# Analysis of MuscleHub Data

CODECADEMY | CAPSTONE PROJECT

BY CHRISTIAN HELFERS, MARCH 2017

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# Task

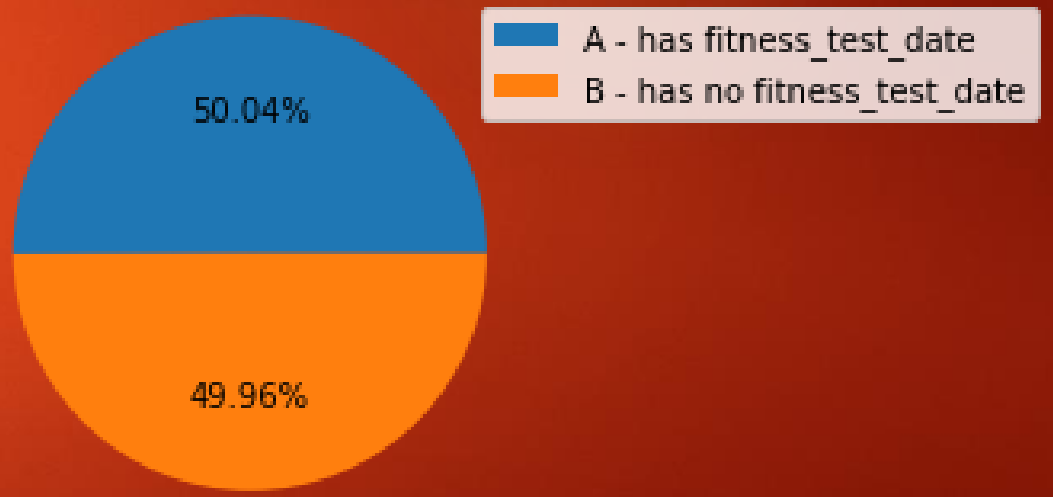
- The goal is to gain insight into the marketing funnel of a gym with special focus on the influence of „taking“ or „not taking“ a fitness test.


- Visitor‘s of MuscleHub who consider buying a membership, he or she follows these three steps:
- (1) Take a fitness test with a personal trainer
- (2) Fill out an application
- (3) Send in their payment for their first month's membership
- **Hypothesis**: the fitness test intimidates some prospective members and therefore will make purchasing a membership to MuscleHub more unlikely.

# Method 1
# A/B Test

- To investigate the influence of the „fitness test" on the membership process an **A/B Test** is conducted
- "A/B testing is a way to compare two versions of a single variable typically by testing a subject's response to variable A against variable B, and determining which of the two variables is more effective" - (Wikipedia)
- Visitors were randomly assigned to either of these two groups
- (1) Group A: has a fitness test
- (2) Group B: has no fitness test

- The analysis was conducted on **5.004 visitors (N)** with a visit_date >= 01.07.2017
- Sample distribution per A/B Group:

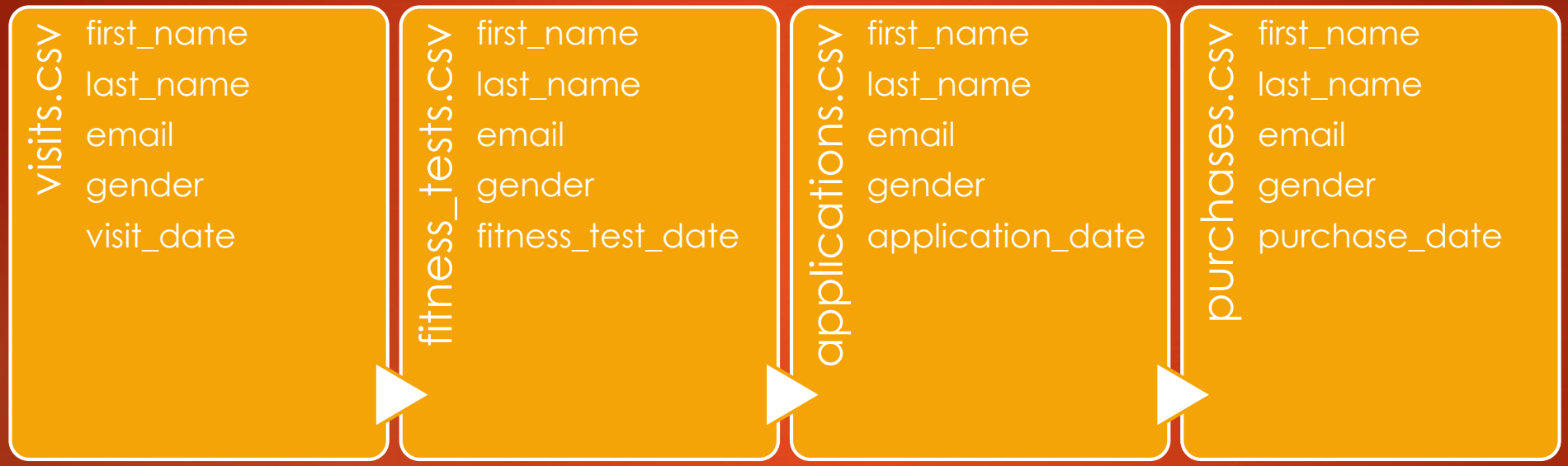


# Method 2
# Chi Square Test

- A chi-square test for independence compares two variables in a contingency table to see if they are related.
- A **very small chi square test statistic** means that your observed data fits your expected data extremely well. In other words, there is a relationship.
- A **very large chi square test statistic** means that the data does not fit very well. In other words, there isn't a relationship.

- **Three** hypothesis (H0) were tested:
- (1) The percentage of applicants doesnt depend on A/B group!
- (2) The percentage of applicants who buy a membership doesnt depend on A/B group!
- (3) The percentage of visitors who buy a membership doesnt depend on A/B group!
- We reject the hypothesis (H0), and state that there is a significant difference between two groups if we get a p-value less than 0.05

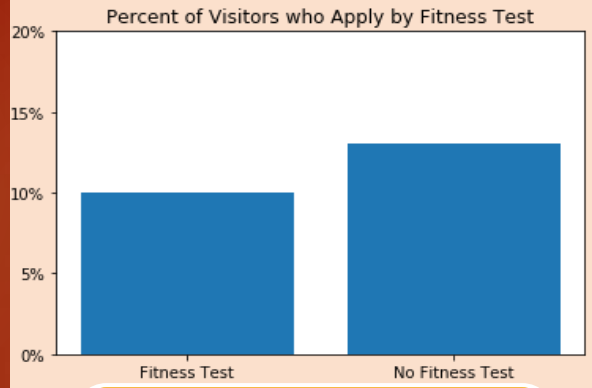
# Quantitative data 1
# four csv-files – one per funnel stage




| A/B Group Counts | Visitors | Testtakers | Applications | Membership |
|---|---|---|---|---|
| A | 2.504 | 2.504 | 250 | 200 |
| B | 2.500 | - | 325 | 250 |

# Quantitative data 2
# results of the three hypothesis tests

H0: The percentage of applicants doesnt depend on A/B group!

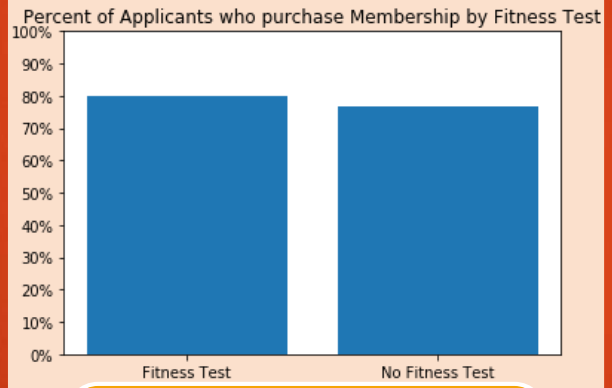



**P-value: 0.001**

**H0 is rejected !**

**There is a signifcant difference in the groups**

H0: The percentage of applicants who buy a membership doesnt depend on A/B group!

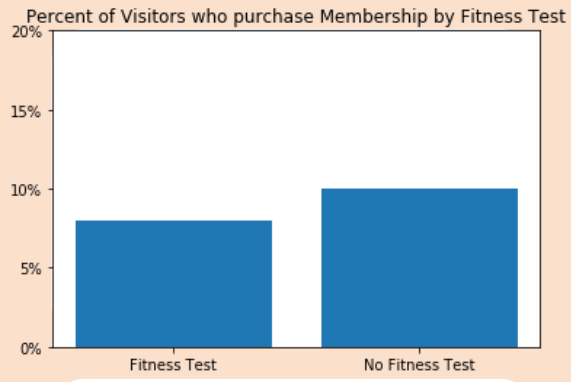



**p-value: 0.432**

**H0 cannot be rejected !**

**There is no signifcant difference in the groups**

H0: The percentage of visitors who buy a membership doesnt depend on A/B group!




**p-value: 0.015**

**H0 is rejected !**

**There is a signifcant difference in the groups**

# Qualitative data
# Interviews of 4 visitors

| ID, Gender, Age, From | Took fitness-test ? | Got Membership ? | Reasons? |
|---|---|---|---|
| 1, Female, 23, Hoboken | Yes | Yes | Desire to improve and likes the personal trainer |
| 2, Male, 35, Gowanes | No | No | Lack of cleanliness of training equipment |
| 3, Male, 26, Brooklyn | Yes | No | Disliked the fitness-test |
| 4, Female, 22, Williamsburg | No | Yes | fast application process, no tiresome fitness-test |

- The answers don't offer a clear insight into the effect of a fitness-test on the membership process
- There seems to be an interaction with other latent variables

# Summary/Recommendations

| | |
|---|---|
| Summary | Taking a fitness-Test has an influence on membership buying (it‘s negative and small) |
| Recommendation | Analyse more data and seek variables (gender, age …) that explain the effect of fitness-test to a higher degree |