MUSCLEHUB

An analysis of fitness tests vs no fitness tests as a factor for gym membership

AGENDA

A description of the A/B tests and what happened

A summary of our dataset

A description of the hypothesis tests used and the results

A summary of our qualitative data collected and why it's important

Our recommendations for Muscle Hub

A/B TESTING

In order to join MuscleHub Gym, potential members must complete three 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

Does the fitness test intimidate potential members?

A/B TESTING

Lets split up prospective members into two groups and record that data each step of the way to help answer this question.

Group A

- **Visitors in this group will be asked to take a fitness test with a personal trainer before completing the application**

Group B

- **Visitors in this group will be able to skip the fitness test and proceed directly to filling out an application**

A/B TEST DATA

Out of the two groups, we documented three separate areas of data to help with our analysis:

Number of Visitors who Picked up an Application

Test Group	Application	No Application	Total
A	250	2254	2504
B	325	2175	2500

Applicants Who Purchased Memberships

Test Group	Membership	No Membership	Total
A	200	50	250
B	250	75	325

Visitors Who Purchased memberships

Test Group	Membership	No Membership	Total
A	200	2304	2504
B	250	2250	2500

A/B TEST DATA

Number of Visitors who Picked up an Application

- Percentage of visitors from each group who picked up an application:
- Group A ***9.98 %***
- Group B ***13.0 %***

Applicants Who Purchased Memberships

- Out of the number of visitors who picked up an application, what percentage purchased a membership:
- Group A ***80.0 %***
- Group B ***76.9 %***

Visitors Who Purchased memberships

- Percentage of total visitors who purchased a membership
- Group A ***7.98 %***
- Group B ***10.0 %***

HYPOTHESIS TESTS

- Initially, the hypothesis test we were going to use was a Binomial Test to compare the categorical dataset. After a couple trials, we decided that a Chi-Square test would be of better use since we have multiple categories of data we collected and want to analyze.
- Because there are more than two outcomes for each Group, a Chi-Square test seemed a better choice to capture and analyze all probabilities.
- The Chi-Square test takes a contingency table populated with columns for each different condition collected and rows of the different outcomes.
- We will utilize SciPy, a Python tool used for scientific computing and data analysis, to run our Chi-Square test to test for significance, specifically examining the p-value returned from each test.

CHI-SQUARE TEST

Now that we know the results of our Group data, lets test if the percentages we documented in our A/B test data are significant enough to make an informed decision.

Number of Visitors who Picked up an Application

	Application	No Application
Group A	250	2254
Group B	325	2175

- p-value = 0.0009647827600722304
- Since our p-value is less than 0.05 we can conclude that the collected data here is statistically significant

Applicants Who Purchased Memberships

	Membership	No Membership
Group A	200	50
Group B	250	75

- p-value = 0.43258646051083327
- Since our p-value is more than 0.05 we can conclude that the collected data here is NOT statistically significant
- This data could be misleading to the client and should be rejected

Visitors Who Purchased memberships

	Membership	No Membership
Group A	200	2304
Group B	250	2250

- P-value = 0.014724114645783203
- Since our p-value is less than 0.05 we can conclude that the collected data here is statistically significant

QUALITATIVE DATA

We decided to interview a few Visitors who were part of our A/B test. Our test data gave us a view of the factual, numbered data but these interviews gave us a WHY to better understand our results.

Majority of the interviewees described the fitness test as intense and regrettable. These descriptions helped match our assumption that more visitors would purchase membership if they were able to bypass the “intimidating” test.

This data helps match our results of a higher percentage of visitors that were not required to take a fitness tests ending up purchasing a gym membership.

OUR RECOMMENDATION

After analyzing the two groups, we can add factual data to Jane's assumption that fitness tests could be a limiting factor in gym membership.

However, as some visitors seemed to enjoy the fitness test and felt it a good introductory point to joining a gym, we would recommend that instead of getting rid of it all together, MuscleHub should make it an optional part of the membership process.