MUSCLEHUB DATA ANALYSIS

Findings and recommendations based on Janet's A/B test

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INTRODUCTION

Janet, manager at MuscleHub Gym, ran an A/B test to determine under which scenario more memberships could be sold.

The first scenario is to get prospective members to complete a fitness test prior to submitting an application for membership. This was the normal process at MuscleHub prior to the A/B test commencing.

The second scenario is to allow prospective members to submit an applications without first having to complete a fitness test.

Janet was concerned that the fitness test is a deterrent for some people and that they would potentially sell more memberships if they remove it as a prerequisite for membership.

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CHAPTER 1

A/B TEST AT MUSCLEHUB

1.1 Data Summary

	first_name	last_name	gender	email	visit_date	fitness_test_date	application_date	purchase_date
0	Kim	Walter	female	KimWalter58@gmail.com	7-1-17	2017-07-03	None	None
1	Tom	Webster	male	TW3857@gmail.com	7-1-17	2017-07-02	None	None
2	Edward	Bowen	male	Edward.Bowen@gmail.com	7-1-17	None	2017-07-04	2017-07-04
3	Marcus	Bauer	male	Marcus.Bauer@gmail.com	7-1-17	2017-07-01	2017-07-03	2017-07-05
4	Roberta	Best	female	RB6305@hotmail.com	7-1-17	2017-07-02	None	None

Figure 1.1 Core Joined Data Table

MuscleHub maintains their data in multiple tables.

1. Visits, containing data of people who have visited the gym.
2. Fitness tests, with data of who completed fitness tests.
3. Applications, with data of people who submitted applications.
4. Purchases, containing data of who purchased a membership

For the purpose of this exercise only the essential data from the above tables were used by joining important columns together into a new dataframe (see Figure 1.1).

1.2 A/B Test Details

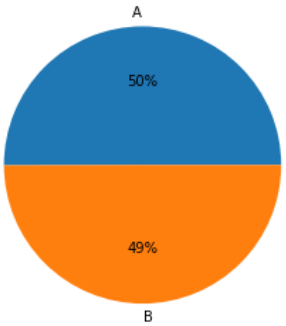

Figure 1.2 Data Process

As shown in Figure 1.2 Janet ensured that sample sizes for group A (Fitness Test) was nearly identical to group B (No Fitness Test). The total sample size for the A/B test since 7-1-17 was 5004 people.

1.2.1 Hypothesis Test One: Percentage of Visitors to submit an application

The results showed (see figure 1.3) that of the 2504 visitors that did a fitness only 250 (9.98 percent) applied for a membership. This is significantly lower than applications received from the 325 (13 percent) of visitors who did not take the fitness test.

The p-value produced by the Chi-Square test confirmed that the difference was significant with a p-value of 3.5 percent.

1.2.2 Hypothesis Test Two: Percentage of applicants to purchase a membership

The results showed (see figure 1.4) that of the 250 applicants that did a fitness 200 (80 percent) purchased a membership. This is not significantly different than the 250 memberships purchased by the 325 (76.9 percent) of applicants who did not take the fitness test.

The p-value produced by the Chi-Square test confirmed that the difference was not significant with a p-value of 43.3 percent.

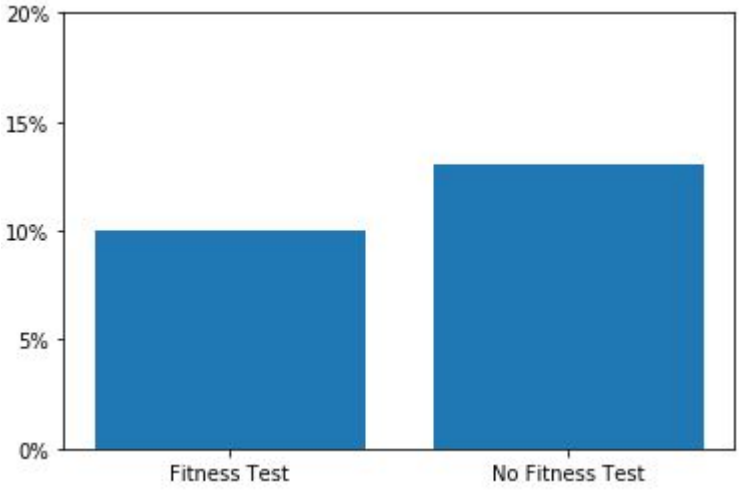

Figure 1.3 Percentage of visitors to apply

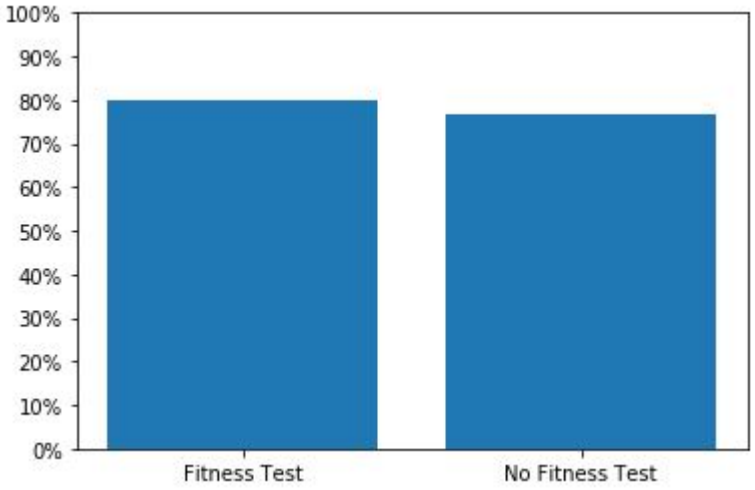

Figure 1.4 Percentage of applicants to purchase

1.2.3 Hypothesis Test Three: Percentage of Visitors to purchase a membership

The results showed (see figure 1.5) that of the 2504 visitors that did a fitness 200 (7.98 percent) purchased a membership. This is significantly different from the 250 memberships purchased by the 2500 (10 percent) of applicants who did not take the fitness test.

The p-value produced by the Chi-Square test confirmed that the difference was not significant with a p-value of 1.47 percent.

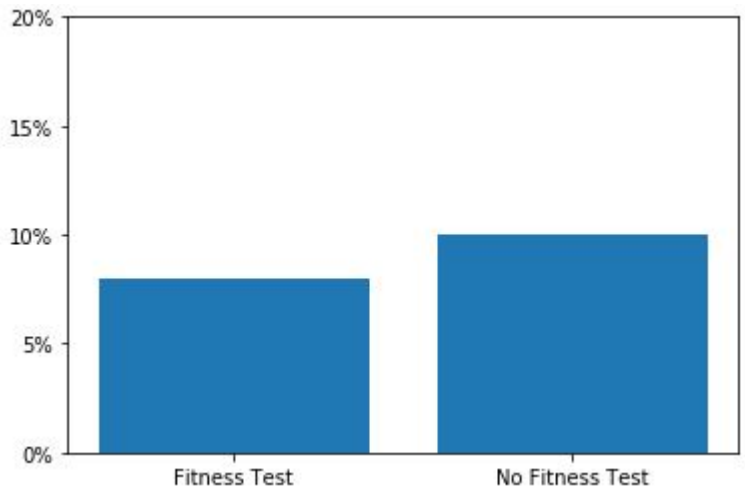

Figure 1.5 Percentage of visitors to purchase

1.2.4 Summary of qualitative data

The feedback received from selected individuals around the effect of the fitness test is mixed. Some appear to appreciate it but the overall impression is that it is too confronting and full on for people starting out. The sample for our qualitative data is very small so it should not be relied upon extensively. It does however, seem to explain some of what the data shows.

1.3 Conclusion and Recommendation

The following table sets out my conclusion based on the findings of the analysis performed:

fitness test or no fitness test	Justification
fitness test	The fitness test seems to put more people off rather than attract them. However, the conversion rate from application to purchasing a membership is higher among those who have completed a fitness test. This is probably because of the personal relationship and commitment that was developed between the visitor and the personal trainer during the fitness test.

fitness test or no fitness test	**Justification**
No Fitness test	The easy and non-confrontational option seems to lead to the higher conversion rate from visit to purchasing a membership. We have not measured whether this higher conversion rate correlates to new members actually go to the gym or if they just send the money. However from a business perspective, as long as the membership fees keep rolling in over the longer term (i.e. they don't quit after not actually coming to the gym after becoming members) this seems to the better option.

Table 1.1: Conclusion

Final comments

Based on the information in table 1.1, Janet should try to make the fitness test optional in future. This will capitalise on the higher conversion rate from application to purchase for those who do the fitness test and capitalise on the higher conversion rate from visit to purchase for those who choose not to do the fitness test.