Executive Summary

The following experiment is to analyze the effectiveness of the new application that Smith Hotels is aiming to push to its customers. Live test data is provided with two thousand subjects divided into control and treatment groups. The experiment is part of an A/B Testing with Before-After design.

The distribution of samples is random. 65% of the people are Male and 35% of the people are female. 80% of the people are US citizens and 20% are non-citizens. Basic membership is the most common loyalty and Platinum membership is the least common. 50% of the people are between 40 and 50 years of age.

Average spending by users increased by 600$ on average after the application was posted. The average bookings after the posting increased from 15 to 17. Most spending came from the least number of people i.e. the Platinum members and the least spending came from most number of people i.e. Basic members.

After the application was released, the maximum spending reached to around 11,000$ and number of bookings reached to 38. Therefore, the exploratory data analysis suggests that there was indeed an increase in the spending after the application was released.

However, to check if the same results can be obtained after releasing the app to the public, an A/B testing is done. The NULL hypothesis for the A/B test is that there is no difference in the spending. The t-tests conducted for both after-only and before-after designs extracted a p-value which was less than 5% significance level. Therefore, we can reject the NULL hypothesis.

In conclusion, the exploratory data analysis shows an increase in spending after the application was released to the sample. With 95% confidence, we can expect an increase in spending after the application is released to the public.