**WHY ARE AIPORT TRIPS GETTING CANCELLED ?**

After Hypothesis Testing, we found that the airport trips are indeed getting cancelled as informed by customers.

**Evaluation of the Case**

We’ll be analyzing various metrics to find the reasons for Airport trip Cancellations. *pickup\_time*, *travel\_distance, airport\_average\_wait\_time* & *pickup\_loc* will be analyzed against metrics *cancelled\_by* & *drop\_loc*

* **Let’s First Consider the *pickup\_time* of Various Trips:**
* We start by grouping the pickup time in an hour period. E.g.: Pickup time 6.15 pm and 6:45 pm will fall into bin 6 and so on.
* Then the cancellation & Completion rate is analyzed for all time bins and filter is set to ***drop\_loc*** with value as ***all***.
* The same is repeated for all time bins with ***drop\_loc*** with value as ***Airport***.
* A side by comparison is done between the cancellation of Airport Trips and all trips.

ANALYSIS RESULT:

After conditionally formatting and normalizing the cancellation count by drivers for both airport and non-airport trips and all cancelled trips, we found that they follow the same trend and there is no concrete evidence that pickup time affect the cancellation rate of airport trips.

*Pickup\_time analysis Sheet to refer*

* **Now let’s start analysis of *travel\_distance* for all trips:**
  + We created travelled distance bins with 10kms range. E.g. Distance 52 will fall into 6 and 23kms into 3 and so on.
  + Then the cancellation & Completion rate is analyzed for each bucket\_distance bins and filter is set to ***drop\_loc*** with value as ***all***.
  + Only Cancellation Rate is calculated for all time bins with ***drop\_loc*** with value as ***Airport.***

ANALYSIS RESULT:

1. We found that average cancellation driver rate is 3.41%. After the travelling distance increases 30kms cancellation rate of gets almost doubled to 6.62% (when distance is 20kms<d<30kms) and then thrice to 10.09% (when distance is 50kms<d <60kms) and usually increases.
2. Thus, we see that with increase in trip distance, the driver’s rate of cancellation is increasing for all drop location.
3. When we’re considering only airport drop locations, from bin 3 to 6 cancellation rate by drivers is high. For later bins, the no. of trips is just 1. So, we’re ignoring this for now to not create bias in our analysis.

**Thus, we see trip distance affects our cancellation rate.**

*Travel\_distance analysis Sheet to refer*

* **Now let’s start analysis of *pickup\_loc*** **for all trips:**
* We create pivot tables to find the overall cancellation % , cancellation % by drivers from all pickup points when drop location is airport and Overall cancellation & % to all drop locations.

ANALYSIS RESULT:

1. We know during our hypothesis testing that average cancellation rate for all trips is 22.43%. Let’s check Kasheli having 28% overall cancellation percent to all drop while cancellation % of 100 when drop location is airport.
2. When we look up at the pickup location, we found average travel distance to airport for Kasheli is more than 30kms.
3. Bandra west Cancellation % by driver is 100% when drop is Airport. The average travel distance for this trip is 52.46 kms.

This concretes our previous analysis that increase in travel distance increases the cancellation rate.

*Pickup\_time analysis Sheet to refer*

* **Calculation of metric *airport\_average\_wait\_time***
* The dataset is sorted by driver\_id and then their pickup\_time. This is used to calculate the wait time between their trips.
* This metric is then used to calculate average wait time when drop\_loc is Airport which is done by Avergageif

ANALYSIS RESULT:

1. We found out that average wait time when drop is airport comes around 07:00:59 hours and average distance comes out to be 33.84 kms
2. This further validates that drivers are cancelling airport trips as the distance to travel & wait time to accept another trip is a lot.

*Pickup\_loc analysis Sheet to refer*

**Proposed Solution/Changes**

Now that we’ve identified that drivers are not willing to go for long distance rides, we can either increase our cabs number in between those long-distance areas or provide incentive to drivers.

