

Capstone Project

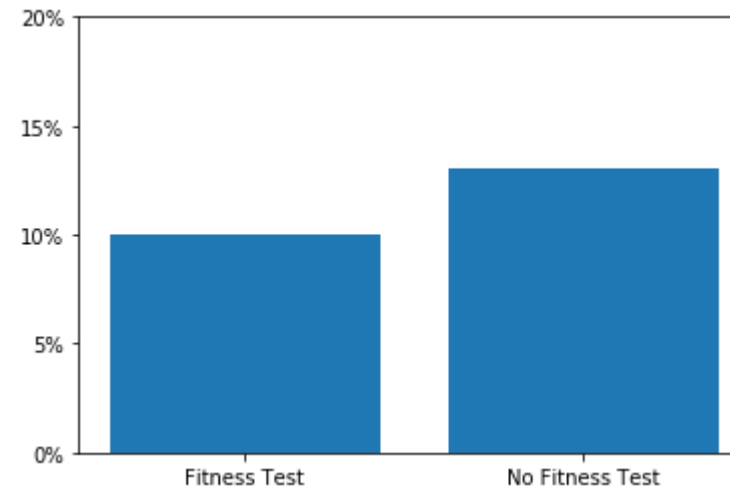
Musclehub A/B test

Description

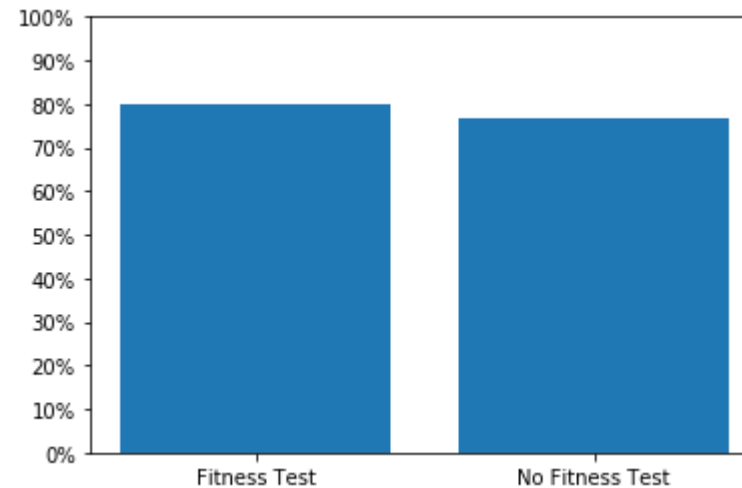
- An analysis was performed to determine if being required to take a fitness test deterred potential members from purchasing a membership.
- The null hypothesis is that, there is no significant difference in those who purchase membership regardless if they take a fitness test or not.
- To test the hypothesis an A/B test was performed with group A being subject to a fitness test and group B not. The number of people in both groups was approximately 50%.
- For this analysis we require a confidence of 95% in order to accept the null hypothesis-
 $p\text{-value} < 0.05$
- 4 datasets
 - Visits – information on all potential customers who visited musclehub
 - Applications – information on everyone who filled out an applications
 - Purchases – information on who purchased a membership
 - Fitness_tests- information on customers in group A who were given a fitness test.
- Columns from the four datasets were merged to create a dataframe used for the analysis.

Results

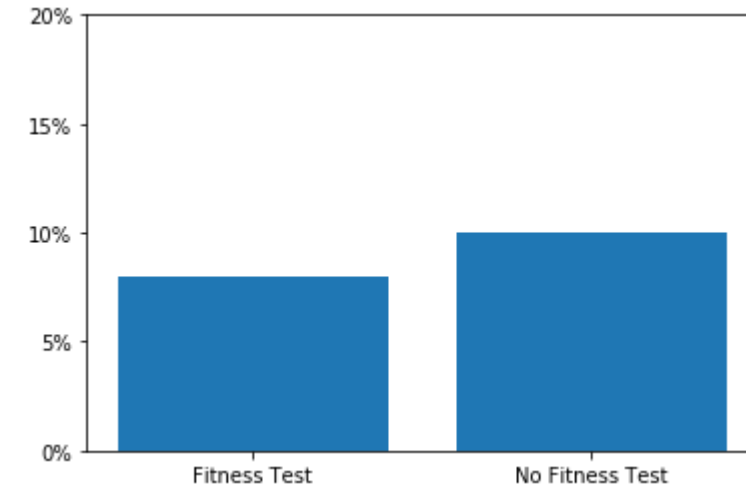
- The three plots on the right show the results of the three hypothesis tests ran to determine:
 - The percent of total visitors who applied for membership
 - The percent of those people who applied who went on to purchase membership
 - The total percentage of visitors to purchase a membership
- As seen in the bar plots there is a difference between the two groups, to determine if this difference was significant enough for us to reject the null hypothesis a Chi Square test was used.
- Chi Square test is designed to analyze categorical data and is intended to test how likely it is that an observed distribution is due to chance. This would be indicated by a p-value less than 0.05



Percent Visitors who apply
Pval = 0.001



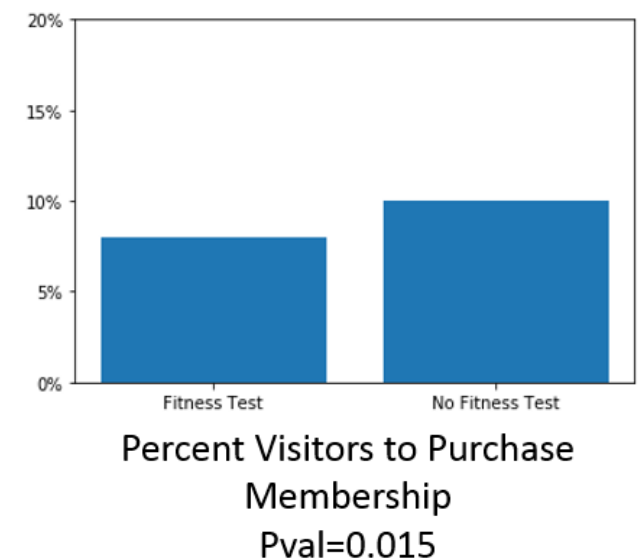
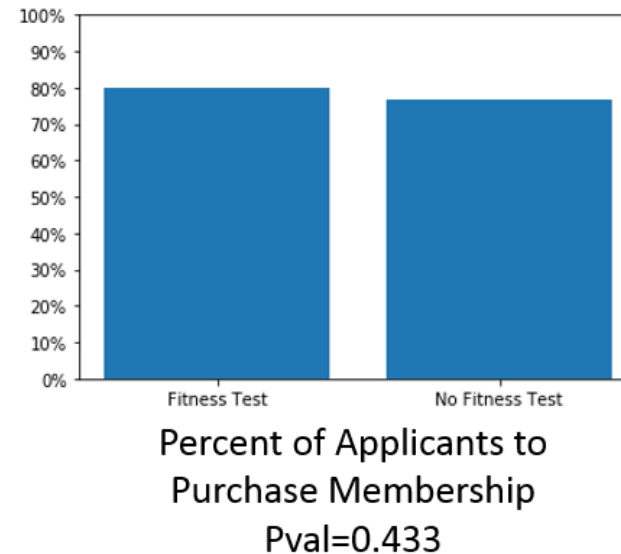
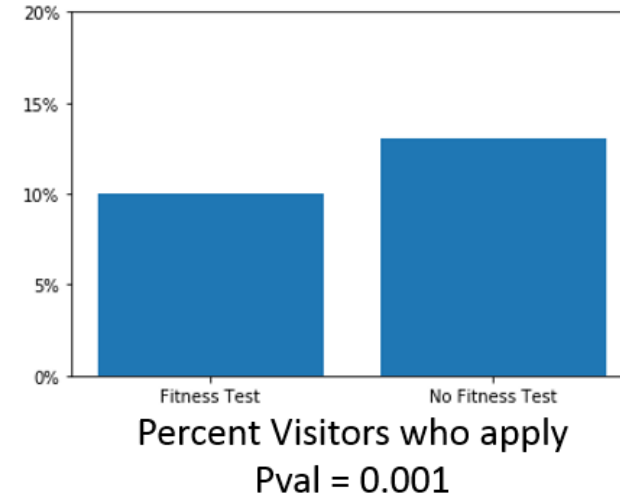
Percent of Applicants to
Purchase Membership
Pval=0.433



Percent Visitors to Purchase
Membership
Pval=0.015

Results

- The conclusion can be made that based on the p-values the following is true:
 - The null hypothesis can be rejected there is correlation between those who visit and don't take a fitness test and them becoming members
 - For percent of applicants who purchase membership, we can not reject the null hypothesis. It can be concluded that there once a visitor fills out an application their likelihood of joining is not affected by whether they took a fitness test or not. It also may be concluded that if an application is filled out the visitor is likely to join based on the bar plot
 - Percent of total visitors to purchase membership shows the null hypothesis can be rejected. The increased number of membership purchases is related to not having taken a fitness test



Recommendation

- Based on the results I'd recommend that the fitness test not be given to clients.