub will increase its conversion rate for potential customers.

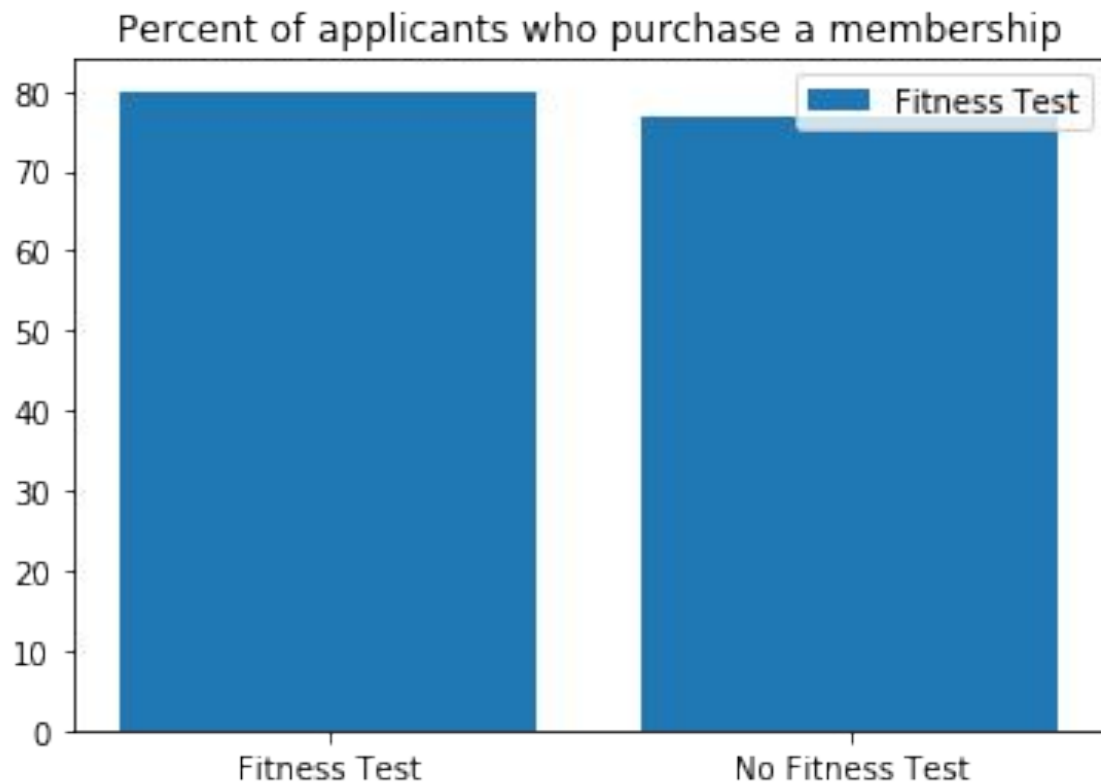
Appendix A



Appendix B



Appendix C



Appendix D

