MuscleHub
Python IDA capstone project

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A/B test

Starting from a comprehensive database with data from different steps of customers' recruitment, this project sought for testing how a fitness test proposed to the new visitors may influence the purchase of the membership.

The test consisted in having one group who were given a fitness test (group A), and a second group where this test was absent (group B).

Dataset and background

The dataset comprised four tables with complementary information:

- visits: information about visitors (potential customers);
- fitness_tests: information from group A (those who were given a fitness test);
- applications: information about potential customers (both groups) who filled and application;
- purchases: information about customers who purchased a membership.

The different tables included all the necessary elements and could be joined to obtain a suitable dataset for the analysis (df).

It was necessary to identify the target customers by defining the effective members and their group of origin.

The size of both groups was similar.

Hypothesis test #1

Percentage of applicants between groups

The first hypothesis test focused on the differences between the percentage of applicants in each group.

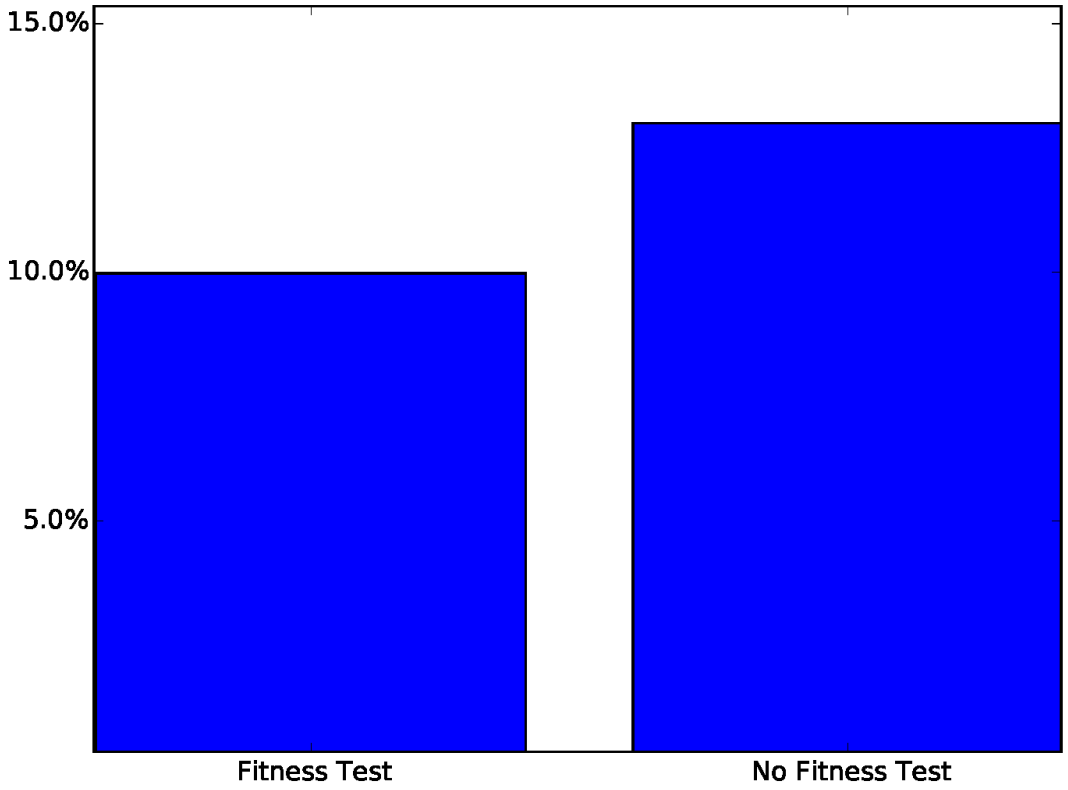
Group B had a higher rate of applications when compared with A (see figure next slide)

The difference was statically significant (pval = 0.0009648).

The Chi-Square test was chosen to evaluate this hypothesis. It was adequate to the situation since we had two categorical datasets (Group A or B; application or no application). The same rationale is applicable to the other tests.

Hypothesis test #1

Percentage of applicants between groups



Hypothesis test #2

Percentage of membership between groups (for those who filled an application)

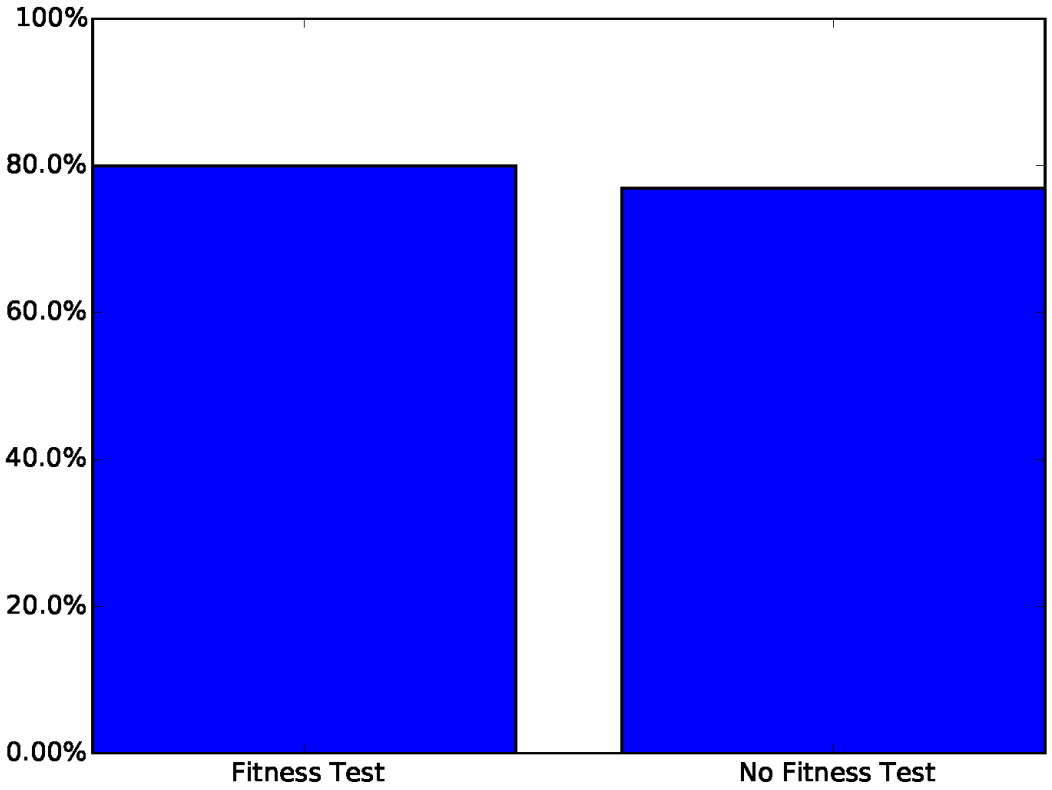
The second hypothesis test focused on the differences between the percentage of membership in each group for those who filled an application.

Group A had a higher conversion rate of applications to membership when compared with B (see figure next slide)

The difference was not significant (pval = 0.4326).

Hypothesis test #2

Percentage of membership between groups (for those who filled an application)



Hypothesis test #3

Percentage of membership between groups (for all visitors)

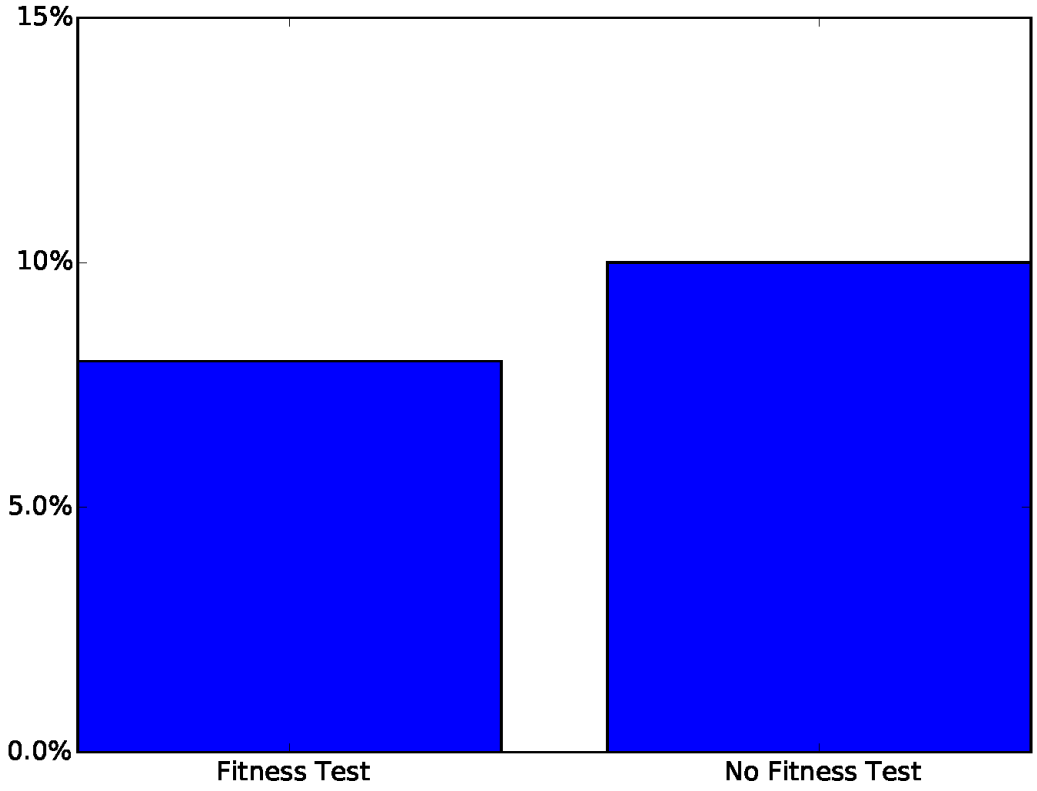
The third hypothesis testing focused on the differences between the percentage of membership among the different groups. In contrast to the previous test, this one considered all visitors and not only those who filled an application.

Group B had a higher rate of applications when compared with A (see figure next slide)

The difference was significant (pval = 0.01472).

Hypothesis test #3

Percentage of membership between groups (for all visitors)



Qualitative data

The qualitative data is ambiguous though the sample is very small to take any definite conclusion. Nevertheless, it seems that the intensity of the fitness test is the key to engage new customers. A bad experience in the fitness test is quite likely to decrease the membership conversion.

Recommendation for MuscleHub

Giving an opportunity to show the product (in this case a service) to the customer is always a good opportunity to make some difference among the competitors. In this particular study, the inclusion of a fitness test did not increase the conversion rate in memberships. From the analysis of the qualitative analysis, we may notice that intensity of the test may an issue that prevent the conversion of the application into a membership. However, we also found applicants that enjoyed the test when compared with other competitors.

In summary, the fitness test did not increase the conversion rate in this experiment. However, from the remarks of some customers, it could be possible to say that a tailor-made fitness test may increase the engagement with Muscle Hub and probably have a positive effect in getting new customers. So a new A/B test with a customized fitness test is recommended.