Musclehub:
To Fitness Test or Not to Fitness Test

An A/B Analysis of Musclehubs induction process

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Executive Summary

- I tested whether having a fitness test during the gym application process had an impact on the percentage of people who became members.

- The conclusion was removing the fitness test increased the overall percentage of visitors who became members.

- It also increased the likelihood of visitors making an application.

- Once the application was made, it was more likely that those who took the fitness test would go on to become members. However, the difference was not statistically significant.

			A				
			50.04%				
			49.96%				
			B				

Summary of the dataset

- We had 4 tables in the SQL database, each table equated to a different stage in the application process.

- We merged all 4 tables, to create 1 large dataframe called df. **See the bottom left for a sample**.

- We only looked at data from 7-1-17 and after.

- We performed our analysis on the merged dataset named df.

- 2504 people were assigned to the fitness test group - group A

- 2500 people were assigned to non fitness test group – group B – **See top left for a visual representation of the A/B split**.
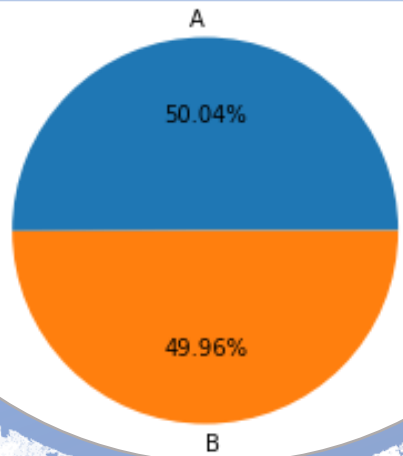
first_name	last_name	gender	email	visit_date	fitness_test_date	application_date	purchase_date
Kim	Walter	female	KimWalter58@gmail.com	7-1-17	2017-07-03	None	None
Tom	Webster	male	TW3857@gmail.com	7-1-17	2017-07-02	None	None
Edward	Bowen	male	Edward.Bowen@gmail.com	7-1-17	None	2017-07-04	2017-07-04

Hypothesis Test 1

- When looking at the number of visitors from group A & B who went on to make an application we find that group B (the non fitness test group) performed better than group A. 13% of group B made an application compared to group A's 10%.
- I wanted to examine whether this difference is statistically significant, so I completed a Chi Square Test. The conclusion was that the difference is statistically significant.
- P Value = 0.00096
- It would seem that people are more likely to make an application if there is no fitness test involved.

Applicants from Group A & B

is_application	ab_test_group	Application	No Application	Total	Percent with Application
0	A	250	2254	2504	9.98
1	B	325	2175	2500	13.00

Applications A/B Test
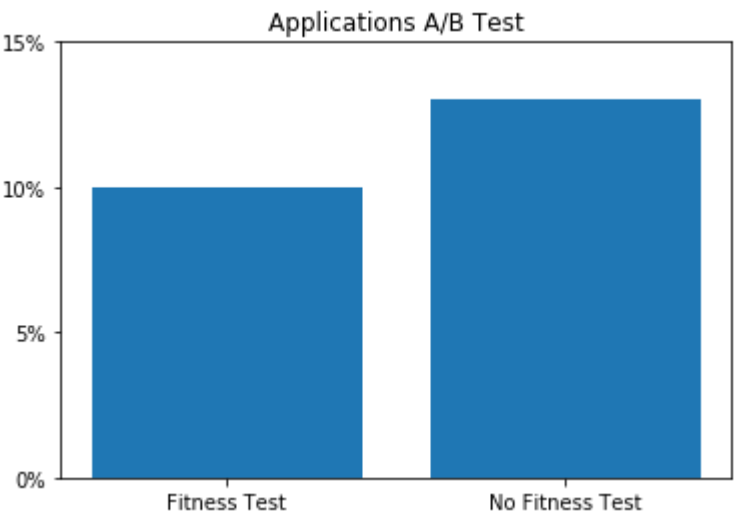
Hypothesis Test 2

- The second test I ran was to analyse the difference between applicants from both groups and whether the fitness test had an impact on people paying to become full members.

- Group A had a higher conversion rate from applicant to member at 80%, compared to group B 76%.

- On the face of it, it would seem beyond the application stage, the fitness test no longer had an impact on people's decision to pay for a membership.

- However, after performing a Chi Square Test, the conclusion was the result was not statistically significant – 0.43

is_member	ab_test_group	Member	Not Member	Total	Percent Purchase
0	A	200	50	250	0.800000
1	B	250	75	325	0.769231
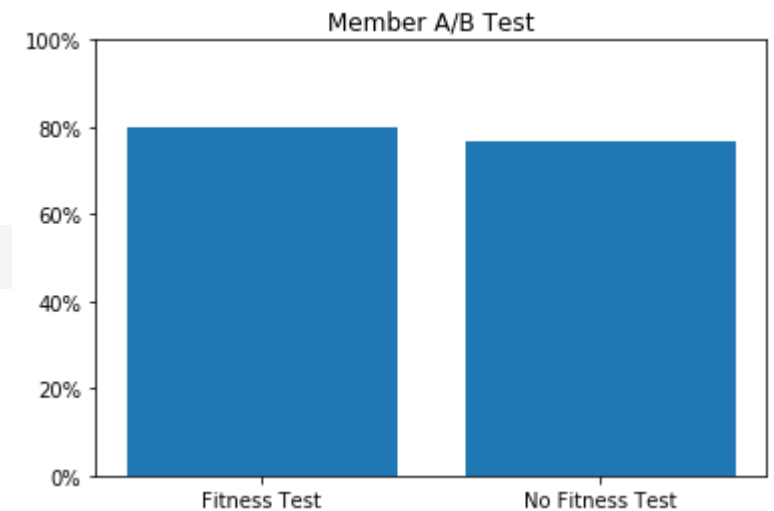
Hypothesis Test 3

- For test 3, we wanted to analyse the percent of visitors from each group who went on to become members.

- Group B appeared to have an advantage, with 10% of all visitors in the non fitness test group becoming members.

- Group A – the non fitness test group – had a 8% conversion rate from visitor to member.

- It would appear that removing the fitness test compenent of the application process, increases the likelihhod of a visitor becoming a paid member.

- I tested these numbers for statistical significance, using a Chi Square Test, the result was 0.014. The difference was statistically significant.

is_member	ab_test_group	Member	Not Member	Total	Percent Purchase
0	A	200	2304	2504	0.079872
1	B	250	2250	2500	0.100000

Final Member A/B Test
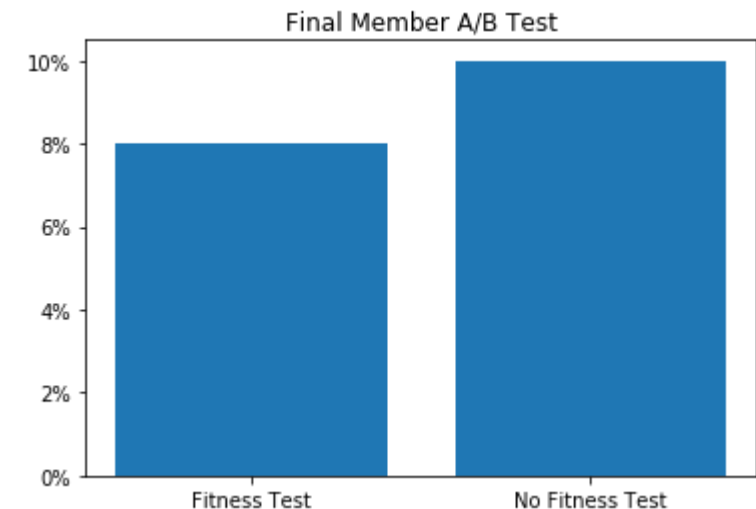
Qualitative data

- The interviews conducted indicated that there was a preference for not having a fitness test.

- Of the 2 who didn't take the fitness test, both showed a preference for not having a fitness test, but only 1 joined.

- Of the 2 who did take the fitness test, only 1 became a member, but the individual who didn't showed a clear dislike for the fitness test.

- It must be noted that only 4 interviews were conducted, so the sample size is very small, and it is quite difficult to draw meaningful conclusions from it. It can be said, however, there was a slight preference for the not having a fitness test.

Conclusion and next steps

- The analysis conducted, clearly shows that removing the fitness test component of the application process increases the likelihood of a visitor becoming a member.

- However, my recommendation would be to test a new hypothesis:

- Giving visitors the choice between having a fitness test and not having one. Doing so, I believe, will increase the number of people who become members.

- My logic is that there are some people who do indeed like the fitness test, so allowing the option may capture some visitors who would prefer the option.

- The test would place people in 2 groups:

- Group A – No fitness test

- Group B - Optional fitness test