

Case Study: Ambulance Revenue Analysis

To find the cause for decline in revenue despite constant demand and to suggest ways to improve the situation

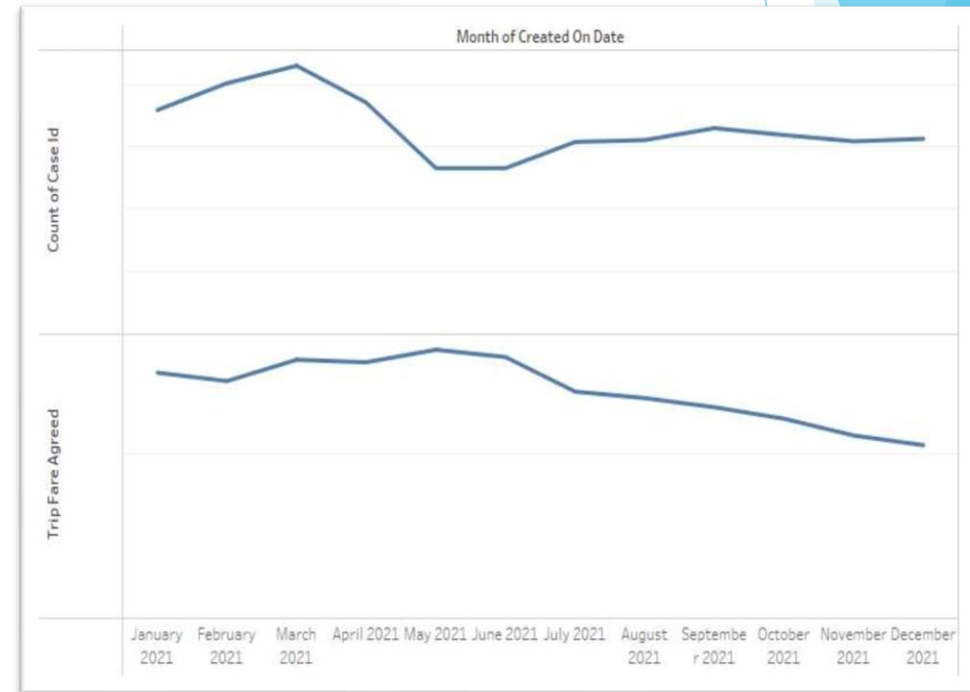
Case Study by Viresh Raj Sah

The Problem

- ▶ A 450-bed hospital in Hyderabad has runs ambulance service using two business models – One is Own Ambulances and other is by partnering with third party Ambulance Operators (here forth called as Partners). It works on a 25% commission model with them. The hospital is seeing a decline in Ambulance revenue despite no decrease in trips

Inference:

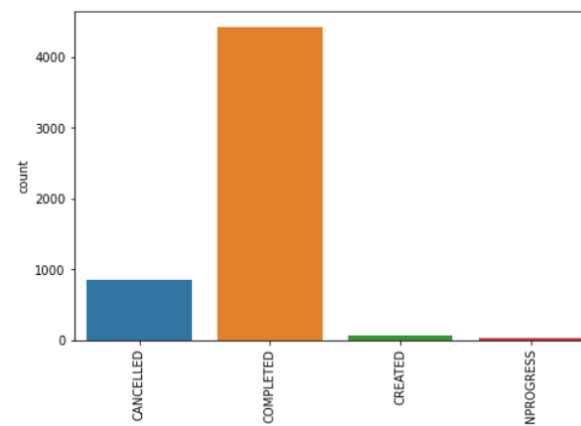
- ▶ The trend appears since June 2021.
- ▶ Hence we are tempted to think that there is a changing trend in operations between pre-June and post-June.



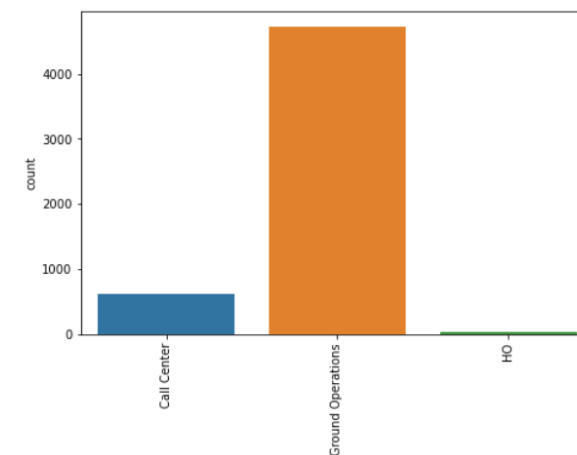
Dataset and Univariate Analysis

- ▶ The dataset has 5826 rows and 38 columns
- ▶ 99% cases from Hyderabad only
- ▶ 15% cases are cancelled
- ▶ Agent type: 88% G.O., 11% Call Centre.
- ▶ 30% partner owned ambulances
- ▶ 98% cases are non-emergency cases

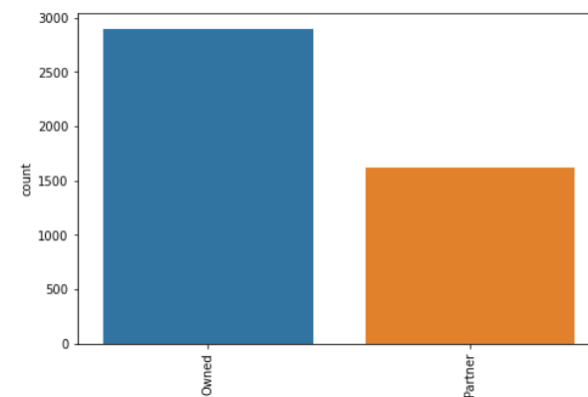
TRIP_STATUS



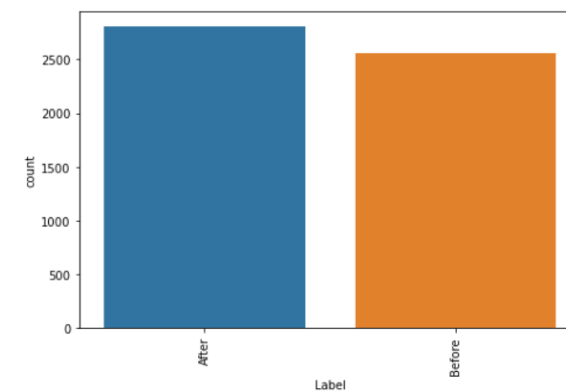
AGENT_TYPE



AMBULANCE_OWNERSHIP

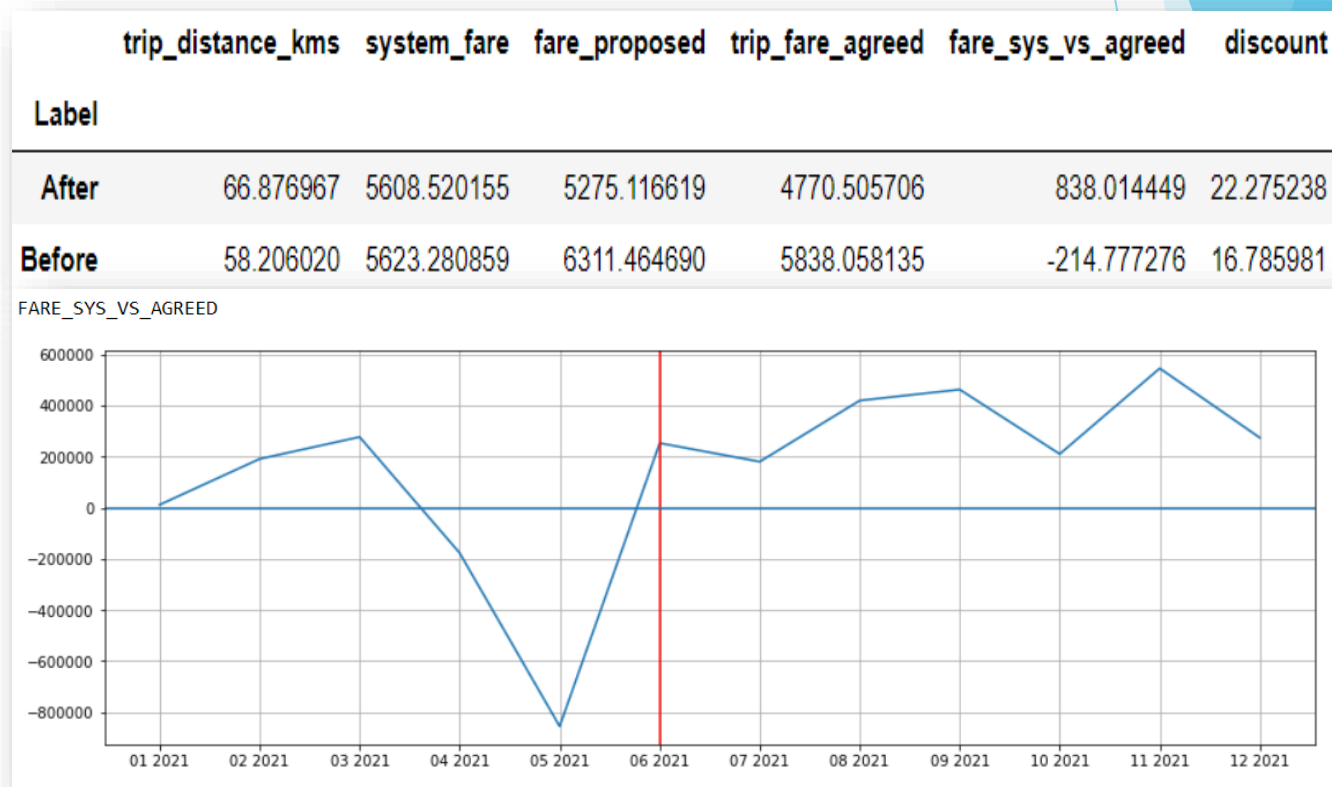


LABEL



Reasons for Decline in Revenue

- ▶ Significant increase in discount given by agents on the system fare.
- ▶ The monthly trend in the system generated fare vs finally agreed fare shows that there is a consistent increase in the mean discount given to customers by our agents.
- ▶ The trend shows a clear increase in difference in the 'proposed price' compared to the 'system price' since June.

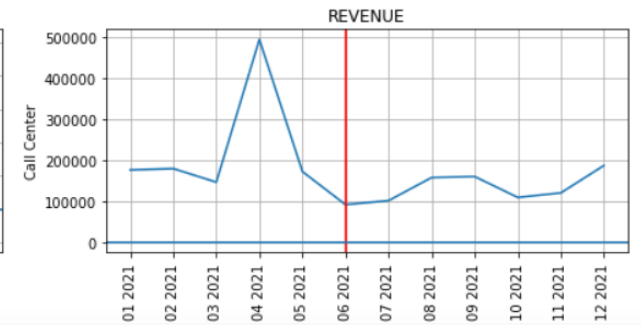
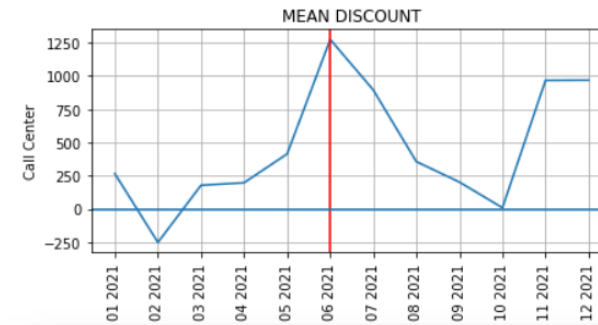


Reasons for Decline in Revenue

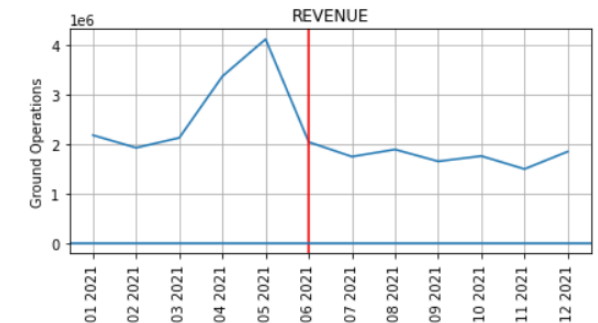
Who is responsible?

- ▶ Clear increase in mean discounts since July.
- ▶ Consistent increase in discounts given by Ground Operation agents, but the amount of discount given by Call Centre agents is higher.
- ▶ The increase in discounts can be matched with drop in revenue, showing visible correlation.
- ▶ Most discounts are given on Owned Ambulances and not by partner.

CALL CENTER



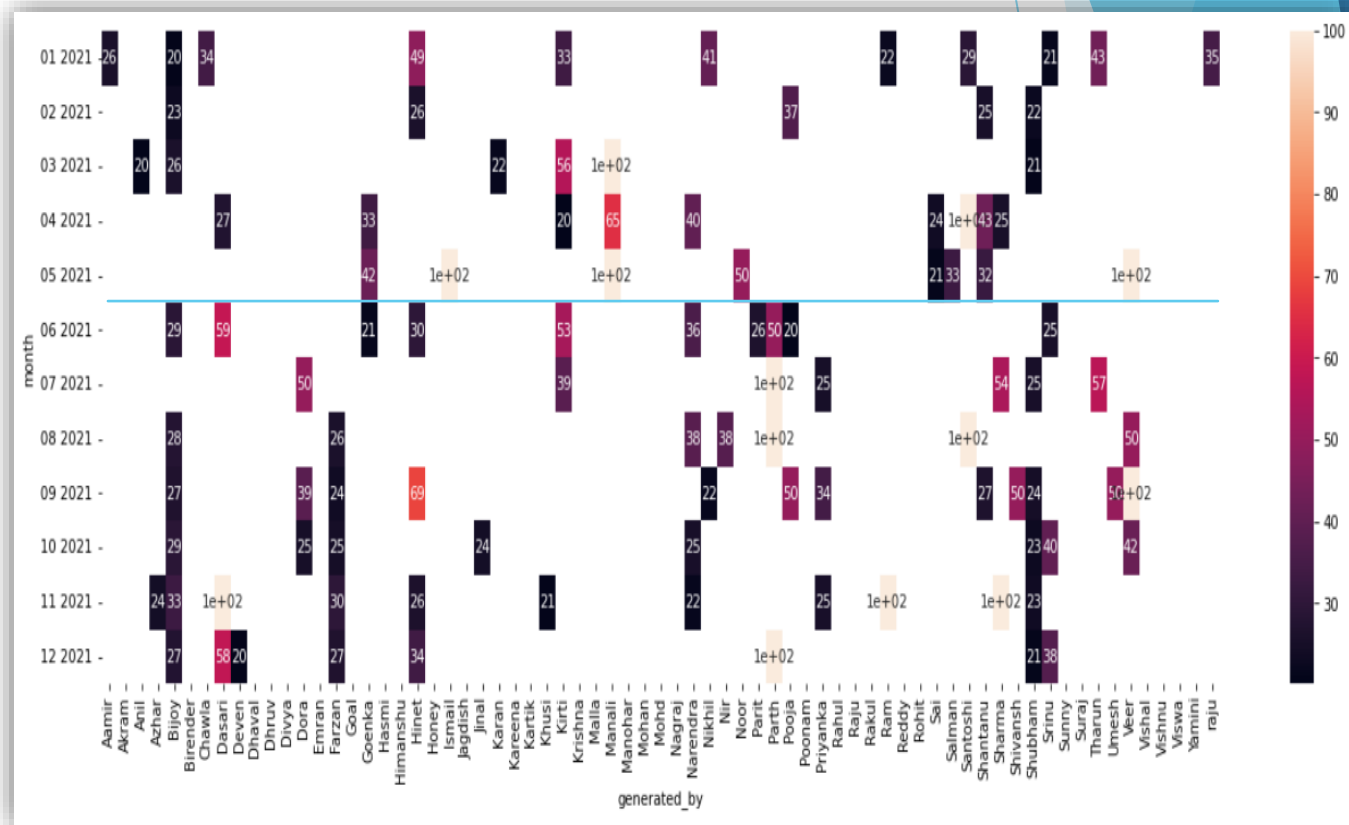
GROUND OPERATIONS



Reasons for Decline in Revenue

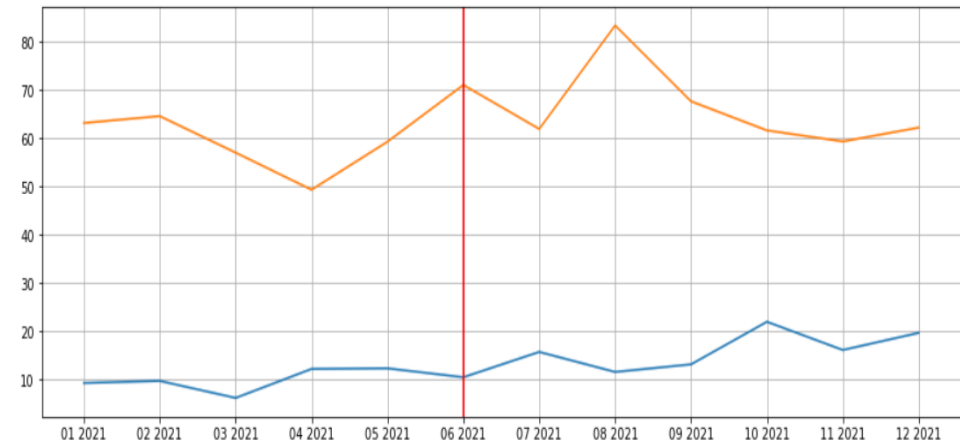
Who is responsible?

- ▶ An analysis of mean monthly discounts offered by each agent shows that a lot of agents who joined new since July, tend to give higher discounts.
- ▶ The heatmap here highlights only the mean monthly discounts higher than 20%.
- ▶ There are agents who have a mean monthly discount rate as high as 70% since July.

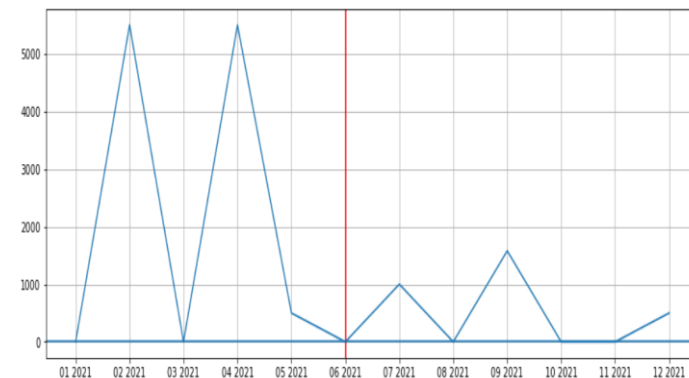


Reasons for Decline in Revenue

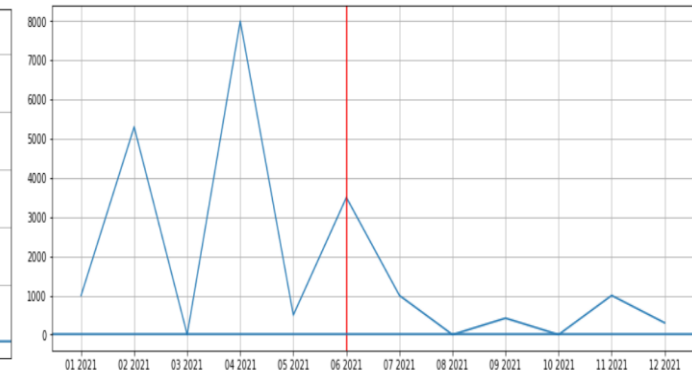
- ▶ A very big difference between estimated distance (blue) and actual trip distance (orange). This may lead to unaccounted overhead charges. And may even affect customer satisfaction, leading in loss of customer loyalty over time.
- ▶ Drop in cancellation charges charged by hospital as well as Operator (Assuming it is disbursed to the company)



CANCELLATION_AMOUNT_OPERATOR



CANCELLATION_AMOUNT_HOSPITAL

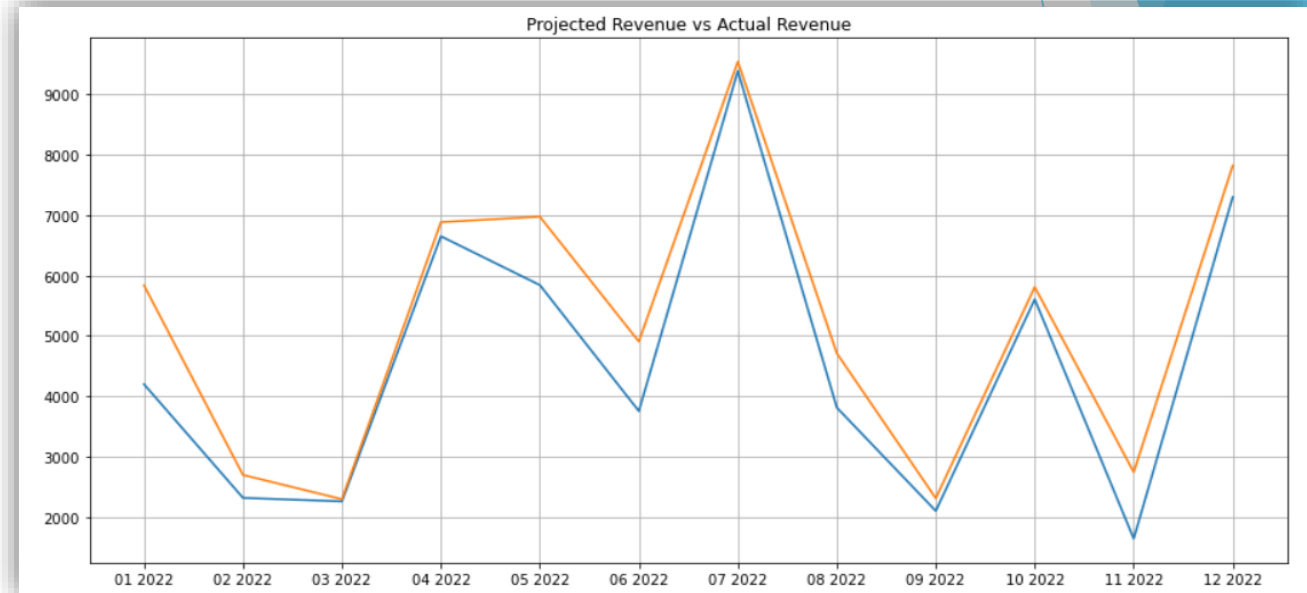


Steps to Improve Revenue

- ▶ A before and after analysis shows that the mean discount before July was 16%, which reached 22% after July. We should put a reasonable cap on the maximum discount that an agent can offer over the system rate price.
- ▶ Since a lot of such high discounts are offered by new agents, there seems a need for better training and monitoring of agents.
- ▶ Since highest discounts were offered by Call Center Agents, special attention should be paid there.
- ▶ Incentives should be offered to agents based on the revenue generated by the and not merely on the number of leads. This will dissuade the tendency to offer big discounted rates.
- ▶ We should standardize the Cancellation rates for hospitals and operators.
- ▶ More importantly, we need technological upgrade to give a better estimate of trip distance and trip time. This is affecting rate standardization as well as customer satisfaction.

Estimate for Revenue and Trips next 2 quarters

- ▶ Taking a max discount cap of 15% (considering the mean discount for the first 2 quarters of 2021) shows a clear increase in revenue on the data for the year 2022.
- ▶ The projected revenue is in orange while blue is the actual revenue for the year.
- ▶ It is hard to find a projection for the number of trips but having a technological upgrade for distance estimation and consistency with price rates will surely improve customer satisfaction and demand, as shown in multiple case studies.



Metrics to Improve revenue

- ▶ In the next 2 quarters, assuming that these recommendations are accepted and applied, we should pay attention to the following metrics:
 - ▶ Monthly mean fare agreed by our customers.
 - ▶ Mean monthly discount rate of our agents (particularly new ones).
 - ▶ Total monthly revenue generated by agents.
 - ▶ Consistency in cancelation rate for hospital and operators.

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Thank You

Questions...?