Final Project

RESEARCH DESIGN

Group 5
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Introduction

There has been a long time debate on understanding if price and other external factors drive consumer satisfaction and customer loyalty / service.

Aim: To find out the extent to which customer service and satisfaction is a function of price as it is of the actual service.

Process: Experiment to analyze the difference in the ratings given to the Uber drivers by the users who are given a discount v/s those who aren’t.

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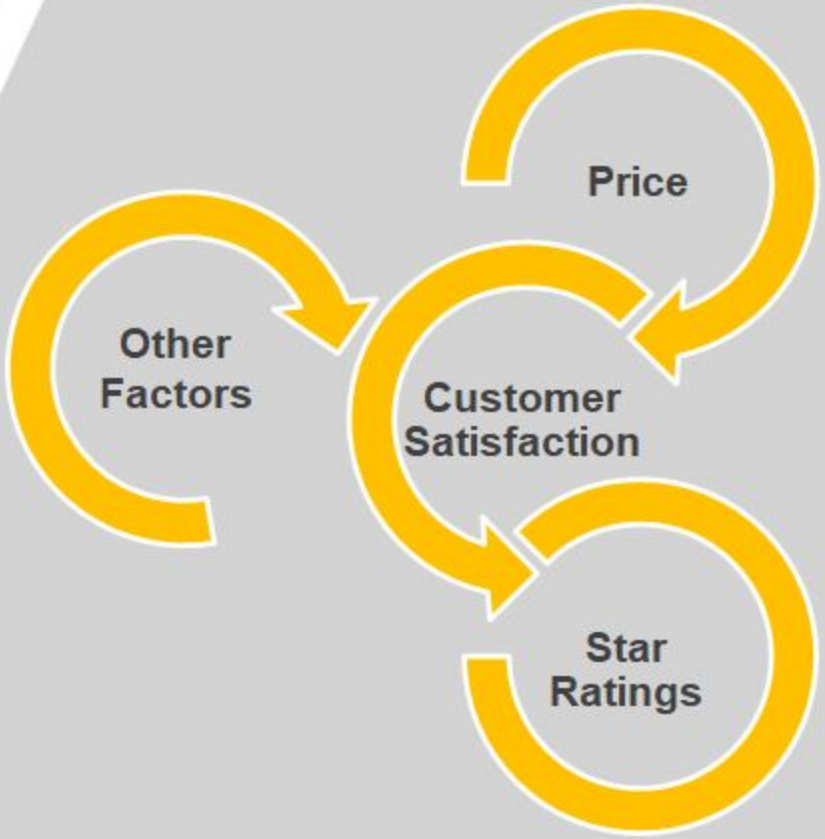
Research Problem

The extent to which price discounts have a direct effect on the ratings of Uber drivers.



- H0: E[Y | Discount = TRUE] = E[Y | Discount = FALSE]
- Ha: E[Y | Discount = TRUE] > E[Y | Discount = FALSE]

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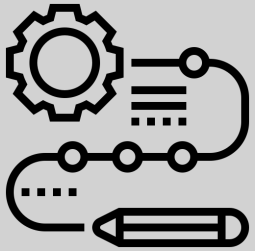
Objective & Methodology

Objective

- To understand if price serves as a **function that affects customer satisfaction in comparison to the actual service itself**.

Methodology



- A **quantitative research study**
- **Analyzing the existing data** on the pricing / perception of discounts on human behavior
- Conducting our own experiment: **collect original data to prove our hypothesis**

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Sample & Population

Population of Interest

- Current Uber users and Uber drivers
- Location: Cities across the United States, with the presence of Uber services

Sample Selection

- Randomized sampling method
- divided into two groups
  - → a **control group** which doesn't receive the 25% discount
  - → a **treatment group** which receives the 25% discount (max $5)

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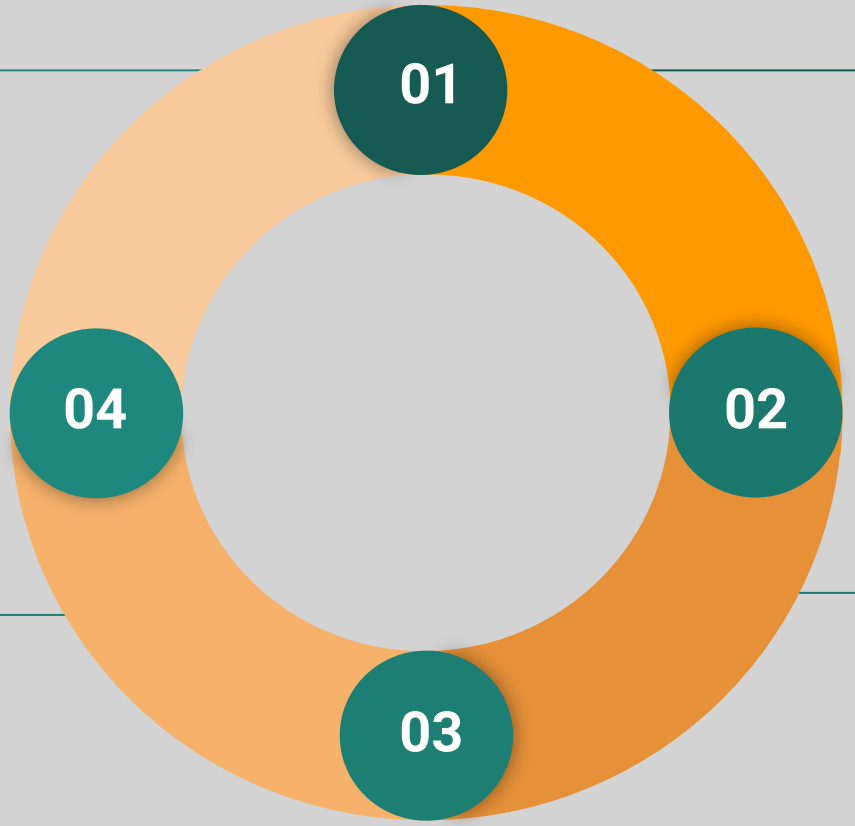
Operational Procedure

01 Give the treatment group a 25% discount (max $5) on a ride when they open the Uber app to book a ride. The control group on the other hand will not receive a discount.

02 Discount will be shown to them through a pop-up notification on their phone

03 At the end of their ride, both the groups will be asked to give a rating based on their Uber driver and experience.

04 Discount will only be applicable on UberX rides.



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Statistical Analysis Plan

Independent Variable	Discounted Price / Coupon
Dependent Variable	Average Star Rating

The result we are targeting to reach is that "**coupons will increase customers' satisfaction**"

Step 1
- Randomly equally select two groups of users

Step 2
- Treatment Group: Coupon Users
- Control Group: Non-Coupon Users

Step 3
- One-sided two sample **t-test**
  - Alternative: treatment group having greater average star rating

Step 4
- Minimize the effect of confounding variables
- Repeat the experiment many times

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Steps for the t-test

Pick the sample randomly from our registered users.

Break the sample into two groups using randomization.

Give a 25% (max $5) discount to users in the Treatment Group and no discount to users in the Control Group.

Repeat the experiment if there are confounding variables and we want to minimize the effect of them.

Analyze the results. If over 90% of the experiments show a significant effect of coupon improving user's satisfaction, we will find our assumption to be true.

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Key Findings of Simulation

- Assumption
  - ➢ Sample size of n = 42 per group
  - ➢ Power of test = 0.9
- Key findings of Scenario I (no effect) and Scenario II (an expected effect):

Research Question	Scenario	Mean Effect in Simulated Data	95% Confidence Interval of Mean Effect	Percentage of False Positives	Percentage of True Negatives	Percentage of False Negatives	Percentage of True Positives
Question 1	No Effect	0.002	[-0.322,0.327]	5.2	94.8	NA	NA
	Effect (People using coupons will give 0.5 greater for rating)	0.502	[0.178,0.827]	NA	NA	9.5	90.5

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Thank you!