

MUSCLEHUB A/B TESTING

The background of the slide is composed of large, overlapping geometric shapes. A large light blue triangle occupies the upper right and central portions. An orange triangle is positioned on the left side, pointing towards the center. A teal triangle is located at the bottom left, partially overlapping the orange and light blue shapes.

A/B Test Set Up

Hypothesis: Visitors who skip the fitness test and have the option to proceed directly to the application, aka Group B, are more likely to purchase a gym membership than Group A



Group A was asked to take a fitness test with a personal trainer – *this is the current process MuscleHub uses for all visitors to try and convert them to gym members*

Group B will skip the fitness test and proceed directly to the application – *we want to test whether this new process will push more visitors to purchase memberships vs. our current model*

Dataset Summary

The provided 4 tables include visitor name, email, gender, visit date, whether visitors are in Group A, whether they applied, and whether they purchased a membership.

Original Dataset

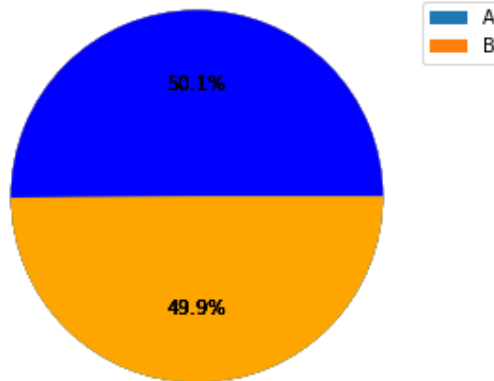
- ❖ Total of 6000 visitors data
- ❖ Collected in 4 separate SQL tables



Transformed Dataset

- ❖ Selected only data for visitors who visited on or after July 1, 2017 by using the Where clause
- ❖ Combined 4 tables into master dataframe by using a combination of three Left Joins – ended with 5006 visitor's data

Population Split Between Groups A and B



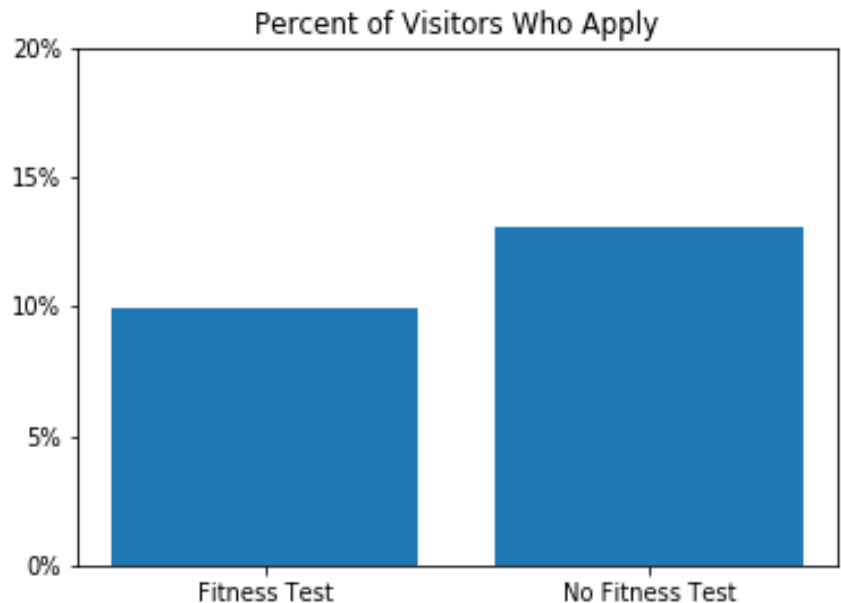
After adding a tag to the master dataframe indicating which group each visitor is in, I explored whether our groups were of similar size – confirmed Janet split her visitors close to 50%/50%

Once I was comfortable with the dataset, I started the hypothesis testing to compare the two groups

Hypothesis Testing

Problem Statement 1: Does Group B fill out applications more often than Group A?

- ❖ **Grouped visitors** based on Group A vs. B and whether they filled an application vs. no application
- ❖ **Aggregated** the total number in each grouping and created a **pivot table**
- ❖ Calculated percent of visitors who applied in each group
 - ~10% applied from Group A
 - ~13% applied from Group B
- ❖ Is above % difference **statistically significant**?
Because this data is categorical and we are comparing 2 groups against each other, I used a **Chi Squared test**
 - p-value is < 0.05**, therefore we can **reject the null hypothesis**
- ❖ *Group B visitors are more likely to fill out an application since they do not have to do a fitness test*



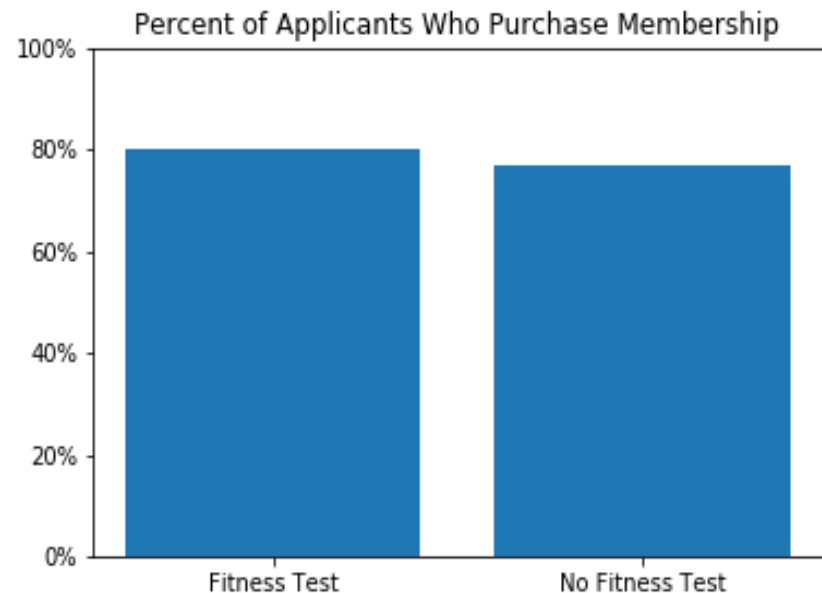
pvalue = 0.00834

< 0.05 ✓

Hypothesis Testing

Problem Statement 2: Of the visitors who filled out an application, is there a difference between which group is more likely to purchase a membership?

- ❖ First **filtered dataset** for visitors who filled out an application
- ❖ **Grouped applicants** based on Group A vs. B and whether they purchased a membership vs. no membership
- ❖ **Aggregated** the total number in each grouping and created a **pivot table**
- ❖ Calculated percent of visitors who purchased membership in each group
 - ~80% applied from Group A
 - ~77% applied from Group B
- ❖ Is above % difference **statistically significant**?
Used a **Chi Squared test** again
 - p-value is > 0.05**, therefore we **cannot reject** the null hypothesis
- ❖ *Within visitors who filled out an application, the two groups are not significantly difference from each other*

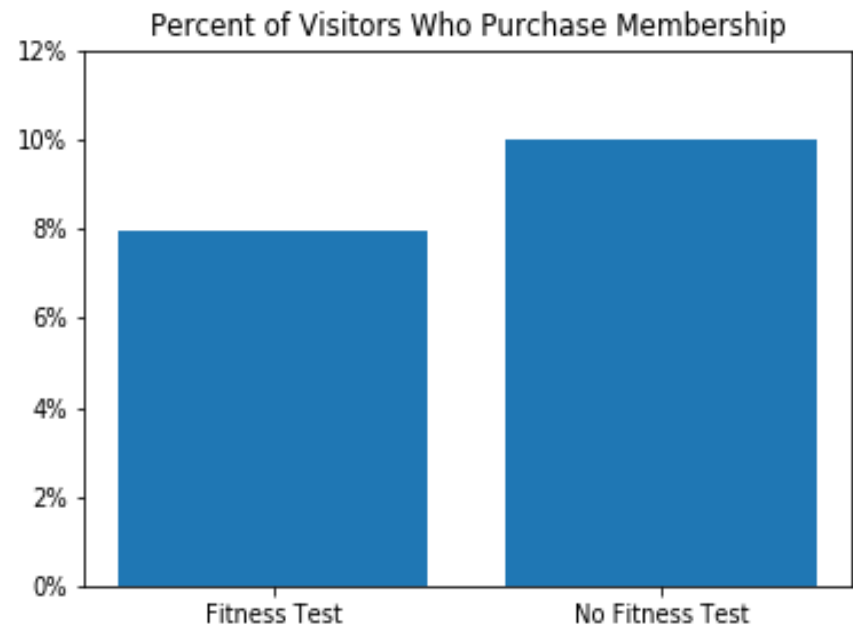


pvalue = 0.43259
> 0.05 X

Hypothesis Testing

Problem Statement 3: Of total visitors, which group was more likely to purchase a gym membership?

- ❖ **Grouped total visitors** based on Group A vs. B and whether they purchased a membership vs. no membership
- ❖ **Aggregated** the total number in each grouping and created a **pivot table**
- ❖ Calculated percent of visitors who purchased membership in each group
 - ~8% applied from Group A
 - ~10% applied from Group B
- ❖ Is above % difference **statistically significant**?
Used a **Chi Squared test** again
 - p-value is < 0.05** , therefore we can **reject the null hypothesis**
- ❖ *Group B visitors are more likely purchase a gym membership since they do not have to do a fitness test*



pvalue = 0.01333

< 0.05 ✓

Summary of Interviews

Visitors generally wanted to have a quick and pleasant experience for the first time visiting the gym

Interview Participant Summary:

- Two responses specifically mentioned not liking fitness tests as an introduction to a gym
- Two responses mentioned LiftCity's *"fitness test was way **too intense**"*
- One response, from a visitor who seems to be in Group B, liked how **quick the application process** was
- One response, from a visitor who purchased a membership, appreciated the fitness test as a measure of progress
- One response mentioned they didn't sign up due to the gym equipment – this is out of our scope



Insights and Takeaways:

- Having a fitness test as the first experience to the gym might **intimidate some visitors** – I would therefore **not have a fitness test**
- Visitors like a **quick process** to sign up, making it easier to fill out an application
- To measure progress MuscleHub can have an **optional fitness test after visitors purchase membership** to be able to provide measurable progress to members

Recommendation



Based on the A/B test results, I would recommend that MuscleHub **remove the initial fitness test** with a trainer for all visitors. This will **increase** the number of customers who **purchase a gym membership**

If MuscleHub wants to continue having fitness tests, I recommend the gym tests members on their first visit **after purchasing** as a way to **measure progress**.