

MUSCLEHUB A/B TEST

INTRODUCTION TO DATA ANALYSIS

CLASS OF 19TH DEC 2017

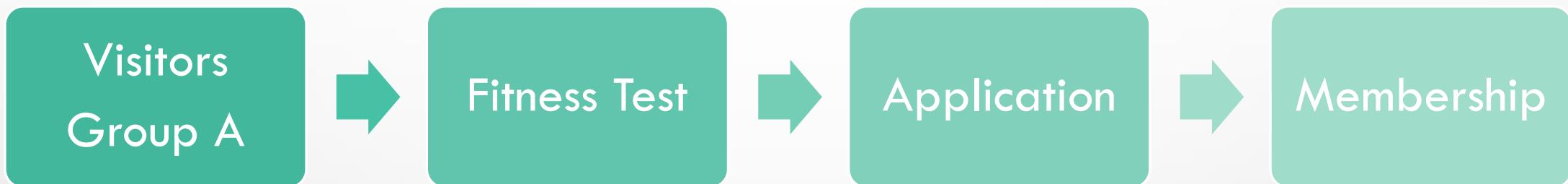
CODECADEMY INTENSIVE

BY JUSTIN CHING

DATE OF SUBMISSION: 17TH MARCH 2018

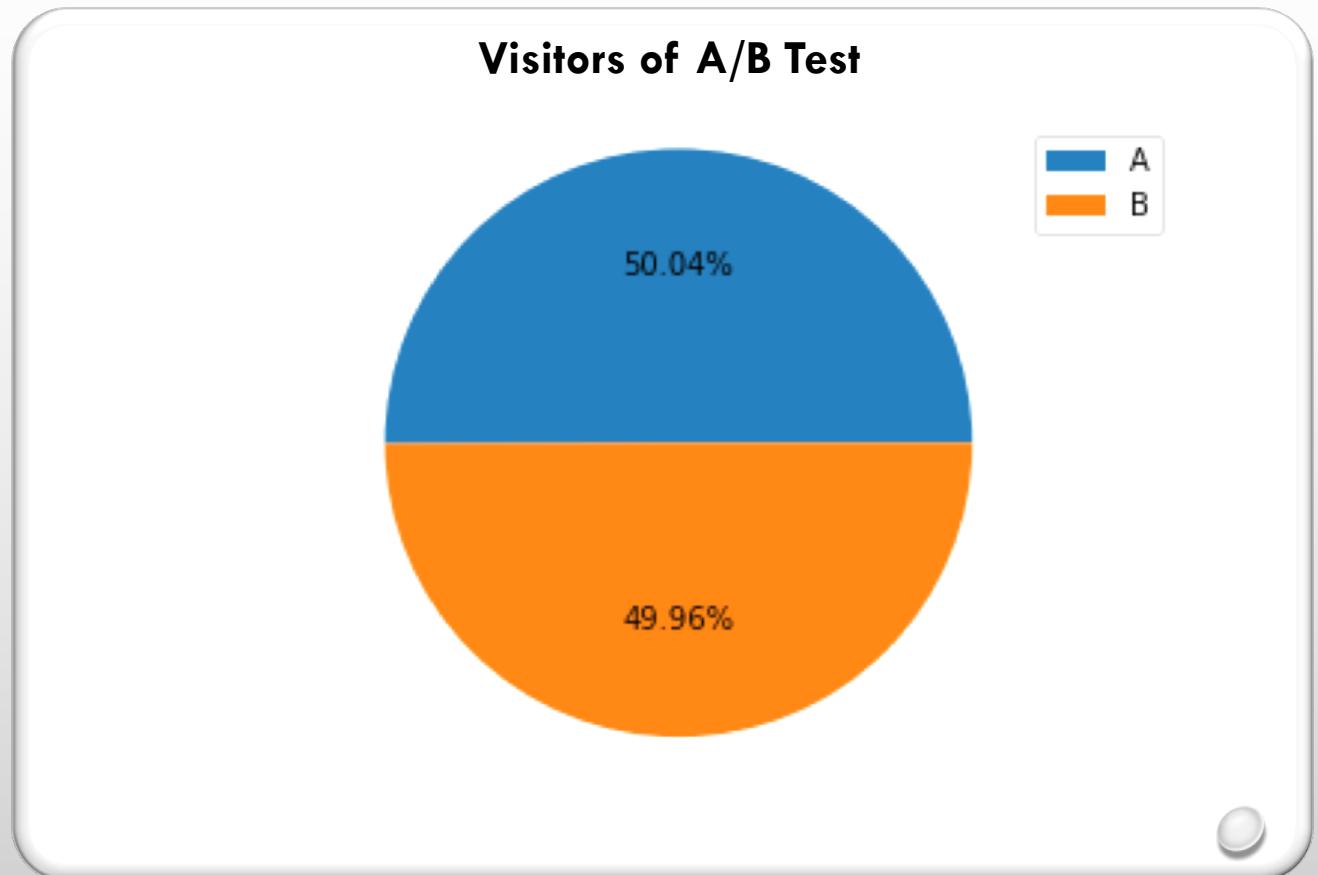
MUSCLEHUB A/B TEST

In this A/B test, visitors to Musclehub, a fancy gym, will be categorized into two groups. Group A take a fitness test with a personal trainer, and then fill out an application for the gym and eventually subscribe to the membership. For Group B, visitors skip the fitness test and proceed directly to the application.



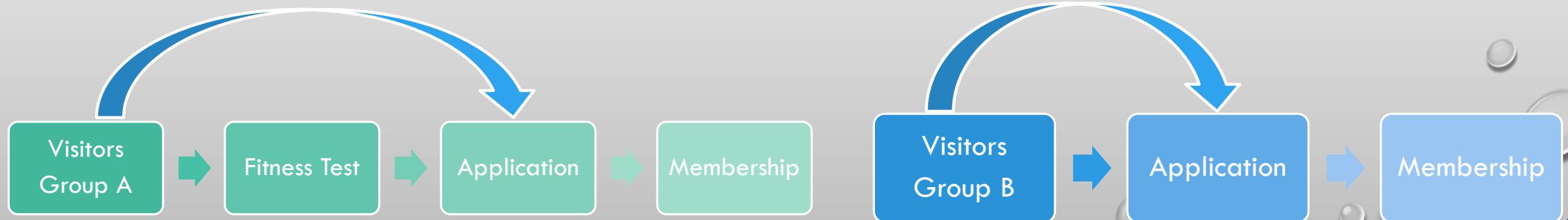
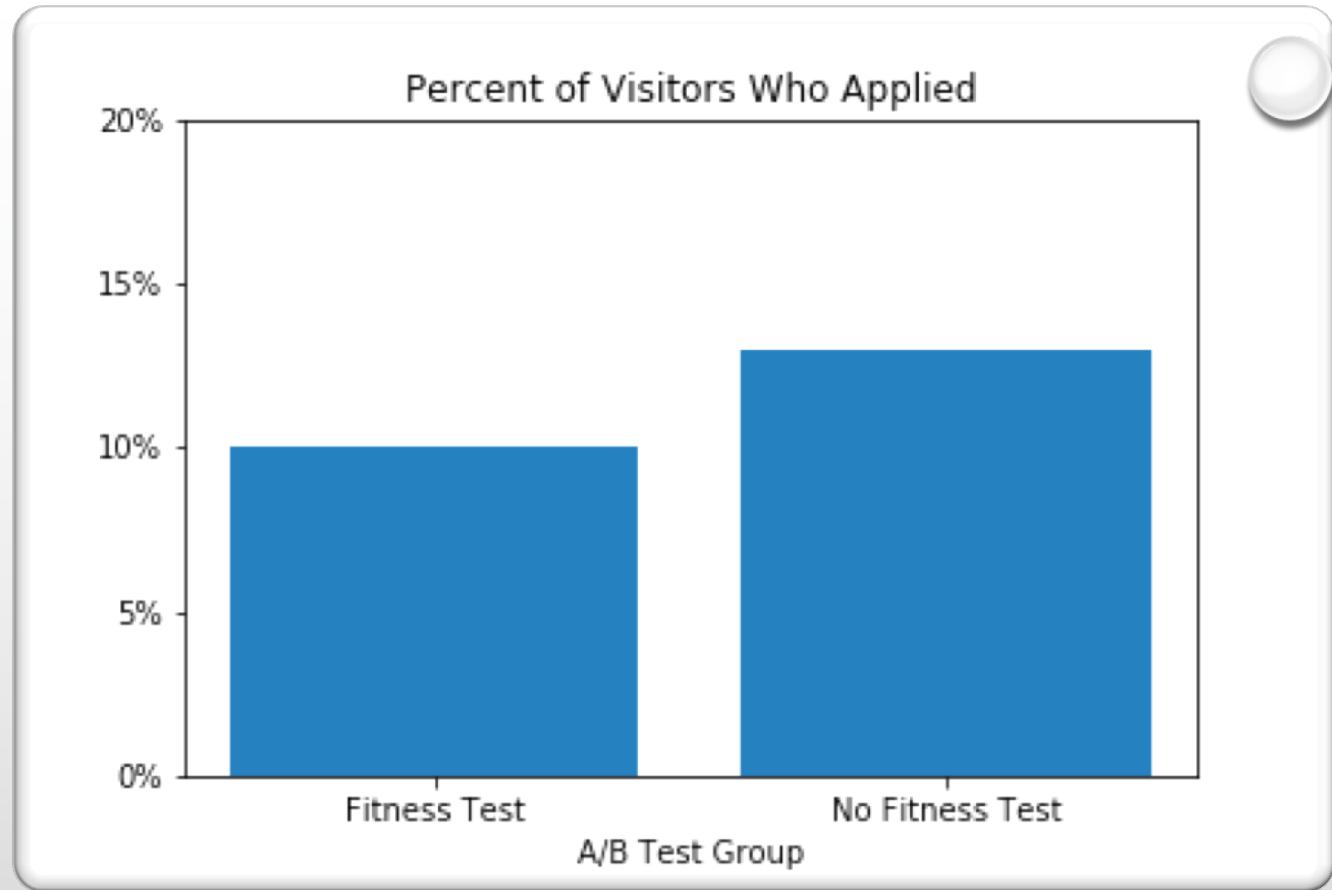
SUMMARY OF DATASETS

There are in total 5004 visitors included in the A/B test, with half of them in group A and half in group B.



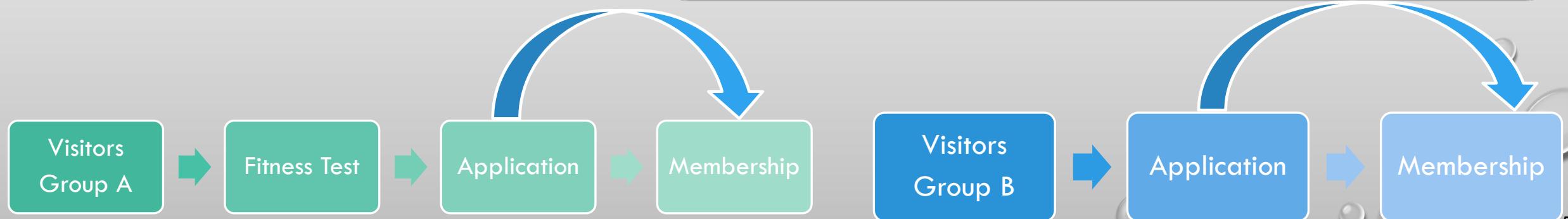
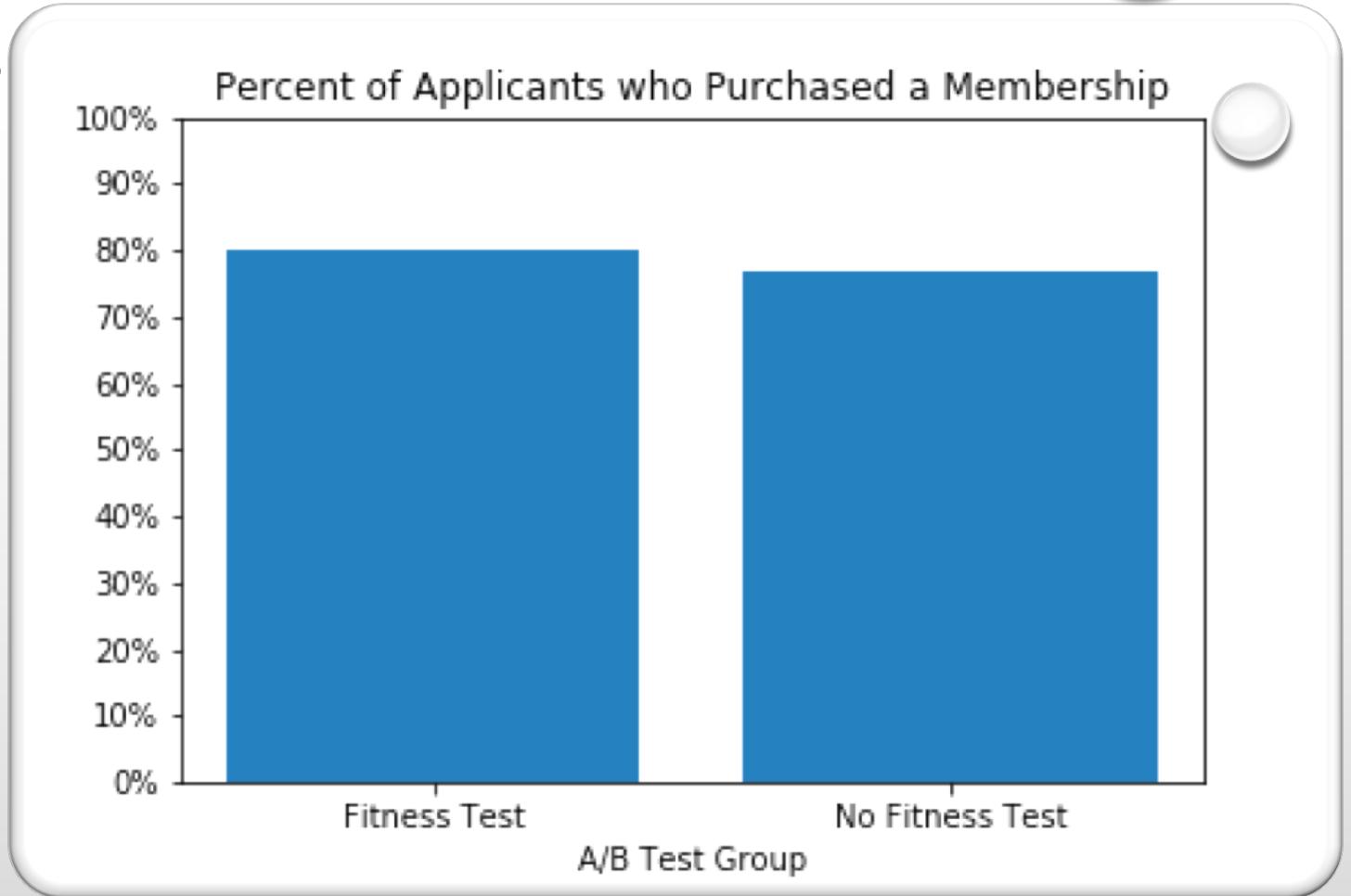
SUMMARY OF DATASETS

10% visitors in Group A picked up an application, whereas in Group B 13% applied.



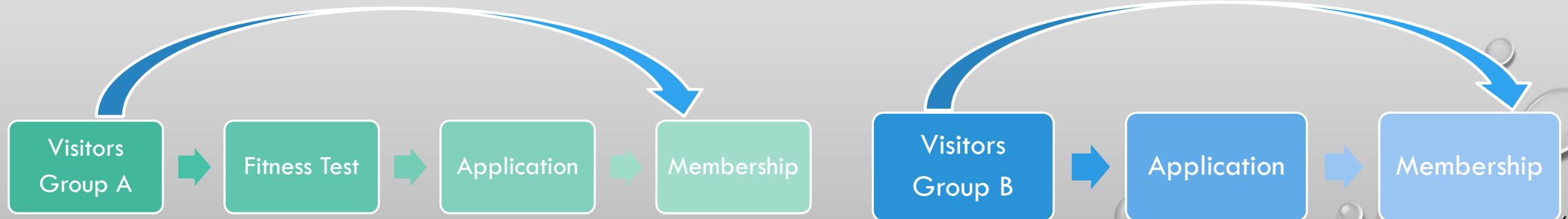
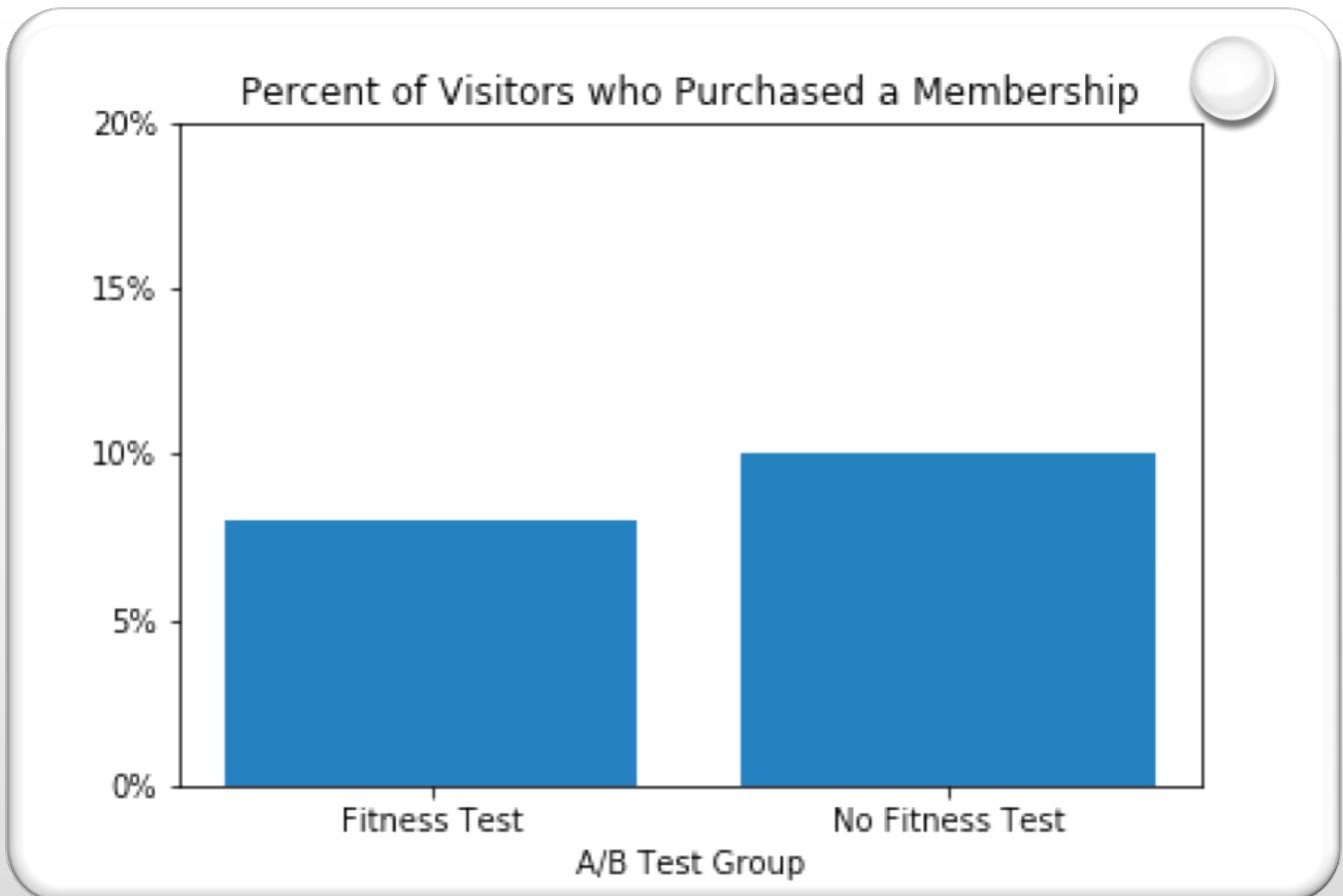
SUMMARY OF DATASETS

- Of those who picked up an application, Group A and Group B have 80% and 76.9% purchase rate respectively.



SUMMARY OF DATASETS

The overall purchase rate is 8% and 10% respectively for Group A and B.



RATIONALE OF HYPOTHESIS TESTS

Although the past three pages showed that one group may be performing better than the other one, we need to prove if there is a statistical difference between the two.

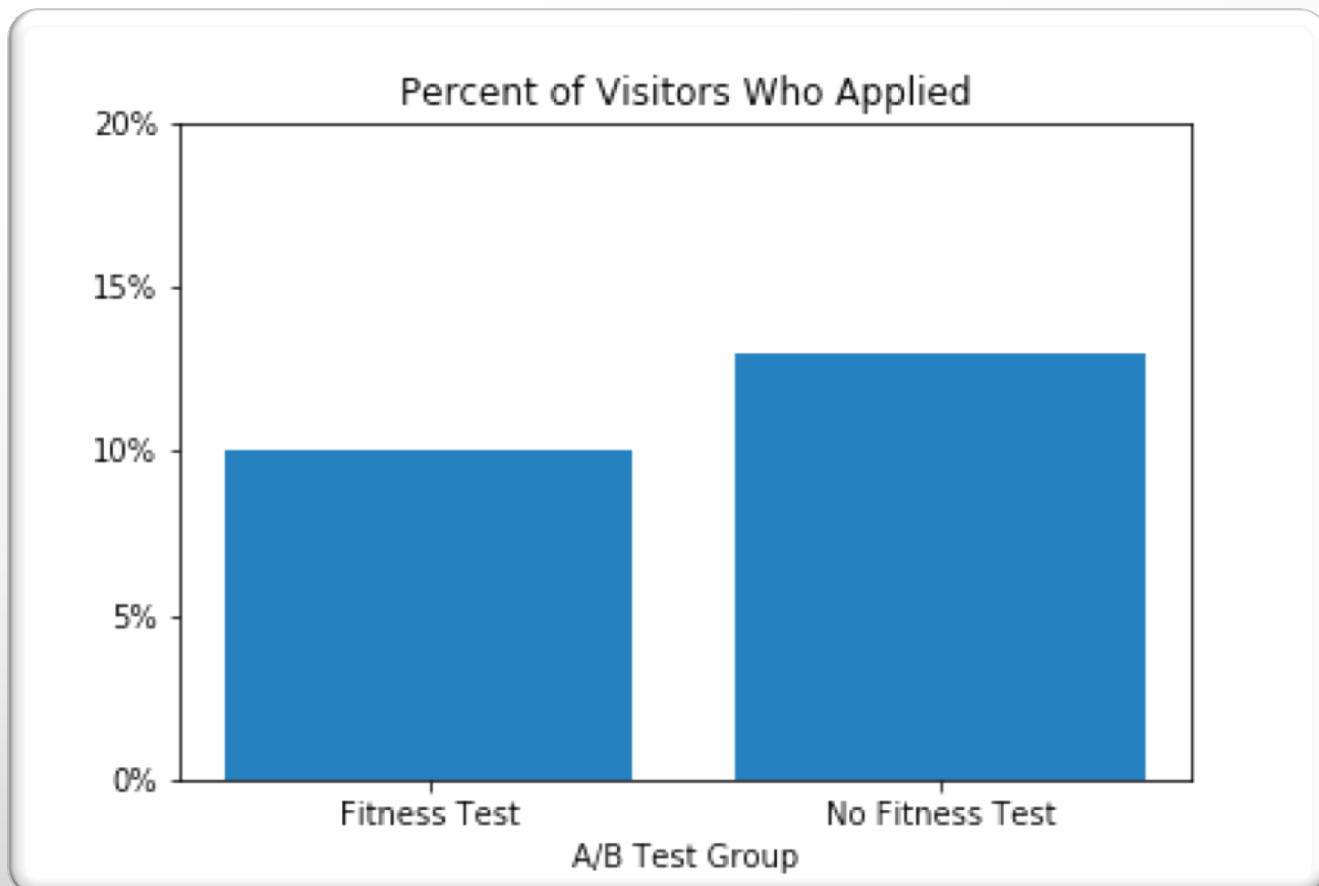
To analyse if there is any significant difference between two categorical datasets, we need to employ Chi Square test.

RESULTS OF HYPOTHESIS TESTS

| Application | No Application |
|-------------|----------------|
| 250 | 2254 |
| 325 | 2175 |

Back to the first datasets, with the raw data above, we ran the Chi Square test and resulted in a p-value of 0.096%.

The null hypothesis was rejected, indicating there is a significant difference between the two datasets.

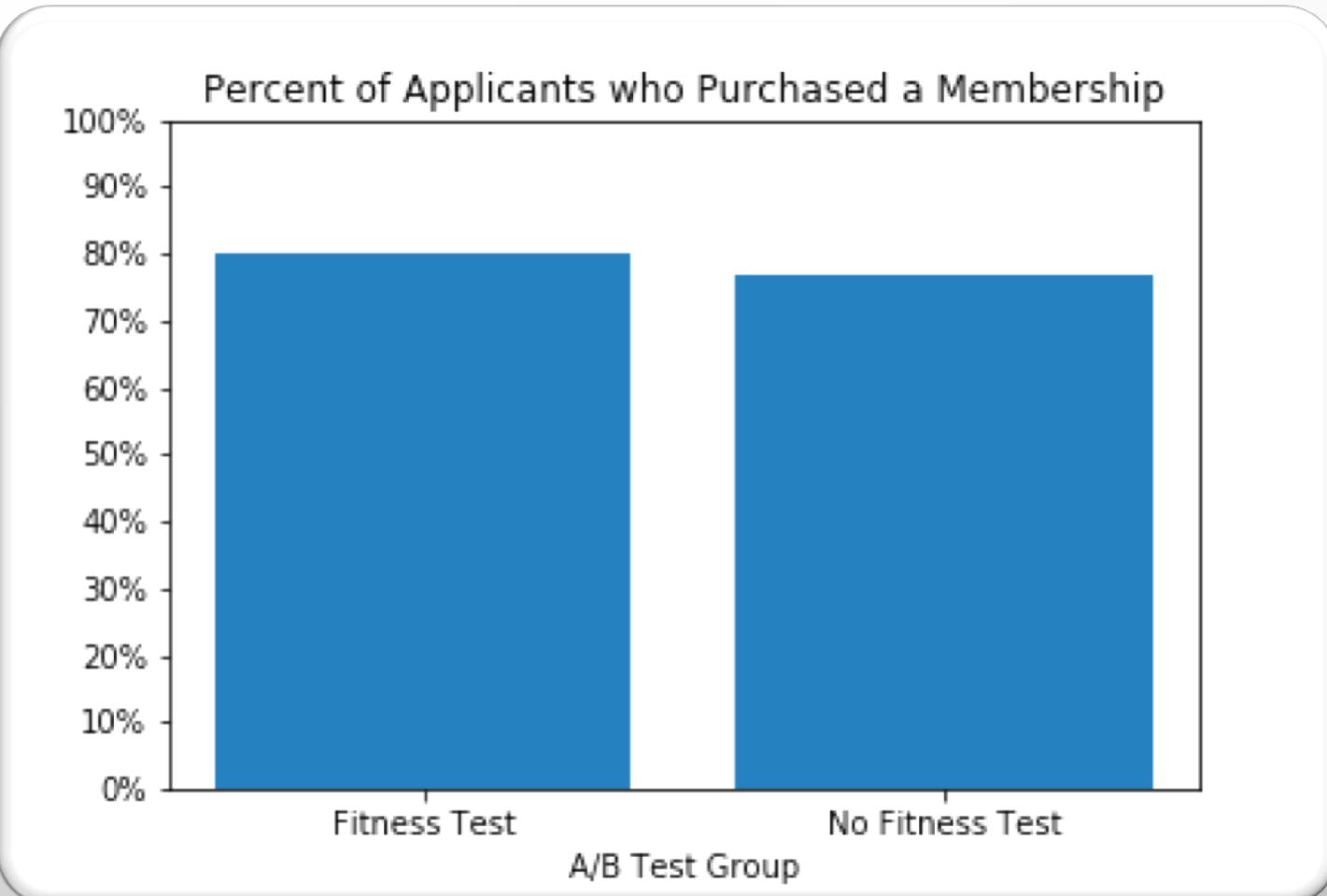


RESULTS OF HYPOTHESIS TESTS

| Member | Not member |
|--------|------------|
| 200 | 50 |
| 250 | 75 |

In our second datasets, with the raw data above, we ran the Chi Square test and resulted in a p-value of 43.3%.

The null hypothesis was *not* rejected, indicating there is no statistical difference between the two datasets.

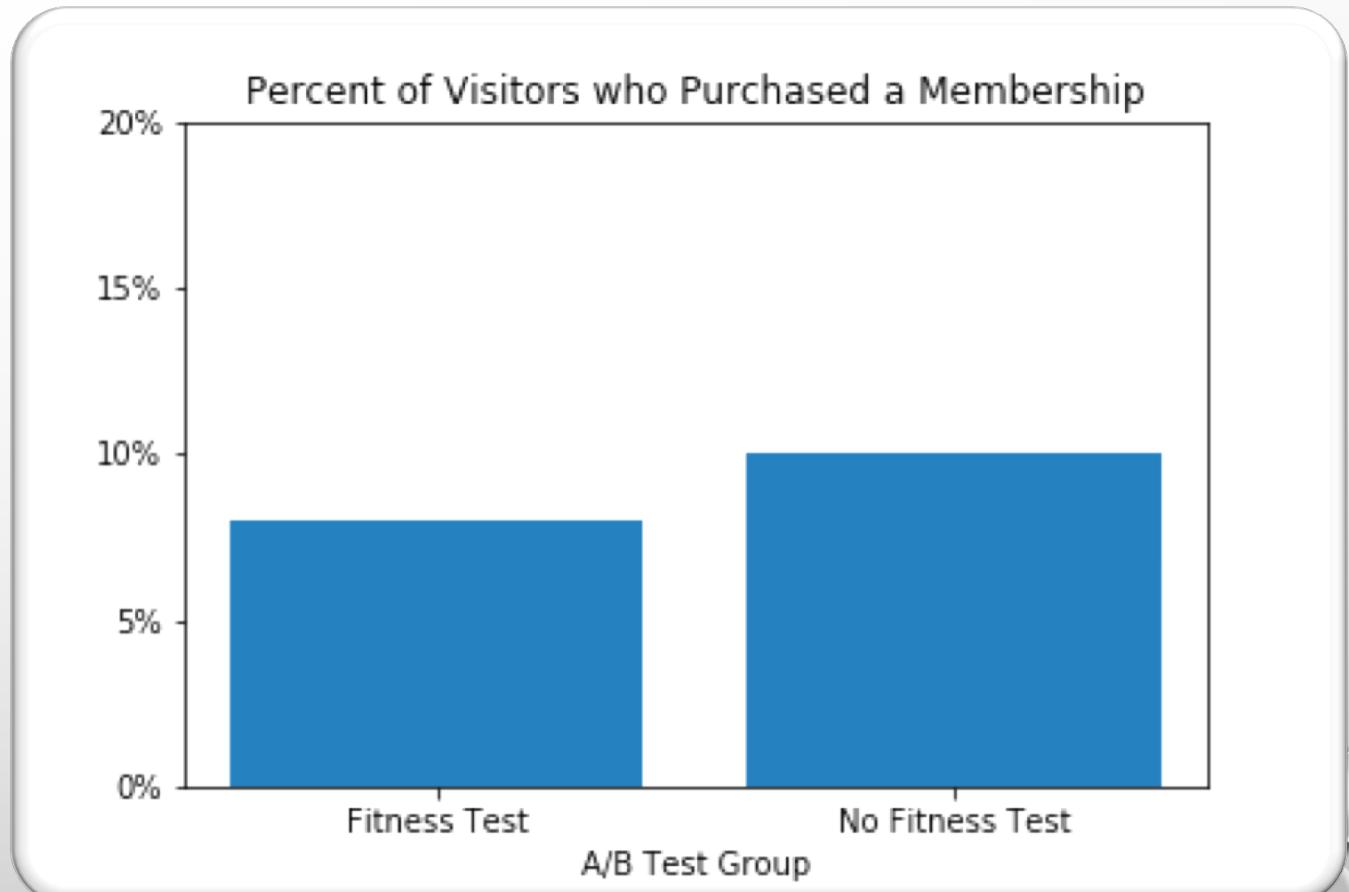


RESULTS OF HYPOTHESIS TESTS

| Member | Not member |
|--------|------------|
| 200 | 2304 |
| 250 | 2250 |

In our final datasets, with the raw data above, we ran the Chi Square test and resulted in a p-value of 1.47%.

The null hypothesis was rejected, indicating there is a significant difference between the two datasets.



SUMMARY OF THE QUALITATIVE DATA

The interviews have provided some useful findings:

- Fitness test might be intimidating to some customers, though some people may enjoy it.
- Some visitors had bad experiences with fitness tests in our major competitor LiftCity.
- Forcing a fitness test could be overly intense to potential customers.
- Forcing a fitness test could create a ‘hard-sell’ feeling towards potential customers.
- Without a mandatory fitness test, customers are more comfortable to make applications.

RECOMMENDATIONS FOR MUSCLEHUB

In our quantitative research, it is shown that the group without fitness test has a higher conversion rate from visitors to membership. Our qualitative study also suggests that forcing a fitness test could be detrimental to recruiting new members. In particular, it is reported that some customers had unpleasant experiences with fitness test in our competitor.

Therefore, it is recommended that Muscle Hub should make fitness test an option to new visitors. If customer sign up directly, there is no need to mention anything about the test. Else, if the customer is indecisive whether or not to make an application, we could suggest he/she trying out our fitness test, which could potentially converse to a membership if they enjoyed the process.