Statistical Analysis of Drives by Device Type

Milestone 4

Overview

This analysis examines the difference in mean ride frequency between iPhone and Android users of the Waze app. By conducting a two-sample t-test, we aimed to determine whether device type has a statistically significant effect on the number of rides users take.

Objective

The goal was to analyze if there is a significant difference in the mean number of rides between iPhone and Android users. This would help understand device-related usage patterns.

Results

Our initial descriptive analysis revealed that iPhone users had a slightly higher average number of drives (67.86) compared to Android users (66.23). While this suggests a potential difference, it was necessary to determine whether this variation was statistically significant or simply due to random chance.

To assess this, we performed a two-sample independent t-test with the following hypotheses:

- **Null hypothesis (H$_0$):** There is no statistically significant difference in the mean number of drives between iPhone and Android users.
- **Alternative hypothesis (H$_1$):** There is a statistically significant difference in the mean number of drives between iPhone and Android users.

Using a significance level of 5% ($\alpha = 0.05$), the t-test yielded a test statistic of approximately **1.45** and a **p-value of 0.148**. Since the p-value exceeds the significance threshold, we **fail to reject the null hypothesis**. This result indicates that the observed difference in mean number of drives is not statistically significant.

The hypothesis test suggests that device type does not significantly impact the number of rides taken by users.

Next Steps

Based on the results of this hypothesis test, it is recommended to run additional t-tests on other variables to better understand user behavior.