Lyft Data Challenge Write-up

Team BowTieBoys

Jacob Lebowitz

Tiger Gamble

Conclusions:

1. Calculated the main factors that impact a Driver's Satisfaction which directly impacts a Driver's Lifetime Value as shown in Figure 1
    a. As the features that impact a Driver's Satisfaction increase, the features that impact a Driver's Lifetime Value increase
2. Need to directly increase a Driver's Satisfaction, especially in the **low-valued** drivers, which will indirectly increase a Driver's Lifetime Value to Lyft **exponentially**

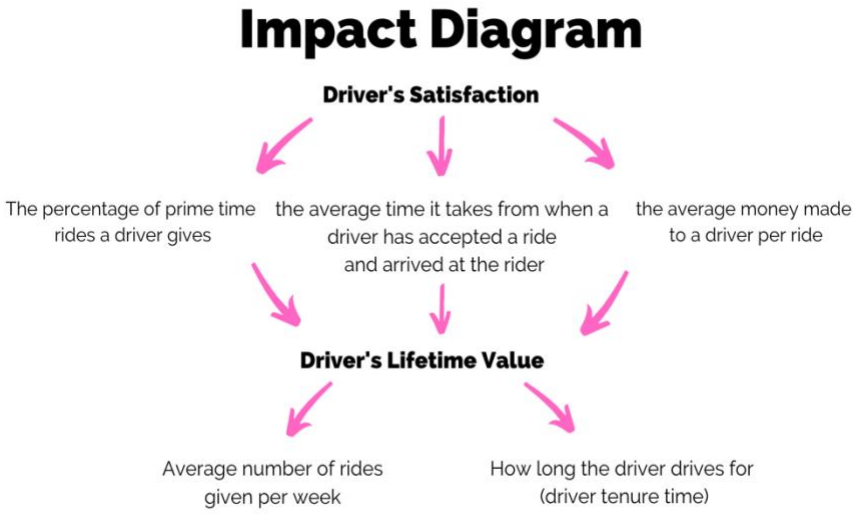

Figure 1

Actionable Business Recommendations:

1. Increase a Driver's Satisfaction by charging a small rate fee for the time a driver has to drive from accepting the ride and arriving at the rider's location
    a. This small rate fee would go **directly** to the driver and would not be included in Lyft's 20% cut
    b. By implementing this feature, each driver would make an average of **44 more cents** per ride (10 cents per minute of drive time), which will directly improve Driver Satisfaction encouraging the driver to drive more rides per week and improve driver's tenure time as illustrated in Figure 2 and Figure 3
        i. Need to calculate this price by the time it would take the closest driver to arrive at the rider's location because of the fact that the price is displayed up-front
        ii. The Y-Axis in Figure 2 is a percentage ratio of how long the driver drove for Lyft out of how many days they could have drove in the dataset (tenure time)

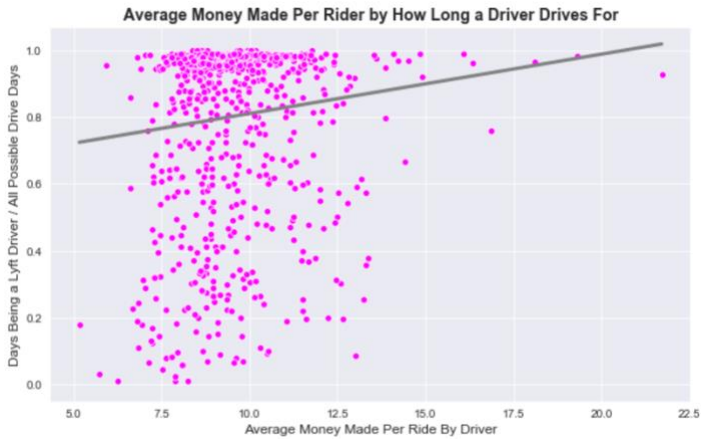

Figure 2

Figure 3

2. Push out a notification to drivers a week after they have onboarded to increase the driver's knowledge surrounding **Prime Time Rides**
    a. As shown in Figure 4, the more Prime Time Rides a driver gives the more **value** a driver brings to Lyft

3. Target **less-active** drivers with personal incentives

4. Collect and analyze driver rating / tips data to find correlations with churn rate and a driver's lifetime value

Figure 4

Driver Segmentations:

1. Clustered the data on the features that impact a driver's satisfaction and a driver's lifetime value and calculated an overall clustering score to highlight the **total value** brought to Lyft as shown in Figure 5

    a. By bringing a low-valued driver to a mid-valued driver the profit to Lyft increases **exponentially**

    b. As illustrated, there is a high percentage that mid-valued drivers transition into high-valued drivers

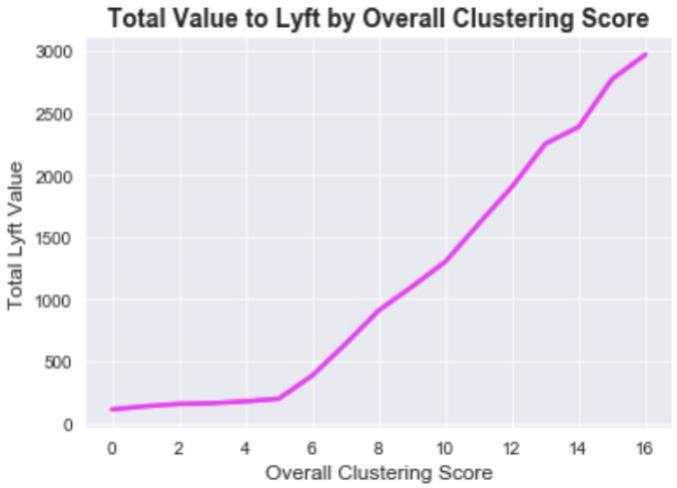

Figure 5

2. We discovered that all driver's act significantly **different** based off a driver's satisfaction which directly influences their lifetime value

    a. As shown in Figure 6, by implementing our business recommendation's it can bridge the gap between a low-valued and mid-valued driver's satisfaction

    b. By decreasing this gap there is a positive correlation in a driver's lifetime value impacting tenure time and average rides given per week

3. Need more data on a driver's tips and ratings to further investigate the differences between segmentations

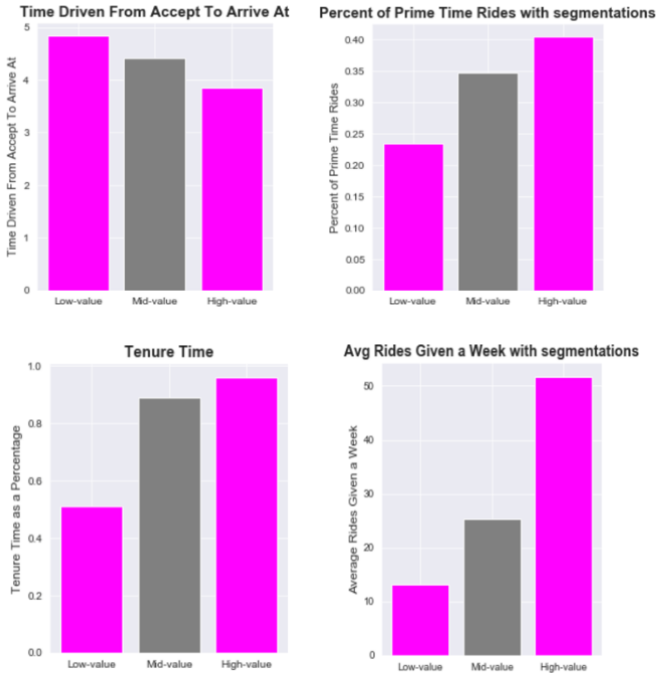

Figure 6

Average Projected Lifetime:

1. **42-day** driver tenure was used since the last onboard date of a driver was 42 days since the end of the dataset (**more data** will bring more accurate results!)
    a. The driver churn rate is **~24%** over the **42** days meaning **~76%** of drivers are still active as shown in Figure 7
2. Assuming the churn rate is constant at **~0.57%** the average projected lifetime of a driver is **96 days**
    a. As shown in Figure 8, the average projected lifetime of a low-value driver is **~50 days shorter** than a mid/high valued driver

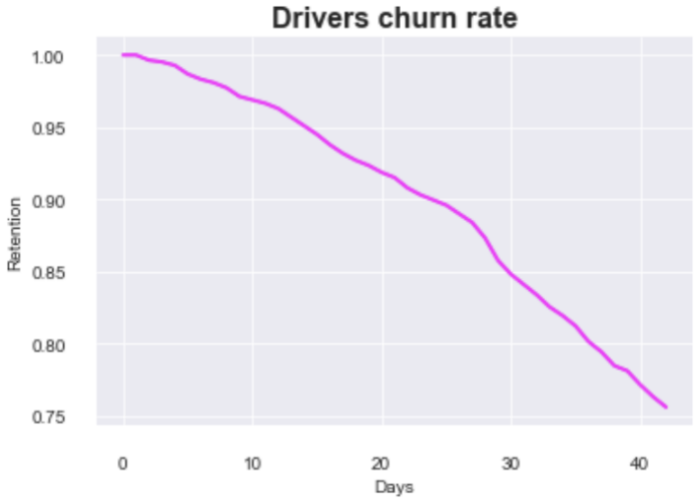

Figure 7

Driver Lifetime Value:

1. We fit a classification model to predict the Driver's Lifetime Value as either low, medium, or high
    a. XGBoost allows for us to see the features that had the **most substantial impact** on a Driver's Lifetime Value as shown in Figure 9
        i. These results support the fact that a Driver's Satisfaction impacts a Driver's Lifetime value
2. Figure 10 shows the **projected lifetime value** of a driver which highlights the importance of increasing a low-valued driver to a mid-valued driver

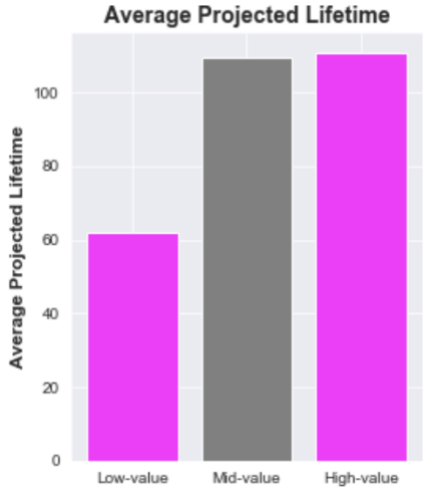

Figure 8

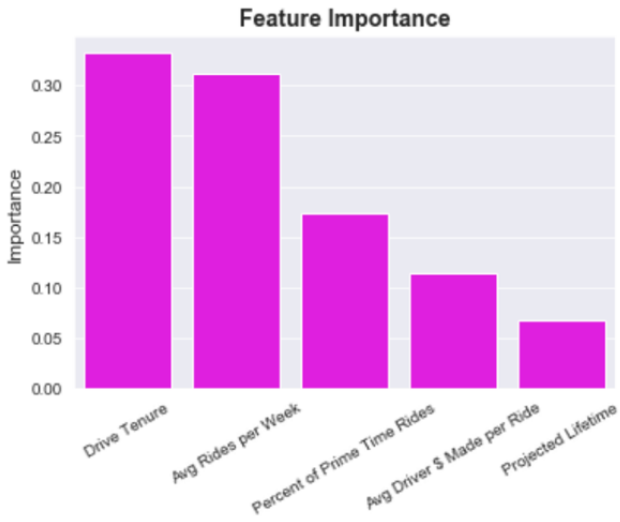

Figure 9

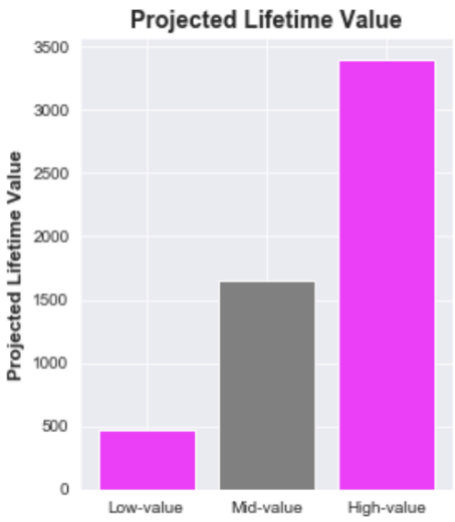

Figure 10