Case Study Report

Delivery Executive Performance Analysis

Github Repository: https://github.com/HredayP/Delivery_Executive_Ranking

This case study focuses on analyzing the performance of delivery executives based on key business metrics. The objective is to create a structured dataset, analyze it using Excel, and generate insights for business decision-making. The analysis helps identify the top-performing delivery executives per city and per week, enabling targeted rewards and performance improvements.

Problem Statement:

Identify the top 5 delivery executives per city per week based on key performance metrics.

Solution

First, I created a dataset with 100K rows using Python on Jupyter Notebook. You can see the code for the same attached in the github repository. This dataset contains the following columns:

delivery_person_id, order_id, order_value, order_quantity, city, order_timestamp, delivery_timestamp, order_rating

The dataset was designed such that each order is unique, and the same delivery person can make multiple orders. As such, I have used a total of 500 delivery executives, each assigned to one among 8 cities - Mumbai, Chennai, Bangalore, Delhi, Pune, Ahmedabad, Kolkata and Kochi. Order values range from Rs. 50-1500 and follow a normal distribution around Rs.500. Order quantity is also realistic(higher probability of 2-5 items being ordered) such that higher number of items have higher prices while even orders with 1-2 items may still have premium prices. Order times are distributed such that they are higher during peak 6 hours in a day(12-3pm and 7-10pm) and Delivery times are randomized such that it ranges from anywhere between 20 minutes and 90 minutes. Order ratings are assigned such that there are higher number 4 and 5 ratings on a 1-5 scale.

I exported the dataset into a csv file and worked on Excel to derive further insights from the dataset. The final Excel sheet is uploaded in the github repository as well.

On the Excel sheet, I got the week number using weeknum() function and on_time_delivery column which contained boolean values(0 or 1) as to whether the order was delivered within 45 minutes.

I used the following metrics to evaluate delivery executives:

•Total Orders Delivered (Higher is better)

•Total Order Value Delivered (Higher is better)

•Average Order Rating (Higher is better)

•On-Time Delivery % (Timely deliveries / Total deliveries)

I took a weighted score of these values per city per week to get the Performance of each delivery executive. The weights assigned were 40% for total orders delivered, 25% for total order value delivered, 20% for average order rating and 15% for on-time delivery %. All of the above metrics were calculated at a weekly basis for each city.

We can use this performance score metric to rank delivery executives and get the top 5 executives per city per week.