MuscleHub A/B Test

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Background

The MuscleHub gym membership application process currently involves all applicants taking a fitness test prior to applying for a gym membership. Janet, the manager of MuscleHub thinks this test may intimidate prospective members.

- Group A was asked to take a fitness test with a personal trainer.
- Group B would skip the fitness test and proceed directly to the application process.

Janet’s hypothesis is that visitors to Group B will be more likely to purchase a MuscleHub membership.

Summary

Our database contained four tables:

- **visits** contains information about potential gym customers who have visited MuscleHub.
- **fitness_tests** contains information about potential customers in “Group A” who were given a fitness test.
- **applications** contains information about any potential customers
  - Includes both “Group A” and “Group B” who filled out an application.
  - Not everyone in **visits** will have filled out an application.
- **purchases** contains information about customers who purchased a membership to MuscleHub

Summary

- We combined all four tables into one DataFrame using the visitors' first names, last names, and email addresses.
- In addition, this new table only contained visits after 07/01/2017 when we began the A/B test
- The new table would allow us to see how far a visitor got in the process
  - Visit > Fitness Test (If applicable) > Application > Purchase
  - We also could more easily determine the group to which a visitor belonged

Application Results

- How many visitors turned in an application?
  - Group A turned in 250 applications.
  - Group B turned in 325 applications.
- To determine whether this difference was statistically significant, we conducted a Chi Square Test because the A/B test consists of two categorical datasets.
- *p-value* = 0.000964782760072
- The *p-value* < 0.05, meaning
  - We can reject the null hypothesis
  - There is a significant difference between Group A and Group B in regards to filling out an application.

Membership Results

- Of those who picked up an application, how many purchased a membership?
  - Group A consists of 200 members.
  - Group B consists of 250 members.
- To determine whether this difference was statistically significant, we conducted a Chi Square Test because the A/B test consists of two categorical datasets.
- *p-value* = 0.432586460511
- The *p-value* > 0.05, meaning
  - We can accept the null hypothesis
  - There is not a significant difference in membership between Group A and Group B.

Group A/B Results

- How many MuscleHub visitors became members?
  - Group A consists of 200 members
  - Group B consists of 250 members.
- To determine whether this difference was statistically significant, we conducted a Chi Square Test because the A/B test consists of two categorical datasets.
- *p-value* = 0.014724114645783203
- The *p-value* < 0.05, meaning
  - We can reject the null hypothesis
  - There is a significant difference between Group A and Group B in regards to filling out an application.

Qualitative Data

- The qualitative date includes feedback from four individuals.
- Of the four individuals, it appears two took the fitness test.
  - This puts those individuals in Group A.
  - One individual liked the fitness test while the other “regretted it.”
- The remaining two individuals did not take the fitness test.
  - This puts those individuals in Group B.
  - The individuals seemed appreciative that their application process did not involve a fitness test.
- Although the sample size for the qualitative dataset is small, it appears 75% of the individuals would prefer no fitness test.

Recommendation

- We recommend omitting the fitness test from the application process based on the findings from both the quantitative and qualitative datasets.
- It appears that Janet's assessment of the fitness test was correct and that it could potentially drive away potential customers.
- More Group B visitors ended up becoming members. This leads us to believe that the application process was more appealing to visitors.