Part 2 of Data Analysis Interview Challenge

1. The obvious measurement of success would be a statistical increase in Ultimate Gotham drivers traveling to Metropolis and Ultimate Metropolis drivers traveling to Gotham. This metric would indicate how willing the partners are to travel between the two cities.

2. a. For this experiment, collect a sample of Ultimate drivers, make sure that there is an equal number of participates from each city so that sample is not unbalance. The drivers would be divide into 5 groups. The division should be random with the caveat that each group would have the same number of participants and the same number of participants from Metropolis and Gotham. The first group will be the control group and will not be reimbursed. Sequential group will have an increasing amount of the toll price reimbursed with group 5 being fully reimbursed.

   b. A one-tailed t-test would be the ideal statistical test for this experiment. The null hypothesis is that reimbursement would not increase travel between the two cities relative to the control group while the alternative hypothesis would be that it does. Test group 2-5 to determine how much reimbursement would be necessary to have statistically significant results (assuming that any amount would have statistically significant results). The results would be statistically significant if $p < 0.05$.

   c. Based on these results, I would recommend how much reimbursement is necessary to increase travel between the two cities with the caveat that no amount of reimbursement may increase travel.