**Part 2 ‐ Experiment and metrics design**

The neighboring cities of Gotham and Metropolis have complementary circadian rhythms: on weekdays, Ultimate Gotham is most active at night, and Ultimate Metropolis is most active during the day. On weekends, there is reasonable activity in both cities.

However, a toll bridge, with a two­ way toll, between the two cities causes driver partners to tend to be exclusive to each city. The Ultimate managers of city operations for the two cities have proposed an experiment to encourage driver partners to be available in both cities, by reimbursing all toll costs.

1. What would you choose as the key measure of success of this experiment in encouraging driver partners to serve both cities, and why would you choose this metric?

Average distance (avg\_didt) can be a meaningful success measure. If drivers serve to the other cities, the average distance will be directly impacted and I can observe an distance.

1. Describe a practical experiment you would design to compare the effectiveness of the proposed change in relation to the key measure of success. Please provide details on:
   1. how you will implement the experiment

A/B testing. Encourage the drivers only in one city to serve other city while other drivers serve only in their cities. Then measure the avg distance.

* 1. what statistical test(s) you will conduct to verify the significance of the observation

H0: There is no significant difference between the avg\_distance of users in control group and remaining.

H1: There is a difference between the avg\_distance of users in control group and remaining.