MuscleHub

Membership Analysis

Question

Does taking a fitness test reduce the likelihood of visitors purchasing a membership?

Our null hypotheses: Taking a fitness test has no effect on membership purchasing.

What We'll Do

1. Pull data from MuscleHub's database to get a clear picture of all their visitors. Visitors in Group 'A' took the fitness test, while visitors in Group 'B' did not.

2. Test the effects of taking a fitness test on:
    A. Filling out an application
    B. Purchasing a membership after filling out an application
    C. Purchasing a membership in general

3. See if the testing is statistically significant.

How We'll Do It

Each of the three test will follow the same procedure:

1. Separation of the visitors by test group and subsequent actions.

2. Calculation of percentages for each action per test group.

3. Perform a hypothesis test to see if the null hypothesis is rejected. (Since we are dealing with categorical data, we will use the chi square test.)

Dataset

MuscleHub has a SQLite database, which contains several 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 (both "Group A" and "Group B") who filled out an application. Not everyone in visits will have filled out an application.

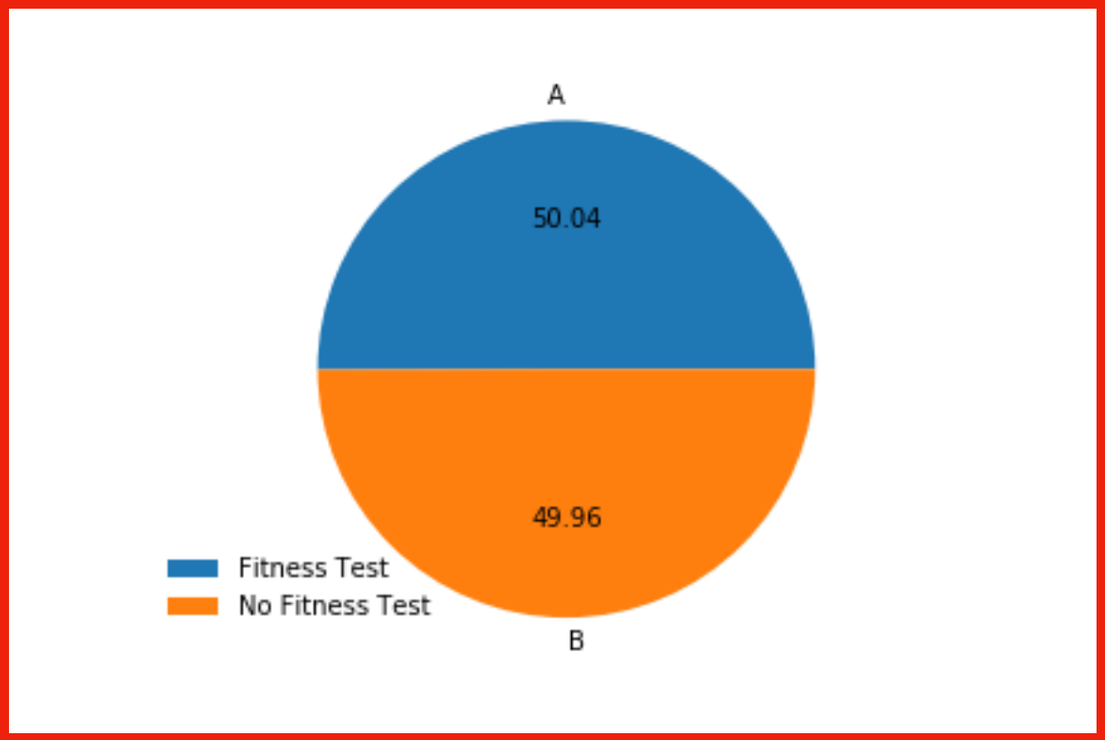
- **purchases** contains information about customers who purchased a membership to MuscleHub.

Data

Data was pulled from multiple tables in the database to create a complete profile of the customers, including visit date, application date, and purchase date.

Analysis of the Groups:

- Visitors were grouped based on whether they took the fitness test or not.
- The group sizes were compared to ensure the data isn’t skewed.
- Comparison shows the groups are close to identical in size.



Group	Count
A	2504
B	2500

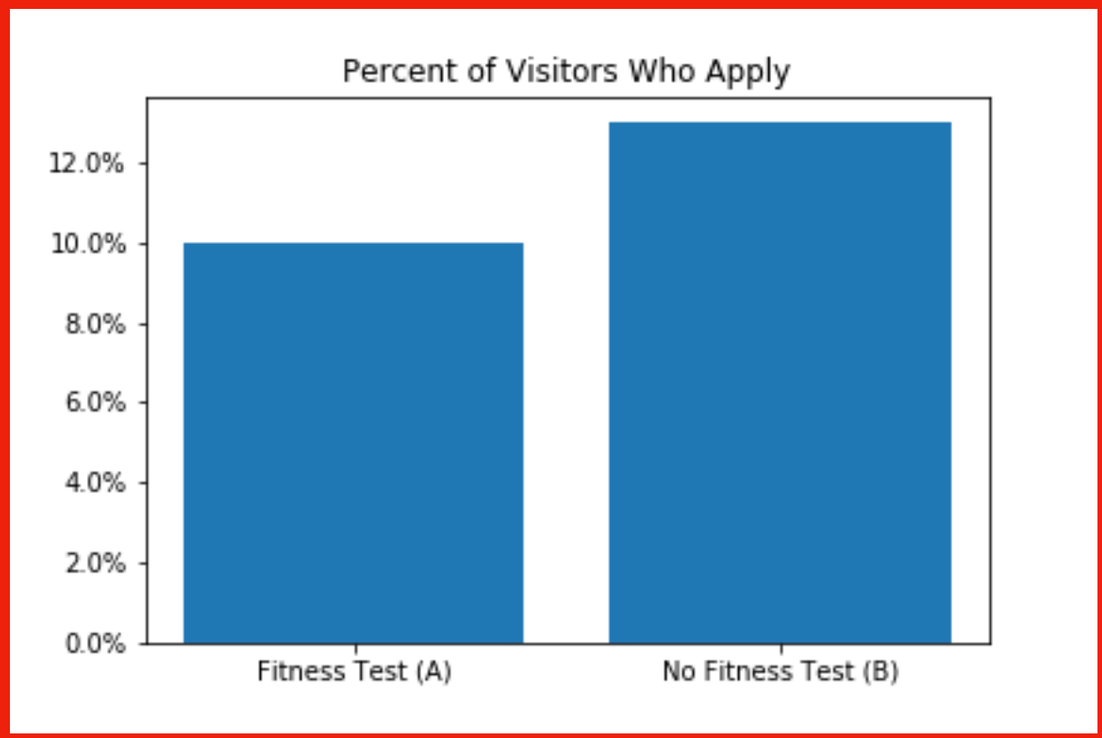
First Results

Does Taking a Fitness Test Affect Applications?

- 10% of visitors who took the fitness test filled out an application, compared with 13% who filled out an application without the fitness test.
- This shows people are more likely to fill out an application when they do NOT take the fitness test.

This test has a P-value of 0.000965, which means it is statistically significant.

Group	Application	No Application	Total	Percent with Application (%)
A	250	2254	2504	9.984026
B	325	2175	2500	13.000000



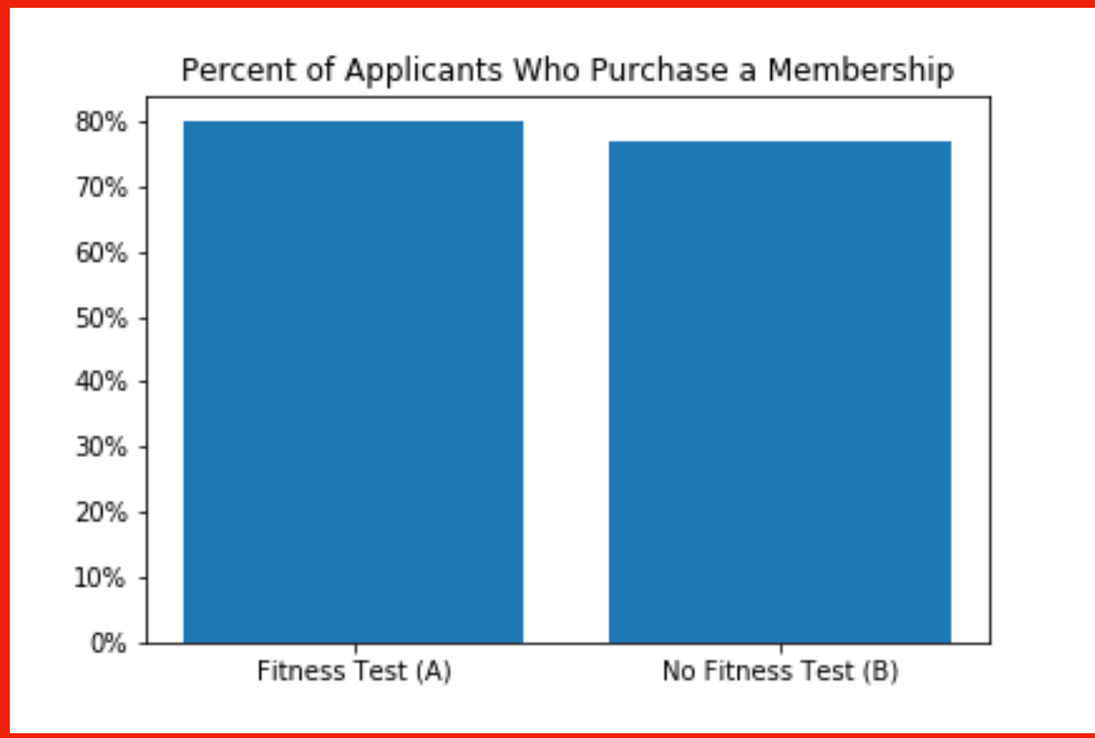
Second Results

Do Fitness Tests and Applications Affect Membership?

- 80% of Group ‘A’ who filled out an application purchased a membership, compared to only 76% of Group ‘B’.

However, this test has a P-value of 0.432, which means it is NOT statistically significant. These results should not be accepted.

Group	Member	Not Member	Total	Percent Purchase (%)
A	200	50	250	80.000000
B	250	75	325	76.92307



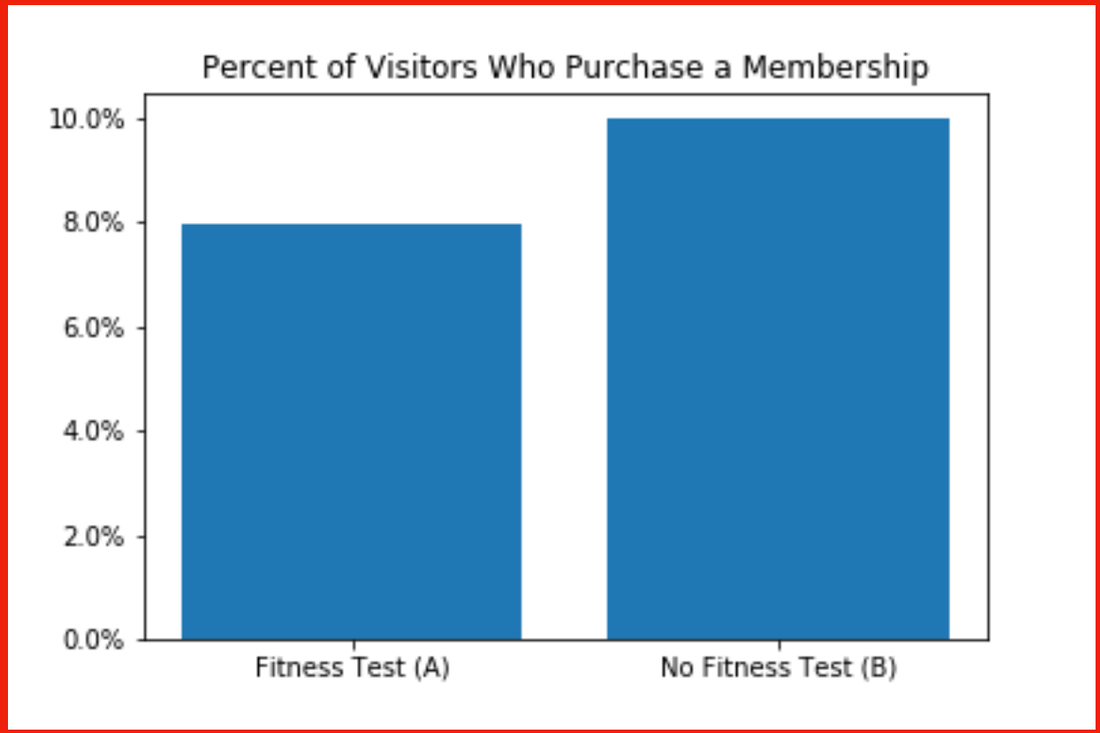
Third Results

Does Taking a Fitness Test Affect Membership?

- About 8% of visitors who took the fitness test purchased a membership, compared with 10% from the group who did not.
- This shows people are more likely to purchase a membership when they do NOT take the fitness test.

This test has a P-value of 0.0147, which means it is statistically significant.

Group	Member	Not Member	Total	Percent Purchase (%)
A	200	2304	2504	7.98722
B	250	2250	2500	10.00000



Recommendations

- The testing shows that visitors are slightly more likely to fill out an application and purchase a membership if they do not take a fitness test.

- Our Recommendation is to stop offering the fitness test, as the rate of membership is slightly higher for those who do not take the test. At worse, the data shows that the rate of membership is about even between the two groups. Removal of the test will save MuscleHub time and effort with new members, with no downside.

- In addition, we recommend creating a unique ID for each visitor to make the database more managable.