

# MuscleHub A/B test

# A/B Test Description

**In this A/B test the following hypothesis was tested:**

- MuscleHub visitors who are asked to take a fitness test are less likely to purchase a membership at MuscleHub.
- And vice-versa; visitors who skip the fitness test are more likely to purchase a membership at MuscleHub.

# MuscleHub

The sign-up process for MuscleHub has the following steps:

1. Visit MuscleHub
2. Take fitness test if in test group A
  - No fitness test for test group B.
3. Fill out application
4. Pay for first month (purchase)

# Input Dataset

- **Visits:**
- Information about potential costumers who have visited MuscleHub
- Columns: first name, last name, email, gender and visit date

	index	first_name	last_name	email	gender	visit_date
0	0	Karen	Manning	Karen.Manning@gmail.com	female	5-1-17
1	1	Annette	Boone	AB9982@gmail.com	female	5-1-17
2	2	Salvador	Merritt	SalvadorMerritt12@outlook.com	male	5-1-17
3	3	Martha	Maxwell	Martha.Maxwell@gmail.com	female	5-1-17
4	4	Andre	Mayer	AndreMayer90@gmail.com	male	5-1-17

# Input Dataset

- **Fitness tests:**
- Information about potential costumers who were given a fitness test
- Test group A
- Columns: first name, last name, email, gender and fitness test date

	index	first_name	last_name	email	gender	fitness_test_date
0	0	Kim	Walter	KimWalter58@gmail.com	female	2017-07-03
1	1	Tom	Webster	TW3857@gmail.com	male	2017-07-02
2	2	Marcus	Bauer	Marcus.Bauer@gmail.com	male	2017-07-01
3	3	Roberta	Best	RB6305@hotmail.com	female	2017-07-02
4	4	Carrie	Francis	CF1896@hotmail.com	female	2017-07-05

# Input Dataset

- **Applications:**

- Information about potential costumers who filled out an application
- Test group A and B
- Columns: first name, last name, email, gender and application date

	index	first_name	last_name	email	gender	application_date
0	0	Roy	Abbott	RoyAbbott32@gmail.com	male	2017-08-12
1	1	Agnes	Acevedo	AgnesAcevedo1@gmail.com	female	2017-09-29
2	2	Roberta	Acevedo	RA8063@gmail.com	female	2017-09-15
3	3	Darren	Acosta	DAcosta1996@hotmail.com	male	2017-07-26
4	4	Vernon	Acosta	VAcosta1975@gmail.com	male	2017-07-14

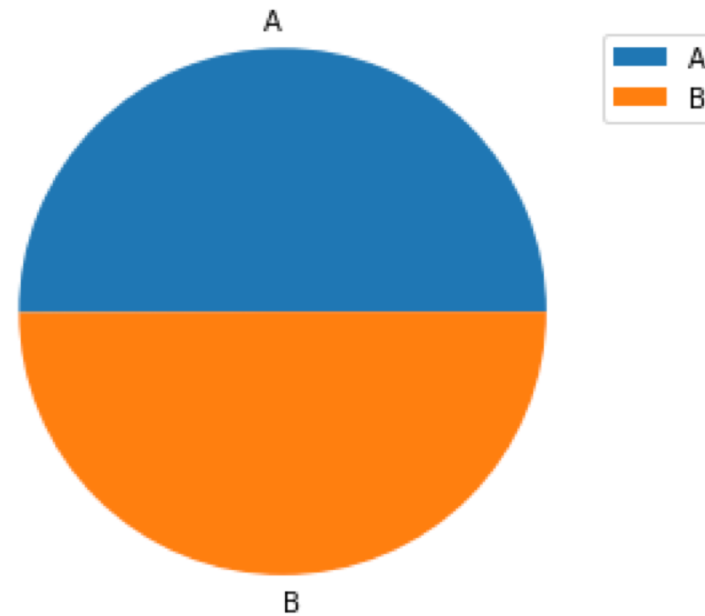
# Input Dataset

- **Purchases:**
- Information about potential costumers who purchased a membership
- Test group A and B
- Columns: first name, last name, email, gender and purchase date

	index	first_name	last_name	email	gender	purchase_date
0	0	Roy	Abbott	RoyAbbott32@gmail.com	male	2017-08-18
1	1	Roberta	Acevedo	RA8063@gmail.com	female	2017-09-16
2	2	Vernon	Acosta	VAcosta1975@gmail.com	male	2017-07-20
3	3	Darren	Acosta	DAcosta1996@hotmail.com	male	2017-07-27
4	4	Dawn	Adkins	Dawn.Adkins@gmail.com	female	2017-08-24

# A/B Test Groups

- Group A: Potential costumers who were given a fitness test
- (2504 people)
- Group B: Potential costumers who were not given a fitness test
- (2500 people)





# A/B Test

- Chi-squared tests were used to evaluate statistical significance.
- Chi-squares tests are suitable when there is two or more discrete categories of data per dataset.
- In this case the Chi-squared test was appropriate since the input data consists of two different conditions (Fitness test / no Fitness test) and two different outcomes (Application / no application and Purchase / no Purchase)
- There is a significant difference between the two datasets (i.e. null hypothesis rejected) if the p-value is less than 0.05.

# Who filled out an application?

Test group	Application	No application	% Application
A	250	2254	9.9%
B	325	2175	13.0%

More people from group B than from group A filled out an application.

The difference is statistically significant, as the Chi-squared test on the two datasets returns a p-value = 0.00096. This is well below a significance level of 0.05.

Who of those  
who filled out  
an application  
purchased a  
membership?

Test group	Member	Not member	% Purchase
A	200	50	80.0%
B	250	75	76.9%

For those people who filled out an application, more people from group A than from group B ended up purchasing a membership

A reason for this could be that the people in group A are more motivated by knowing the results of their fitness test.

The difference is however statistically insignificant, as the Chi-squared test on the two datasets returns a p-value = 0.43. This is well above a significance level of 0.05.

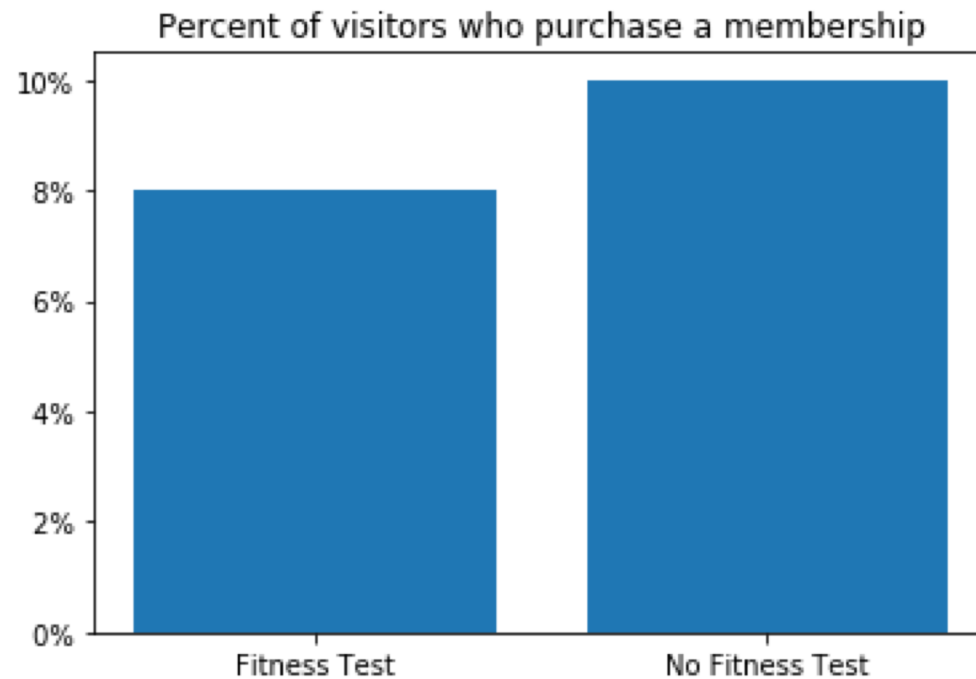
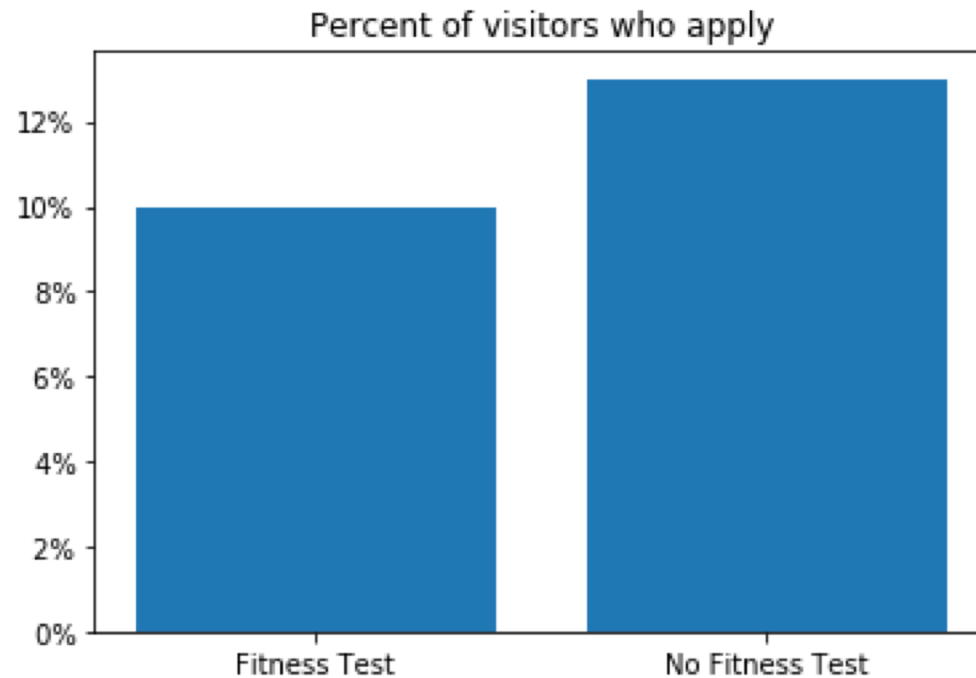
# Who of all visitors purchased a membership?

Test group	Member	Not member	% Purchase
A	200	2304	8.0%
B	250	2250	10.0%

Of all visitors, more people from group B than from group A ended up purchasing a membership

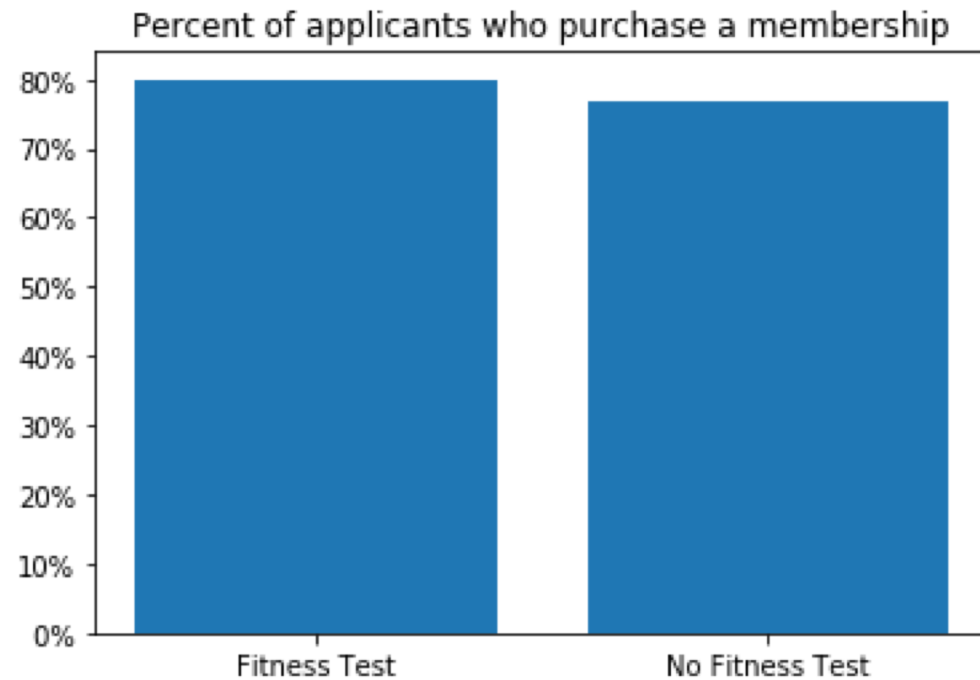
The difference is statistically significant, as the Chi-squared test on the two datasets returns a p-value = 0.0147. This is below a significance level of 0.05.

# Acquisition Funnel



Of the three A/B tests, the outcome was statistically significant for two of them (shown in charts to the left). These two tests indicate that a higher percentage of the visitors in group B (No fitness test) will fill out an application and purchase a membership.

# Acquisition Funnel



The third A/B test (shown in chart ) had a statistically insignificant outcome that people filling out the application were more likely to purchase a membership if they belong to group A (Fitness test)

# 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

*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

*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 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

# Interviews summary

- Out of the four interviews, three of them convey a negative message about fitness tests.



# Final recommendati on

The hypothesis outlined in slide 2 has been tested to be true:

- Visitors who are not given a fitness test are more likely to purchase a membership to MuscleHub.
- It is recommended to skip fitness tests as a part of the membership recruitment process.