Business Analyst, Product Operations Assignment

Driver's LTV Analysis

LTV

Value of a driver to Lyft over the entire projected lifetime of a driver

Equation:

LTV = (Avg Income Generated by Driver/Churn Rate) * 365

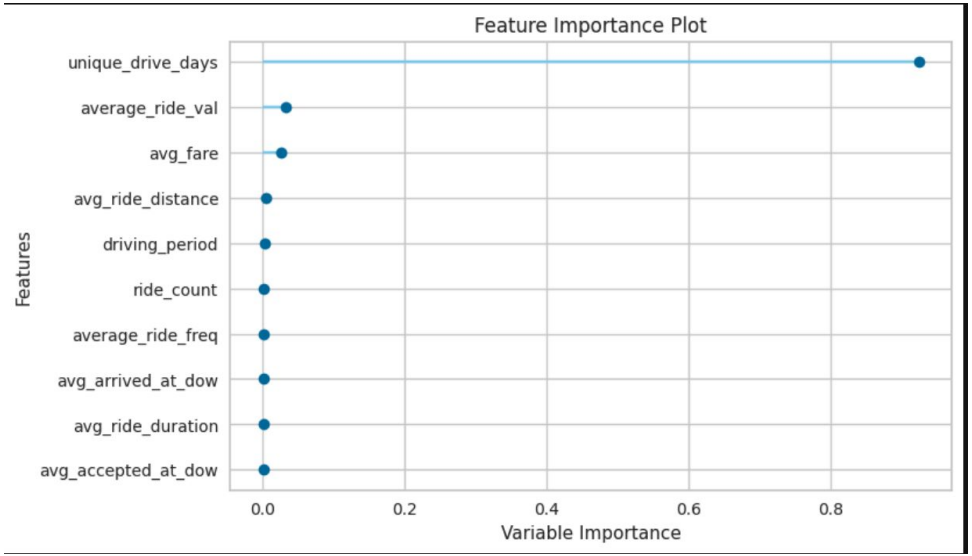
Avg Income Generated by Driver = Total Income Generated by Driver /Number of Days Driver Drove

Churn Rate = (Number of Drivers Who Have Stopped Driving/Total Number of Drivers) * 100%

Assumptions:

3 months of data is good enough to determine LTV, which usually is not the case. More data, the more precise LTV will be and informative to business strategy.

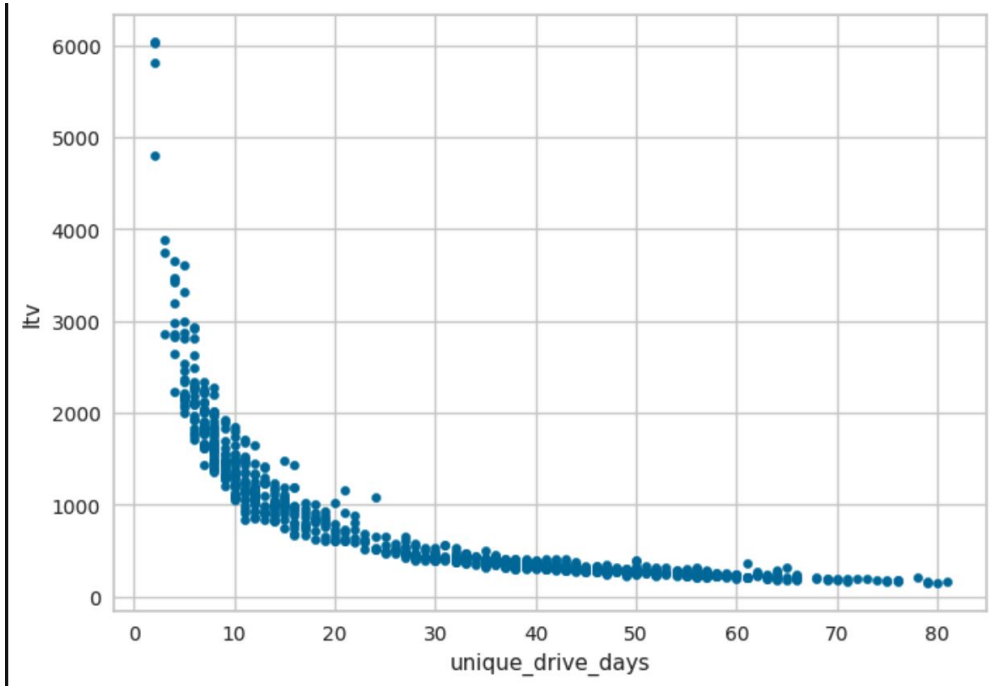
Main Factors Affecting LTV



We can see in this chart that number of different days driver has driven for has the most impact on LTV.

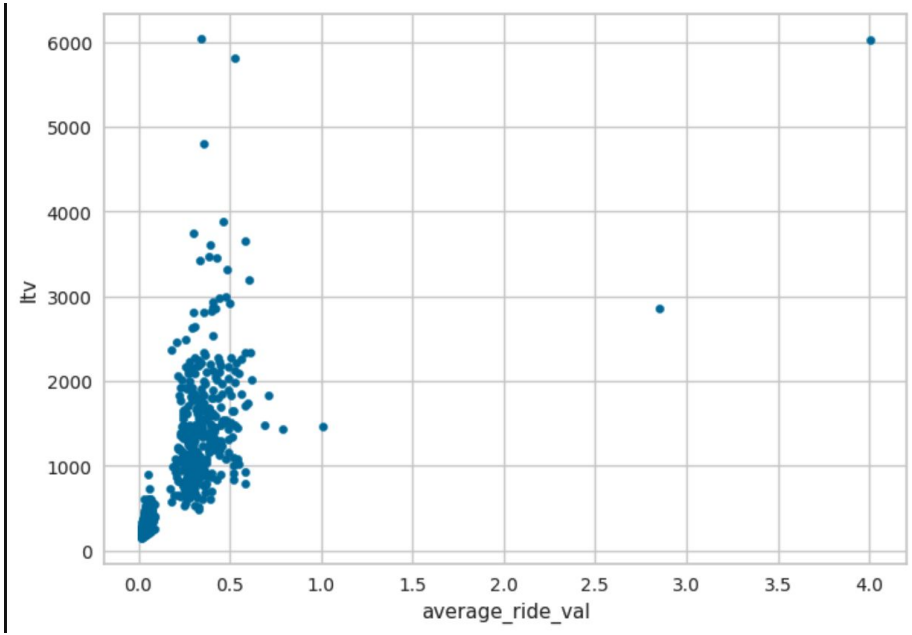
Some other factors include ride cost, usual fare for each driver's ride, how long in distance each ride is, how long in duration each ride is. With the following slides, you will see degree in which each behavior is linked to LTV.

Number of Unique Driving Days



Most interesting finding is that those who provide most value to Lyft drive the least number of days, which means whenever they're out completing rides, they have a high volume of rides they are completing!

Average Ride Value

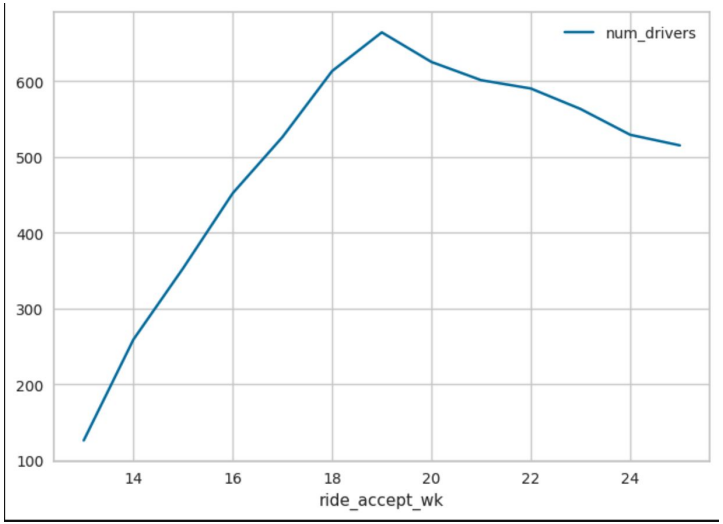


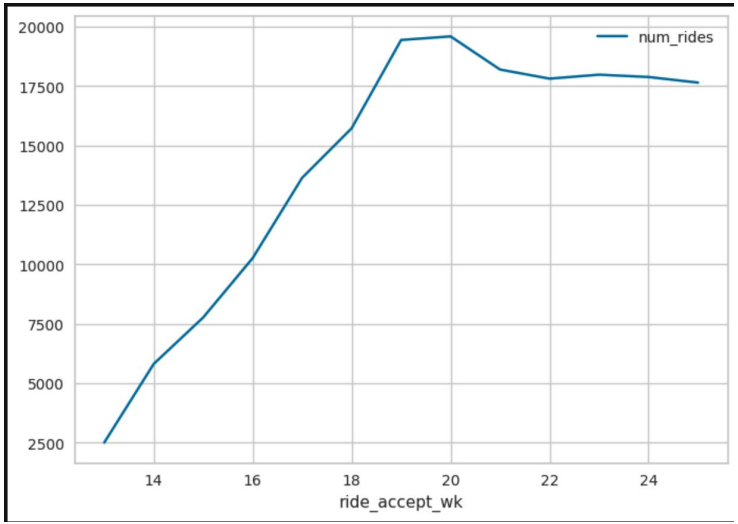
Even the average ride value ($) does not have a strong correlation to LTV as would be suspected would be a strong indicator for high LTV.

Average Projected Lifetime of Driver

- This was determined by our churn rate
- Churn rate was determined by churn definition, which was driver who had no activity within 7 days from last recorded ride
- With churn rate determined, lifetime of driver defined as inverse of churn rate
- ```
  Average lifetime of driver:  2.7442622950819673 years.
  ```
  ```

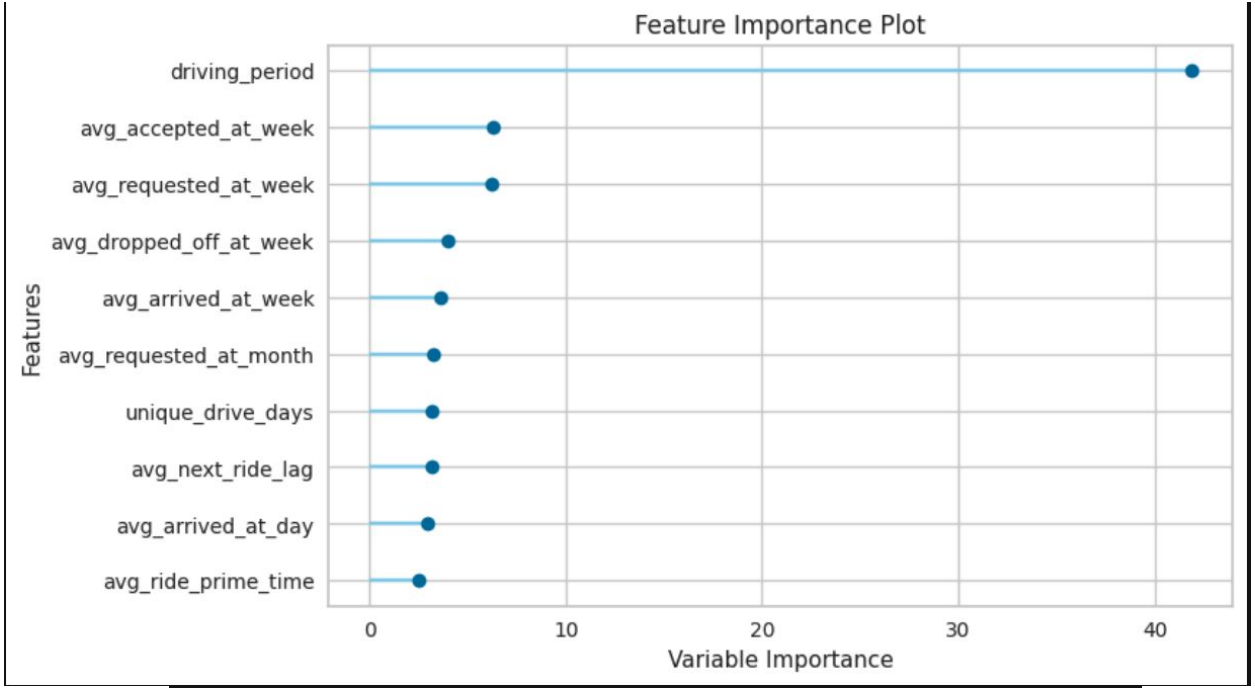
Number Rides and Active Drivers By Week





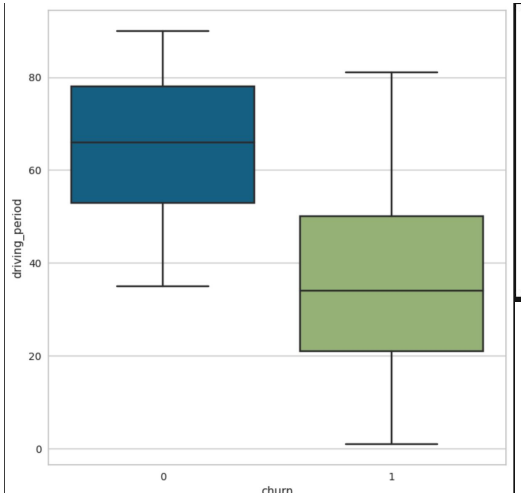
We can see here that number of rides trends with number of drivers until week 19 peak happens. Peak most likely due to promotion or maybe some special event. Afterwards, drivers head towards decline leading to marketplace imbalance.

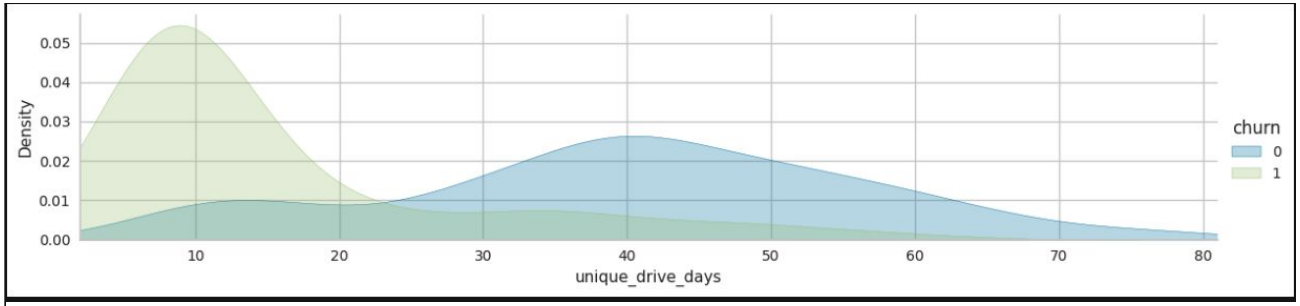
Churn



Driving tenure is the best indicator for churn. How long a driver has been on the platform/how long they have driven for is indicator for churning. Meaning those who are new to Lyft are the most prone to churning.

Factors Driving Churn

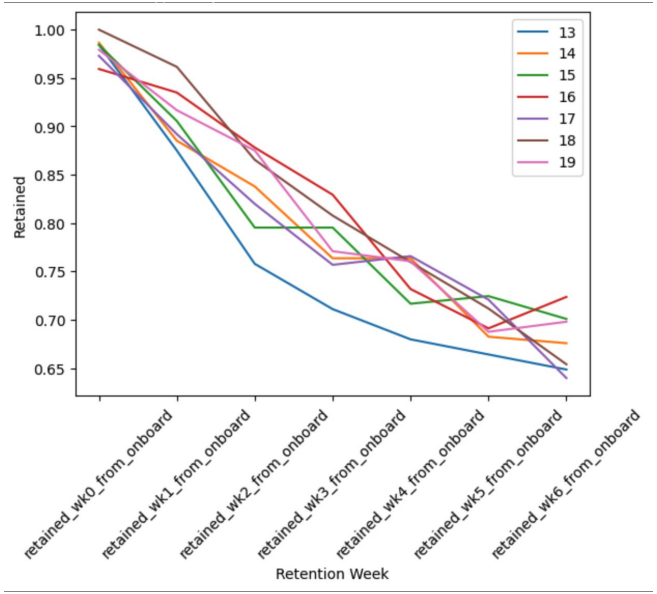




Clear difference between churn and non-churn when it comes to driving tenure and unique number of total driving days.

% Active Drivers By Onboard Week

cohort	drivers_attained	retained_wk0_from_onboard_perc	retained_wk1_from_onboard_perc	retained_wk2_from_onboard_perc	retained_wk3_from_onboard_perc	retained_wk4_from_onboard_perc	retained_wk5_from_onboard_perc	retained_wk6_from_onboard_perc
13	128	98.0%	88.0%	76.0%	71.0%	68.0%	66.0%	65.0%
14	148	99.0%	89.0%	84.0%	76.0%	76.0%	68.0%	68.0%
15	127	98.0%	91.0%	80.0%	80.0%	72.0%	72.0%	70.0%
16	123	96.0%	93.0%	88.0%	83.0%	73.0%	69.0%	72.0%
17	111	97.0%	89.0%	82.0%	76.0%	77.0%	72.0%	64.0%
18	104	100.0%	96.0%	87.0%	81.0%	76.0%	71.0%	65.0%
19	96	98.0%	92.0%	88.0%	77.0%	76.0%	69.0%	70.0%



- Cohort 13 (blue) performed worst, but product/marketing did something to improve retention WoW after that with subsequent cohorts having greater ride activity
- Although cohort 15 and 17 have the steepest WoW retention following cohort 13, 15 slightly recovers 5 weeks out from onboard date whereas cohort 17 continues to dip
- Cohorts 16 & 19 have the best uplift at week 5 from onboard date
- Cohort 18 had perfect retention during same week as drivers were onboarded, but steadily declines in retention
- Best cohort in general is cohort 16

Actionable Recommendations for Lyft

- Considering that those contributing most to Lyft's revenue and hopefully profitable are those who drive a lot during the days they drive, would be best to reward these customers. This would incentivize them/reinforce this strategy of maximizing time out on the road. Possibly free/discounted tickets to events they like would be a good move to increase LTV/retention.
- In order to determine how to increase activity/engagement of churned drivers I would recommend a deeper dive into user journeys and see what behavior brought high LTV/power users from casual user to loyal Lyft driver. Further investigation needed to determine 'ah-ha' moment to safeguard against driver/supply drop-off.
- Also, looking into factors contributing to onboard week #15 and #19 would help bring supply to a healthy level to ensure supply is met in marketplace.
- Considering that a Lyft lifetime is approximately 2.5 years, at 2 year mark, providing some bonus in monetary or car maintenance reward would make driver feel recognized and supported and most likely carry-on as a Lyft driver.
- To increase retention rates, go heavy on incentives 1 week out from onboarding and whatever incentive/promotion was given for cohort 18 to start driving so quickly as well as for cohort 16 to have overall great retention rates continue to replicate that strategy since engagement was high during those times.

Appendix

Analysis/Code: Attached .pynb file