MuscleHub A/B Testing

Q. Having completed a fitness test, are prospective clients less likely to purchase a membership?

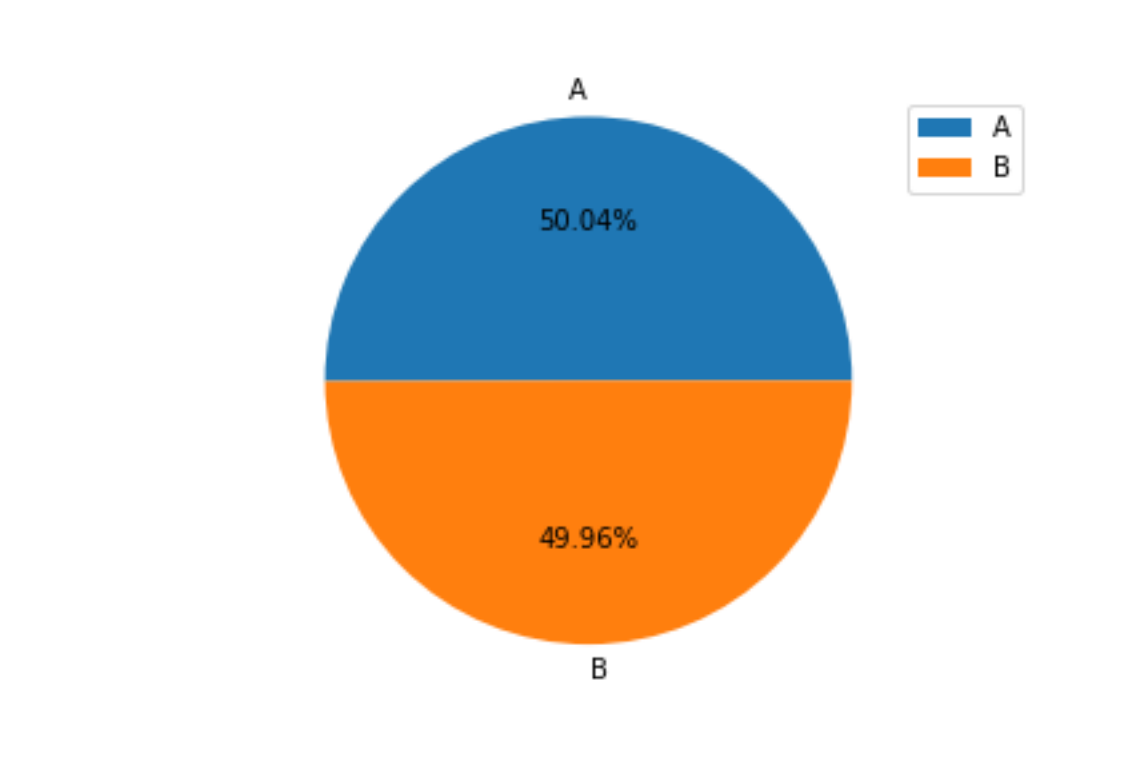
Background

- 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.

The 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

Summary of data

- SQLite database, which contains several tables
- “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.

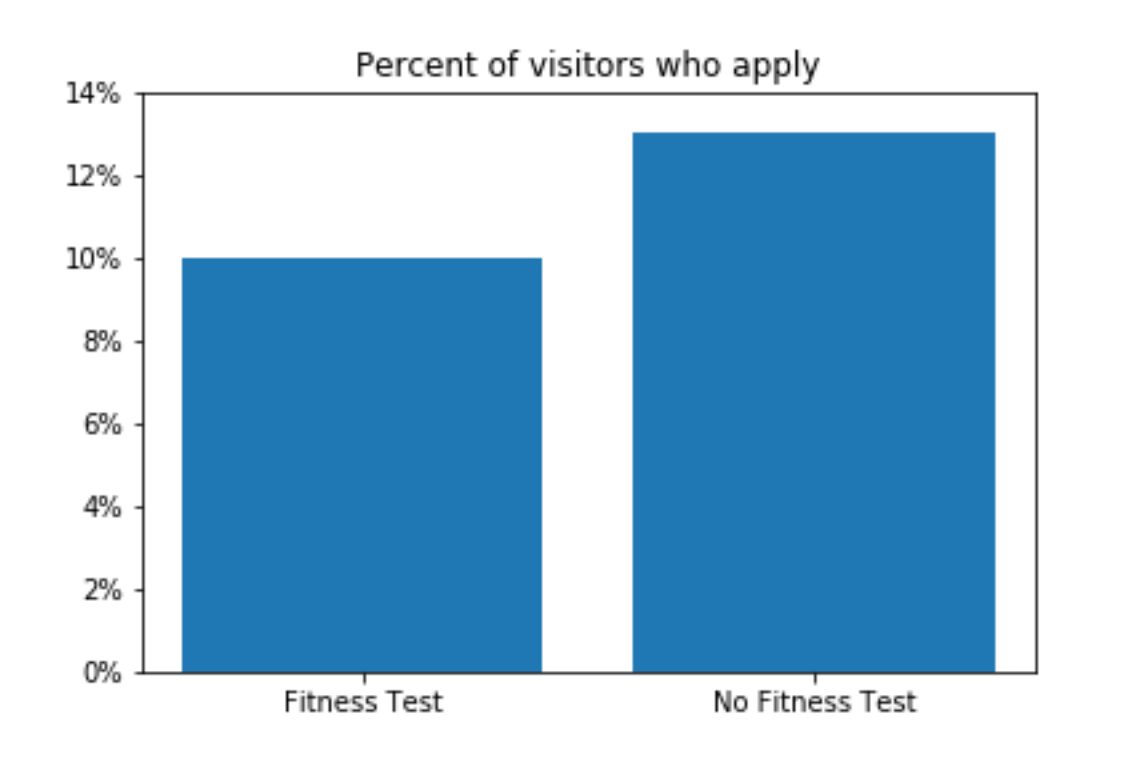
The Chi Square Test

- If we have two or more categorical datasets that we want to compare, we should use a Chi Square test. It is useful in situations like:

- An A/B test where half of users were shown a green submit button and the other half were shown a purple submit button. Was one group more likely to click the submit button?

- In this case, the null hypothesis is that there's no significant difference between the group A and group B (fitness test or no fitness test).
- **We reject that hypothesis, and state that there is a significant difference between two of the datasets, if we get a p-value less than 0.05.**

Hypothesis Test 1



Chi-sq Pval: 0.001

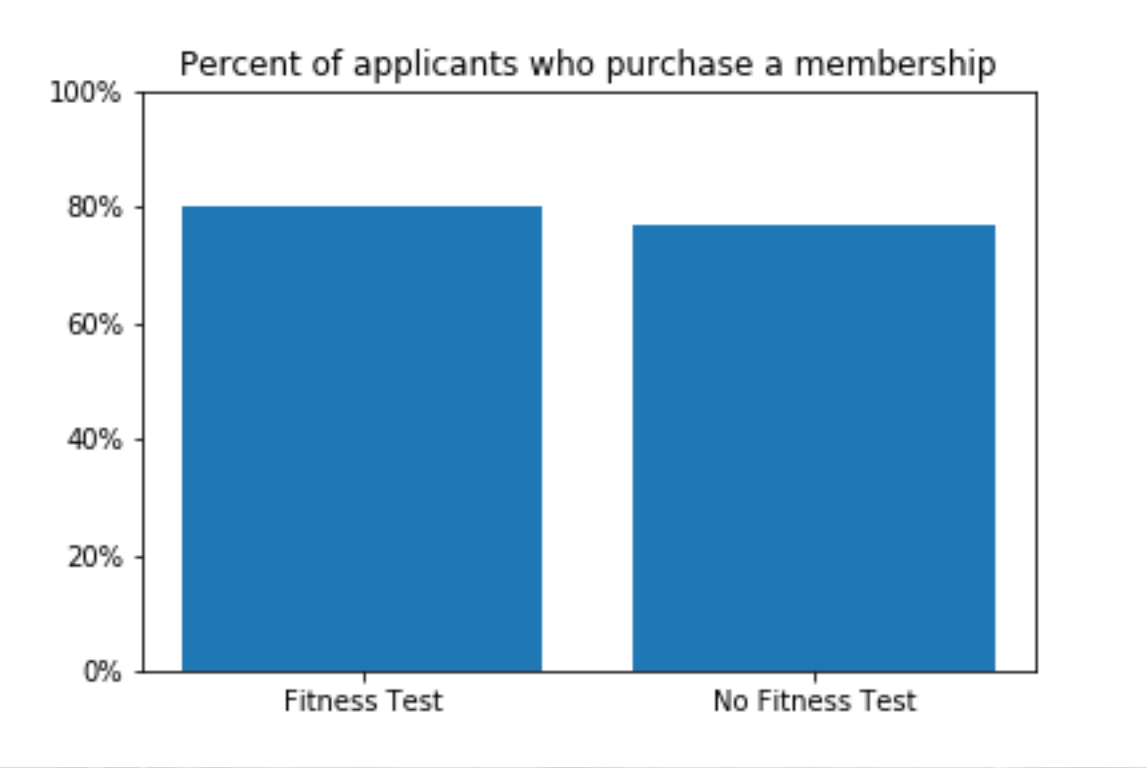
We can reject the null that there is no significant difference between groups.

This strongly implies that people are more likely to apply if they *have not done the fitness test*.

"I tried to sign up for LiftCity last year, but the fitness test was way too intense" - Shirley, 22, Williamsburg

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

Hypothesis Test 2



Chi-sq Pval: 0.433

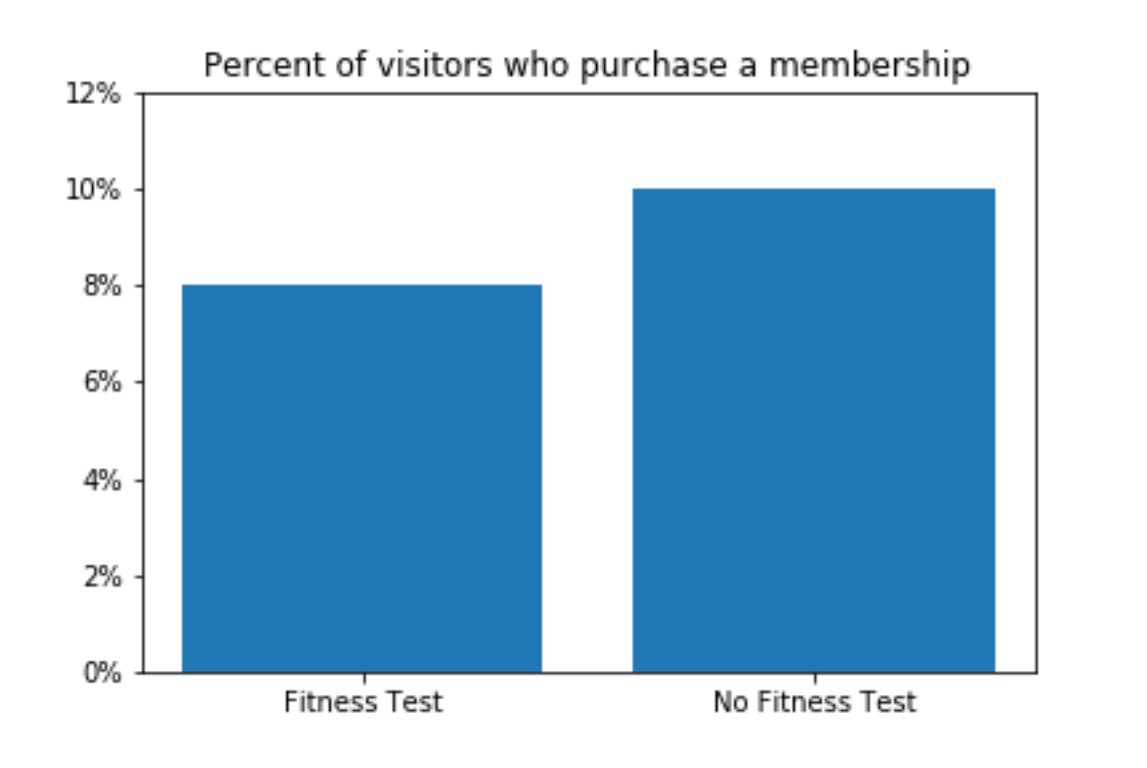
We can't reject the null that there is no significant difference between groups.

Those who go on to apply after completing their fitness test have a similar chance of ultimately becoming paying members.

(if the test put you off, you wouldn't even bother applying!)

"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

Hypothesis Test 3



Chi-sq Pval: 0.015

Again, we can reject the null that there is no significant difference between groups.

This suggests that people are more likely to become members if they never had to take the 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 Jesse, 35,Gowanes"

A recommendation for MuscleHub

- The results of this A/B TEST suggest with a high level of statistical significance that fitness testing intimidates prospective members and stops them from applying for membership.
- The recommendation of this work is that the fitness test should be skipped and customers are instead allowed to proceed directly to the application stage.
- There is anecdotal evidence this is also true of other gyms (Liftcity).