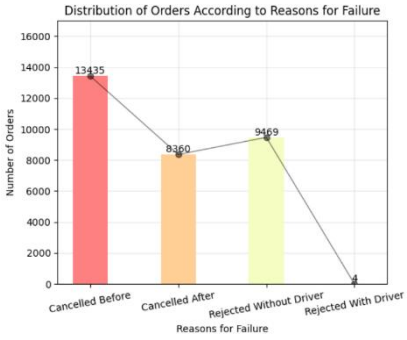
# Analyzing Order Failures and Trends for Improved Service Management

12112042 钟鸣谦

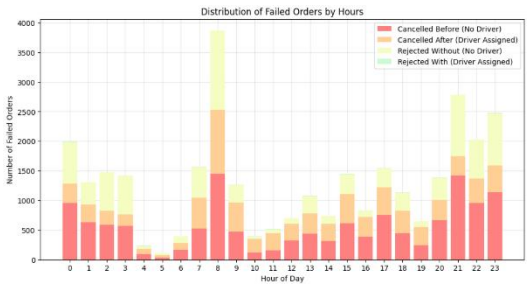
## Q1

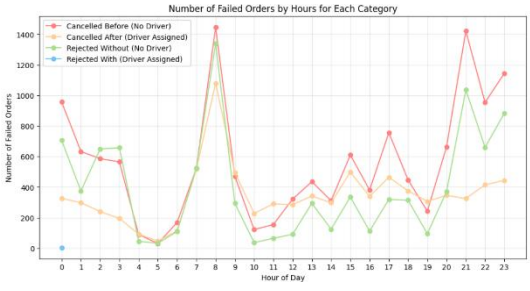
The highest number of orders were canceled by the user before assigning a driver and the lowest number of orders were canceled by the system after assigning a driver.




## Q2

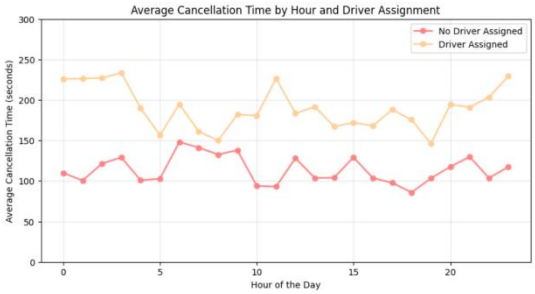
Overall, eight o'clock has the most failed orders and five o'clock has the least. For orders canceled by users for unassigned drivers, eight o'clock has the most and five o'clock has the least; for orders canceled by users for assigned drivers, eight o'clock has the most and five o'clock has the least; and for orders rejected by the system for unassigned drivers, eight o'clock has the most and five o'clock has the least. The reason for the highest number of failed orders at eight o'clock may be that the time period is at the peak of the workday, and the demand for quick response to orders is too high, and at the same time the number of orders may be larger, and the supply of drivers exceeds the demand, so there is a higher probability of canceling orders, both for the customers and for the system. The reason for the lowest number of failed orders at five o'clock may be that the number of orders at that time of day is the lowest, thus resulting in a low number of failed orders for all types of orders.



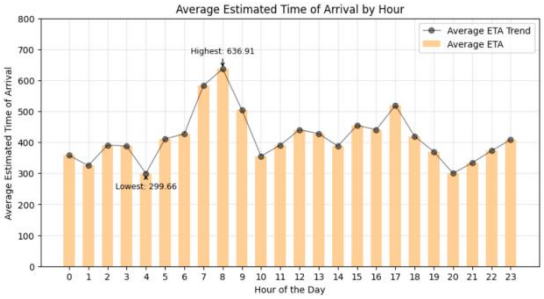
## Q3

Overall, the average time for an assigned driver order to be canceled by a user is greater than the average time for an unassigned driver order to be canceled by a user. The reason for this may be that when an order is assigned a driver, a contract is formed that makes people more inclined to follow the contract than to break it, and thus the average time to cancel for this type of order is higher than for orders without a driver assigned.




## Q4

Overall, the average expected arrival time peaks at eight o'clock and reaches a minimum at four o'clock. The reason for this may be that eight o'clock is the peak traffic jam period, the roads are congested and drivers take longer to arrive. The shortest average estimated arrival time at four o'clock may be due to the fact that the roads are clear at that time, so drivers can arrive without any problems, and it may also be due to the fact that drivers start to work after taking a break at that time, and the number of drivers responds faster, resulting in a faster arrival time.




## Q5

Requires 24 8 hexes containing 80% of all orders from the original data sets, where the hexes are darker the more orders they correspond to.