# Statistical Analysis

From our storytelling project, there is a lot of interesting information. In this part of the process, I am going to further explore some of the information presents and perform A/B testing.

There are 3 questions that I want to answer:

1. Do ['Action'] games cost more than ['Action', 'Indie'] games?

2. Do multiplayer games cost less than single-player games?

3. Among the two most popular games (Counter-Strike: Global Defensive and Team Fortress 2), which has a better reputation in terms of recommendation?

The null hypothesis for question 1 is that the average price of ['Action'] games greater or equals the average price of ['Action', 'Indie'] games? After filtering out the rows that contain specific genres, I used bootstrap to loop over 10000 cycles and calculated the confidence interval of the two groups. The 95% confidence interval is [5.79101534, 6.50657473]. I plotted the distribution graph as follows:
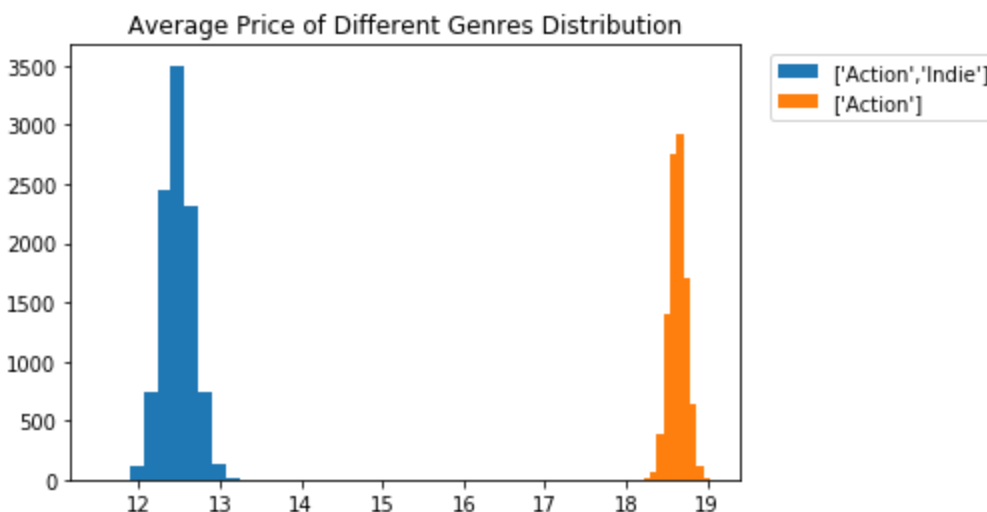

Finally, I calculated the p-value which is less than the alpha level thus concluding that it is lucid that ['Action'] games have higher average price than ['Action', 'Inide'] games.

For question 2, the null hypothesis is that the average price of single-player games is greater or equal to the average price of multiplayer games. After filtering out the rows I used bootstrap to loop over 10000 cycles to find the confidence interval. The result came back as [-2.93274549, -2.60298355]. I plotted the distribution of the two sample groups:
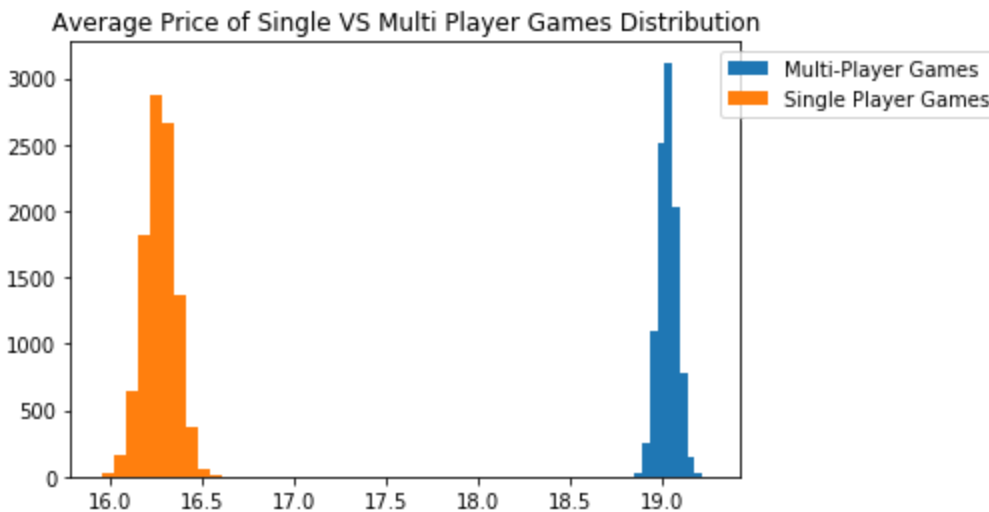
Based on the confidence interval and distribution graph, it is clear that Single players games do not cost more than multiplayer games. Multiplayer games cost more than single-player games.

For question 3, the null hypothesis is that the percentage of recommended from Counter-Strike: Global Defense is less or equal to the percentage of recommended from Team Fortress 2. After selecting the appropriate rows, I performed bootstrap on the dfs over 10000 cycles and obtained the confidence interval of [-4.98, -3.2795]. I plotted the distribution graph as following:

Percentage of Recommendation Distribution
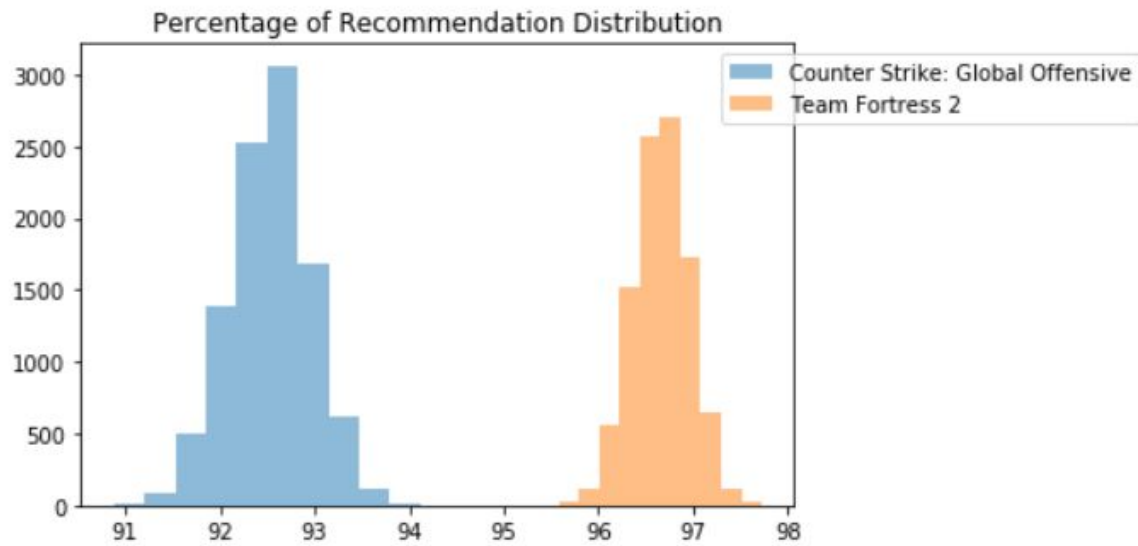
Based on the evidence presented, CS:GO didn't have a greater recommendation rate than Team Fortress 2. In fact, Team Fortress 2 has greater recommendation rate than CS:GO