

# MUSCLEHUB A/B TEST



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Intro to Data Analysis - Capstone Project

Aug 7th - Oct 29th, 2018

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# 1. A/B Test Description

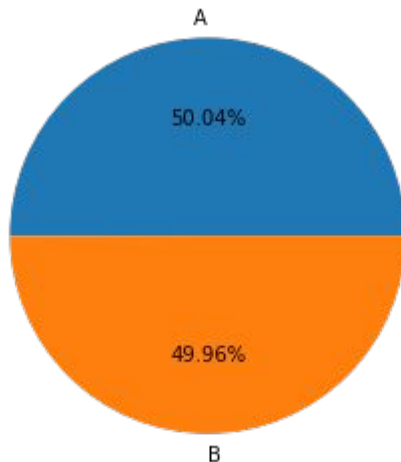
**Does taking a fitness test influence people to purchase a membership? Or not?**

Group A: People were asked to take a fitness test before the application process.

Group B: People skipped the test and directly proceeded to fill out the application.

Number of Users in Group A: 2504 (50.04%)

Number of Users in Group B: 2500 (49.96%)



# 1. A/B Test Description

## Membership Process

### Group A

Stage 1 Fitness test with a personal trainer

Stage 2 Application

Stage 3 Sending in their payment for their first month's membership.

### Group B

Stage 2 Application

Stage 3 Sending in their payment for their first month's membership.

## 2. Data Set Summary

There were a total of four data sets collected for the analysis: **Visits, Fitness Tests, Applications, Purchases.**

Each of the data set contains information about each person, such as first name, last name, email, gender, and date.

Four tables were combined to form a one single table to help us with our analysis and give us a fuller picture on the situation.

## 2. DATA SET SUMMARY

	Group A				Group B			
	Y	Percent	N	Percent	Y	Percent	N	Percent
<b>Fitness Test</b>	2504	50.04 (out of total visitors)	0	-	0	-	2500	49.96 (out of total visitors)
<b>Application</b>	250	10.00	2254	90.00	325	13.00	2175	87.00
<b>Membership</b>	<b>200</b>	80.00	50	20.00	<b>250</b>	76.92	75	23.08

Group A Result =  $200/2504 = 8\%$

Group B Result =  $250/2500 = 10\%$

# 3. Hypothesis Test Results

Hypothesis test allows us to determine whether the given hypothesis is true or not. If  $p\text{-value} < 0.05$ , the null hypothesis is rejected, which shows there is a statistically significant difference between two groups - in this case, Group A and Group B.

Three hypothesis tests were run for the analysis.

**Hypothesis Test 1:** Visitors that filled out the applications

**Hypothesis Test 2:** Applicants that purchased membership

**Hypothesis Test 3:** Visitors that purchased membership

# 3. Hypothesis Test Results

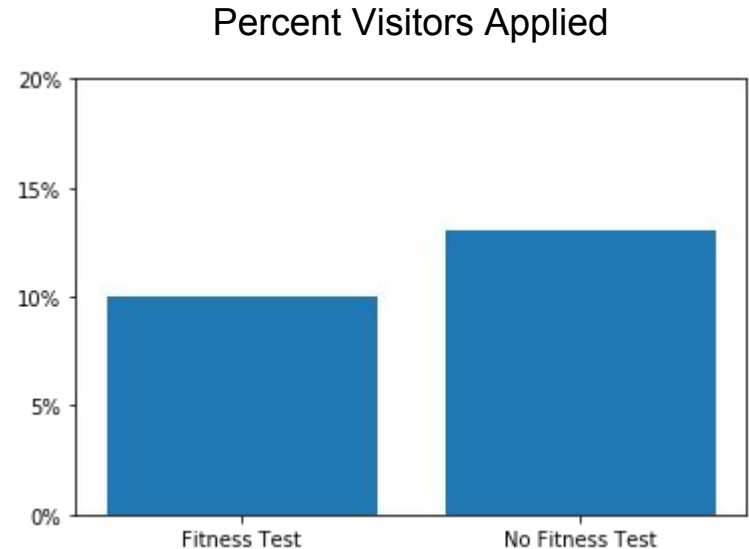
## Hypothesis Test 1: Visitors that filled out the applications

Percent visitors with fitness test applied: 10%

Percent visitors without fitness test applied: 13%

P-value = **0.00096 < 0.05**

Thus, the null hypothesis is rejected, which means there's a significant difference between these two groups - 1) Visitors from Group A that applied and 2) Visitors from Group B that applied.





# 3. Hypothesis Test Results

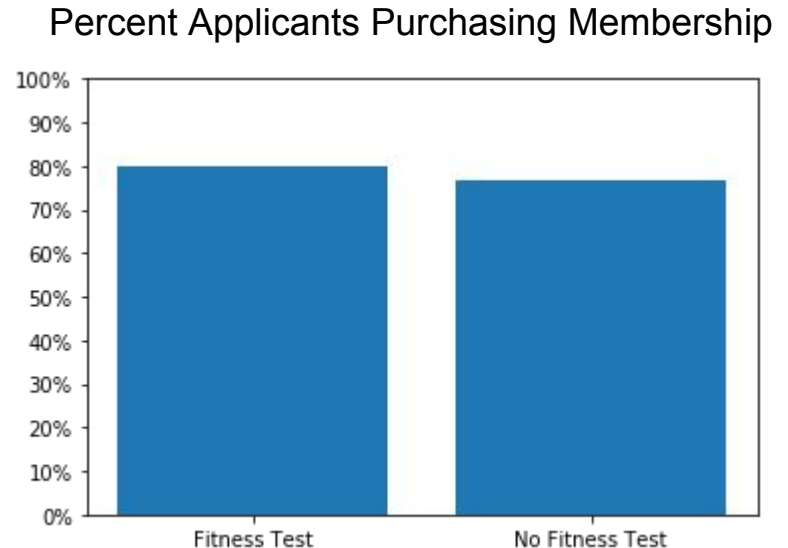
## Hypothesis Test 2: Applicants that purchased membership

Percent applicants w/ fitness test who purchased membership: 80%

Percent applicants w/o fitness test who purchased membership : 77%

P-value = **0.433 > 0.05**

Thus, the null hypothesis is not rejected, which means there's no significant difference between these two groups - 1) Applicants from Group A that purchased membership and 2) Applicants from Group B that purchased membership.



# 3. Hypothesis Test Results

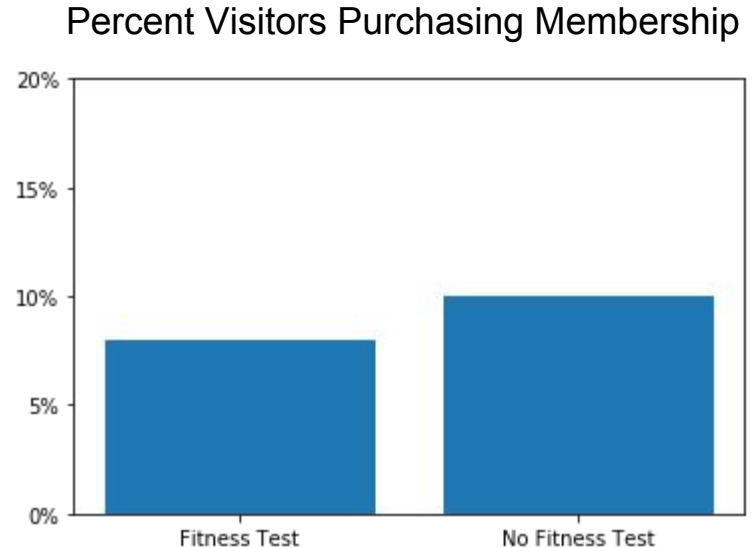
## Hypothesis Test 3: Visitors that purchased membership

Percent visitors w/ fitness test who purchased membership: 8%

Percent visitors w/o fitness test who purchased membership : 10%

P-value = **0.0147 < 0.05**

Thus, the null hypothesis is rejected, which means there's a significant difference between these two groups - 1) Visitors from Group A that purchased membership and 2) Visitors from Group B that purchased membership.



## 4. Qualitative Data - Interview

**Cora(24, Hoboken)** - *Fitness Test was helpful.* Good relationship with trainer.

**Shirley(22, Williamsburg)** - Social media ad. Social trainers. Better than other gyms. Prefer quick application process. *Make the test quick.*

**Sonny(26, Brooklyn)** - Introduced by coworker. *Regretted the test.*

**Jesse(35, Gowanes)** - Liked the MuscleHub compared to other gyms. *Didn't like the test* that he had to take at other gym. Cared about hygiene of the equipments.

## 5. Recommendation for MuscleHub

- Through conducting hypothesis testing on this case, it's shown that there is a significant difference between Group A and Group B.
- Taking fitness test does influence visitors. It's more likely for visitors to sign up for the membership if they had not taken the test.
- Majority of the interviewees have also expressed discomfort over taking the test.
- It's recommended for MuscleHub to remove the test in the application process to increase the number of visitors who end up purchasing the membership.
- Janet was right. The fitness test does intimidate some prospective members!