

# Waze Project

## Milestone 4 - Hypothesis Test (A/B Testing Demo)

### Project Overview

Waze leadership has asked the data team to analyze the relationship between mean amount of rides and device type. The goal is to explore related variables for the ML model. (Although this dataset is not the result of an actual A/B test experiment, it will be used here as a demonstration of how A/B testing can be conducted using Python code and statistical methods.)

### Details

### Key Insights

- Based on the calculations, drivers who use an iPhone to interact with the application have a higher number of drives on average.
- **Since we did not find any statistically significant difference in the mean amount of drives between iPhone users and Android users, we can conclude that the average rides variable is no obvious relationship between mean amount of rides and device type.**
- (If this is a A/B testing, we can conclude that the new feature tested on those two groups does not lead to any statistically significant difference in the mean amount of drives between iPhone users and Android users.)

Use 0.05 as the significance level (company commonly uses 0.05)

**Find the p-value** Using ttest\_ind() from stats

```
1. sample iPhone users.
iphone = df[df['device_type']==1]

2. Isolate Android users.
andriod = df[df['device_type']==2]

3. Perform the t-test based on the 'drives' column
stats,pvalue = stats.ttest_ind(a=df_iphone['drives'], b=df_andriod['drives'])
stats,pvalue
```

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.4635232068852353, 0.1433519726802059)

### Next Steps

- Explore what other factors influence the variation in the number of drives, and run additional hypothesis tests to learn more about user behavior.
- Further, temporary changes in marketing or user interface for the Waze app may provide more data to investigate churn.