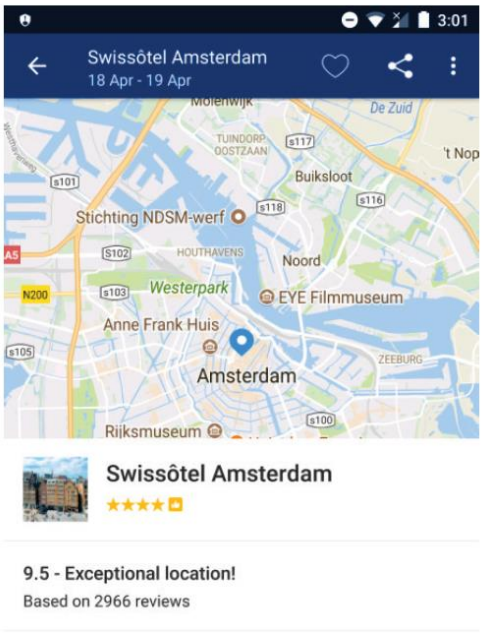
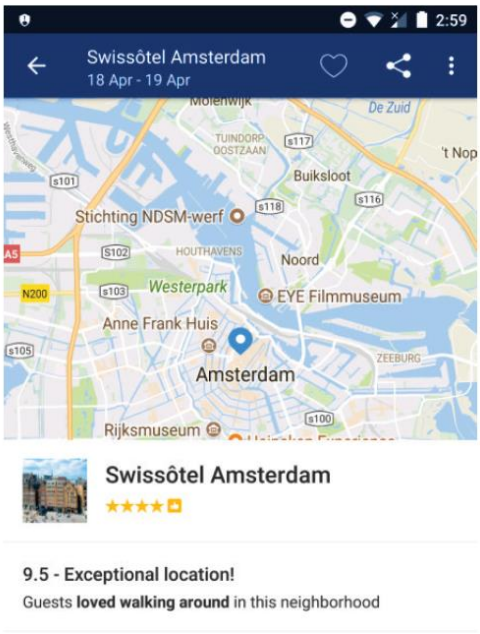
A/B Testing for booking.com

Motivation: Booking.com believes that users value the area around the location of their rental room (hotel, private residence, etc.). Their marketing team is A/B testing the following two pieces of copy on the website:

"A", The Control (Champion)
Shows current practice



"B", The Treatment (Challenger)
Adds walkability assessment (user reviews)



Source: Thomke, S., & Beyersdorfer, D. (2018). *Booking.com*. HBS No. 9-619-15. Boston, MA: Harvard Business School Publishing.

Instructions

0. Read the Booking.com case posted in Classes/Resources
1. Conduct an A/B test to determine whether Alternative B improved conversion rates (site users book the property) over alternative A.
2. Calculate the optimal sample size for a 95% confidence rate and test with 80% power. Conduct the test 10 times using samples of the optimal size. Report results.
3. Conduct a sequential test for the 10 samples. For any of the samples, were you able to stop the test prior to using the full sample? What was the average number of iterations required to stop the test?

Do not use libraries to calculate the optimal sample size or implement the sequential test. However, you can use libraries like scipy.stats.norm for statistical lookups like the critical values.

Submission

Submit 3-5 slides as a group to Assignment 1 on the following:

1. Outline the testing process including assumptions
2. Discuss the setup and results of parts 1-3
3. Discuss potential organizational / cultural barriers you may encounter trying to implement your findings in real setting based on the issues discussed in the case study.

On your title slide be sure to include the names of group members and a link to one GitHub repository containing a complete version of the code. Only one version will be reviewed. All are welcome to have the code in their repos – and it's encouraged – but it will not be reviewed. You can work in groups of up to 5 people. Fewer (or individual work) is ok; groups are for your convenience and learning.

3 groups will be selected on Monday to give ~5 minute presentation. Submissions of presentation and code for all groups are due by Monday 4/6/2010 9am Shanghai time.