

MuscleHub Funnel + A/B Test

Data Analysis Capstone Project

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 Pro Capstone project

Presentation Outline

1. MuscleHub membership funnel and A/B test
2. Data Compilation
3. MuscleHub Conversion Rates by A/B Group
4. Conclusions and Recommendations

Membership Funnel Description

MuscleHub is a fictional gym. The current paid membership funnel has three steps:

1. Visit MuscleHub and take a fitness test.
2. Fill out a membership application form.
3. Pay for the first month's membership.

A/B Test Description and Project Motivation

The gym's manager thinks the fitness test could be intimidating to potential members. She decides to run an A/B test as follows:

- Roughly half of visitors (Group A) will be asked to take the fitness test
- Roughly half of visitors (Group B) will skip the test and be allowed to apply for membership without it

Visitors were randomly assigned to one of the two groups.

A/B Test Description and Project Motivation

The overarching goal of the project is to determine if MuscleHub should drop its initial fitness test, or keep it.

To achieve this, the following question will be answered: Are visitors more likely to purchase a membership if they are not given an initial fitness test?

Data Set Compilation

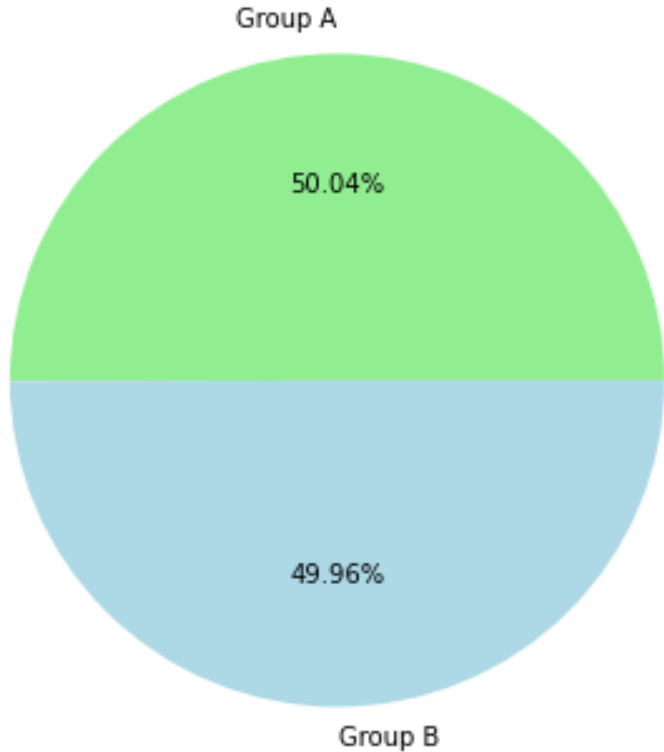
Data in the form of four data tables was provided: one of visits, one of fitness tests, one of applications, and one of purchases. All tables included names, email addresses, genders, and a date corresponding to the action in the table name.

These tables were merged¹, keeping only information gathered during the duration of the A/B test.

In addition, four interviews with MuscleHub visitors were provided.

1: using a series of left outer merges

A/B Test Composition



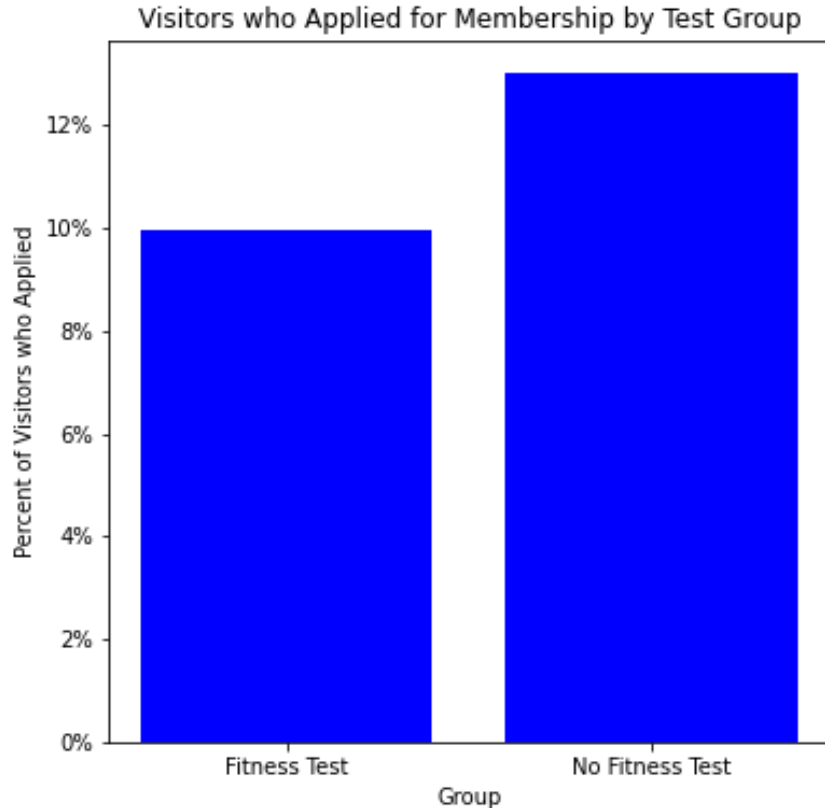
Visitors were divided into two approximately equal groups.

Group A took the fitness test.

Group B did not take the fitness test.

Fitness Test Group	Num. of Visitors per Group
Took test (group A)	2,504
Didn't take test (group B)	2,500

Visitor Application Rate

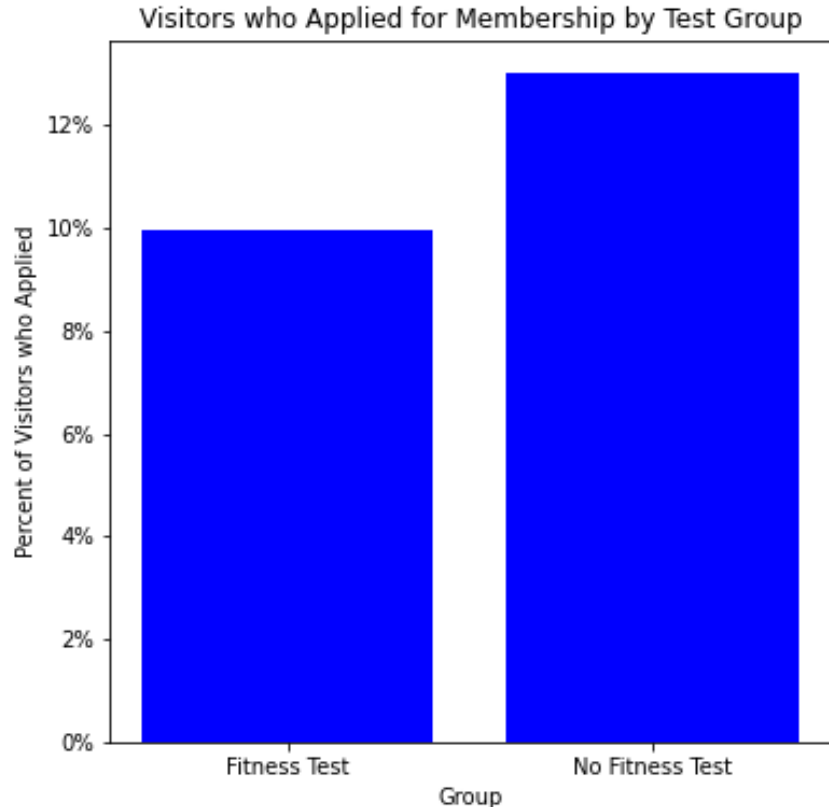


Application rates of visitors in the two groups were determined.

Group B (no fitness test) was more likely to apply than Group A (took fitness test).

	Applied	Didn't Apply	% who Applied
Group A	250	2254	9.98
Group B	325	2175	13.00

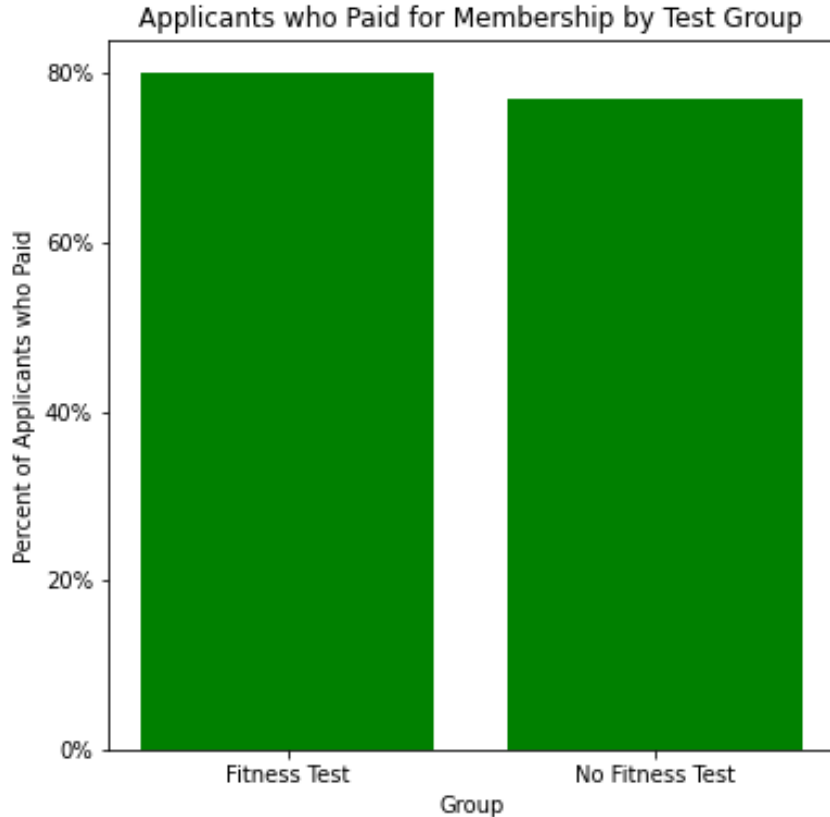
Visitor Application Rate



To determine whether the difference in application rates was significant, a **chi-squared hypothesis test** was run. This test was chosen because the data is categorical, and there is more than one set of categorical data. The null hypothesis is that there is no difference between the groups.

The resulting **p-value was 0.00098**, indicating a significant difference between the two groups; this shows that **there is a significant difference in application rates**.

Membership Purchase Rate

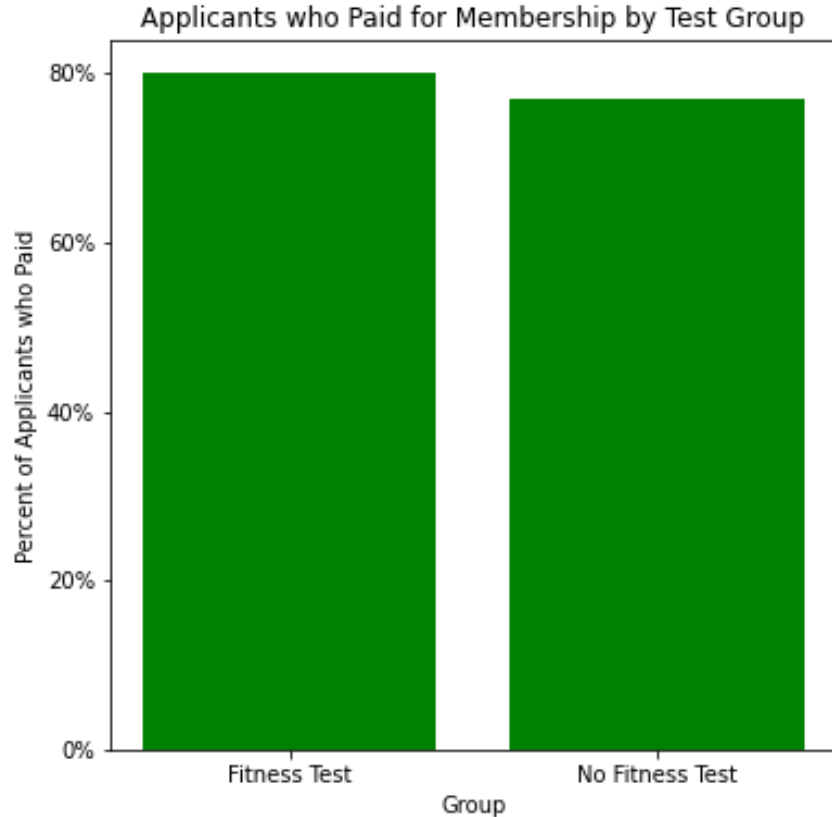


Rates of membership purchase were calculated for those who applied for membership.

Group B (no fitness test) was about as likely as Group A (took fitness test) to purchase a membership.

	Bought	Didn't Buy	% who Bought
Group A	200	50	80.00
Group B	250	75	76.92

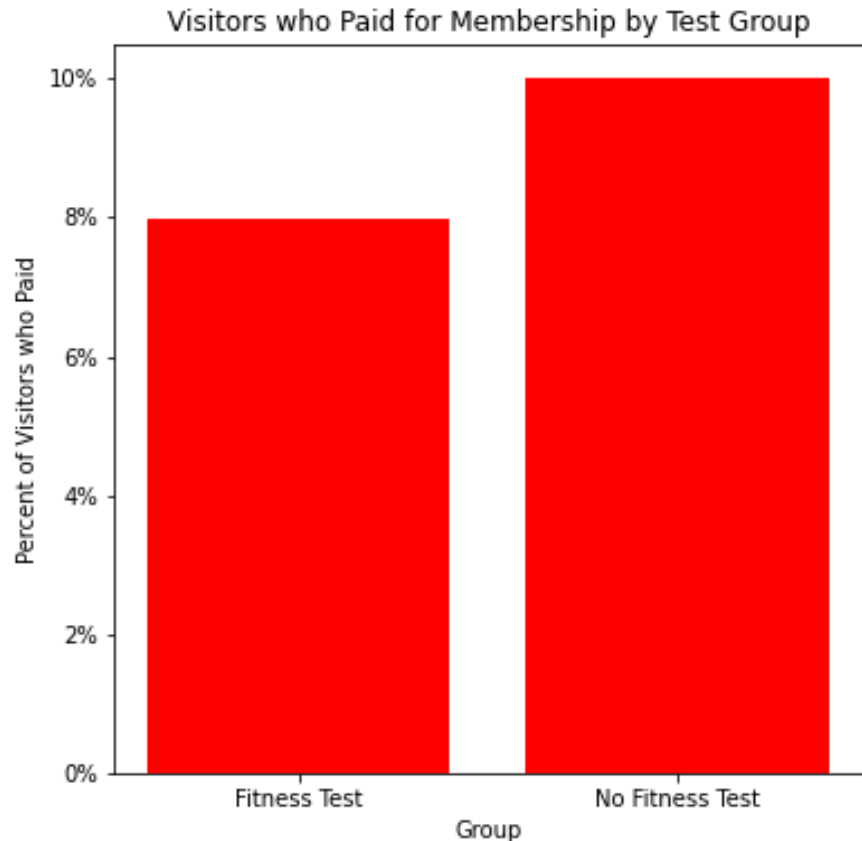
Membership Purchase Rate



To determine whether the difference in purchase rates was significant, a **chi-squared hypothesis test** was run (more than one set of categorical data). The null hypothesis is that there is no difference between the groups.

The resulting **p-value** was 0.433, indicating that there is **NOT** a significant difference between the two groups.

Percentage of Visitors who Became Members

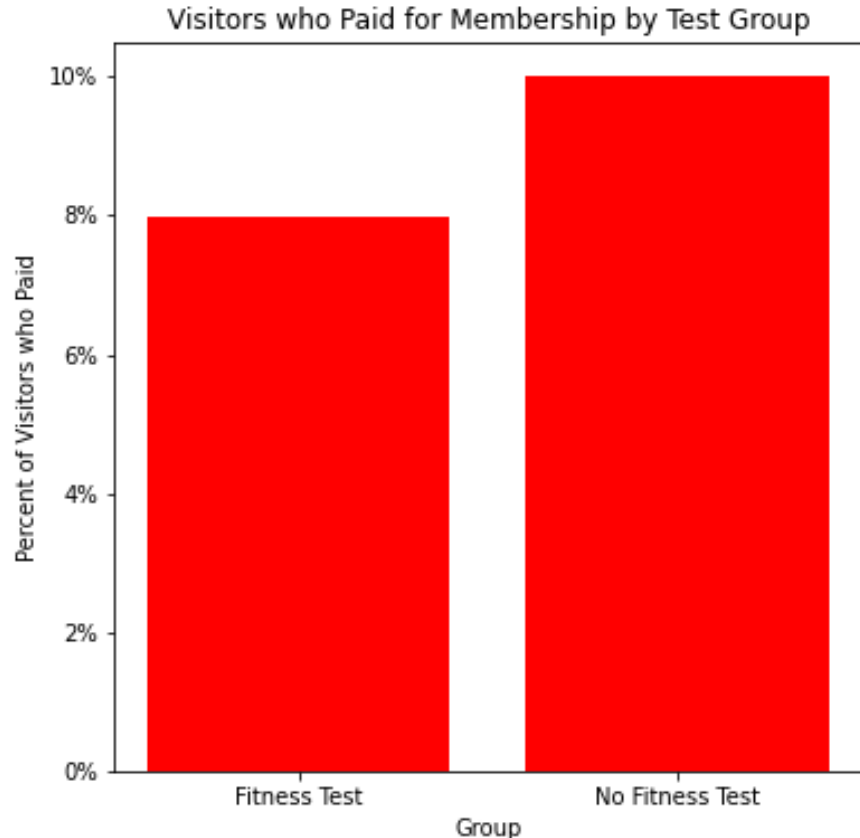


Rates of membership purchase were calculated for those who visited Muscle Hub.

Group B (no fitness test) was slightly more likely than Group A (took fitness test) to purchase a membership.

	Bought	Didn't Buy	% who Bought
Group A	200	2304	7.99
Group B	250	2250	10.00

Percentage of Visitors who Became Members



To determine whether the difference in purchase rates was significant, a **chi-squared hypothesis test** was run (more than one set of categorical data). The null hypothesis is that there is no difference between the groups.

The resulting **p-value was 0.0147**, indicating a significant difference between the two groups; this shows that **the difference in membership purchase rates is significant**.

Summary of Results

Visitors who were allowed to skip the initial fitness test were more likely to apply for membership than those that took the test. Further, they were also more likely to purchase a membership than visitors who took the fitness test. These two differences between the A/B groups was statistically significant.

Summary of Results

The provided interviews revealed the following anecdotal data:

- The fitness test seems to be popular among those with higher fitness goals and aspirations (“get shredded”), but off-putting to those with more modest goals (“Regretted it”).
- Those with more modest fitness goals who were assigned to group B seemed to appreciate not feeling pressured by a fitness test and the subsequent ease of application (“took a matter of minutes”).

Recommendations

The data indicate that MuscleHub should eliminate the required fitness test before prospective members can apply.

- The outcome of the A/B test clearly shows that visitors who did not take the test were more likely to purchase a membership.
- Eliminating the test would likely boost membership rates and by extension profits.

Caution

Eliminating the fitness test may change the culture of MuscleHub. Members would probably have modest fitness goals, and be first-time (or first time in awhile) members to any gym (interpolating from anecdotal data). This may drive off current or prospective members with high fitness aspirations.

Ownership and management should consider what their membership brand should be before making any changes to the current funnel.