

Practical Assessment

1. Using the dataset:

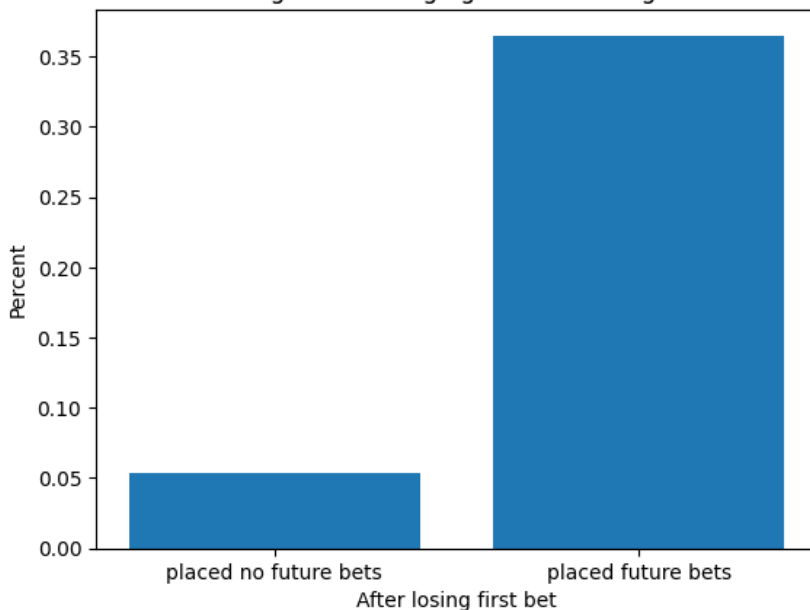
- *Conduct an analysis of findings for a marketing or business stakeholder*
- *Visualize your results in a way that you best see fit in the role of an analyst (feel free to use a programming language, querying language, or any other free visualization tools of your choice for this)*
- *Provide 2-3 potential actionable insights with evidence from your findings. Provide a summary or presentation of your conclusions.*
- *How would you use the data or your findings to create a cross-sell (Casino, DFS, Racing & Gaming) opportunity?*

- Using python I wrote code to analyze findings for a marketing strategy or business stakeholder. This is found in the .ipynb file submitted along with this.
- I visualized my results using matplotlib, a python library for data visualization also in the .ipynb file attached to this.
- Note: I combined parlays into one 'bet' (or row in my dataframe), so if the parlay 'legresult' was a loss then the bet was lost. These rid of correctly bet legs of a parlay which do not lead to a win on the overall legresult.

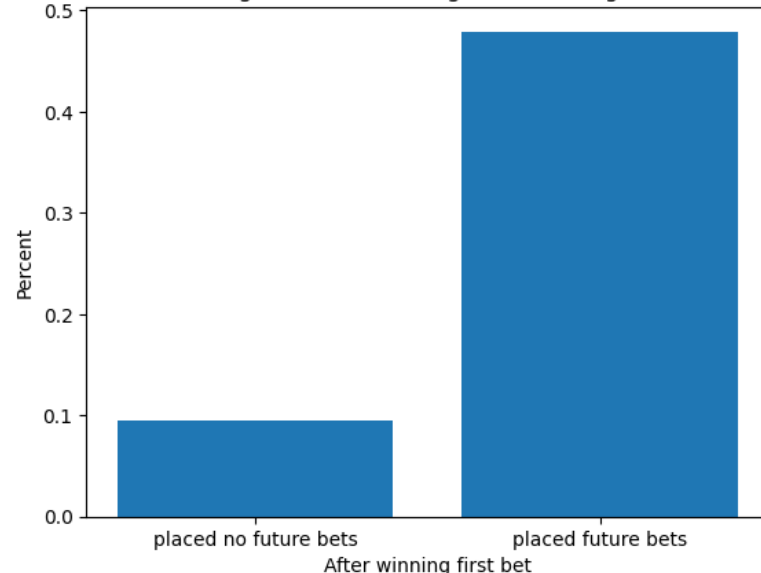
When analyzing the data I focused on insights for user retention. First off, users who bet more than once make up 98.3% of the ggr and 99.38% of the net_stake of the given csv file. Keeping that in mind, the sportsbook parlay winnings are about 23% more than that of straight bet winnings. But, straight bets are about 74% of the total bets users make.

It was then interesting to note that only 5.38% of users who won their first bet, never placed another bet, and 36.49% of users who won their first bet, did indeed place another bet. On the other hand, 9.56% of users who lost their first bet, never placed another bet, and 47.92% of users who lost their first bet, did indeed place another bet. About 15% of Users only place one bet.

Percentages of betting again after losing 1st bet



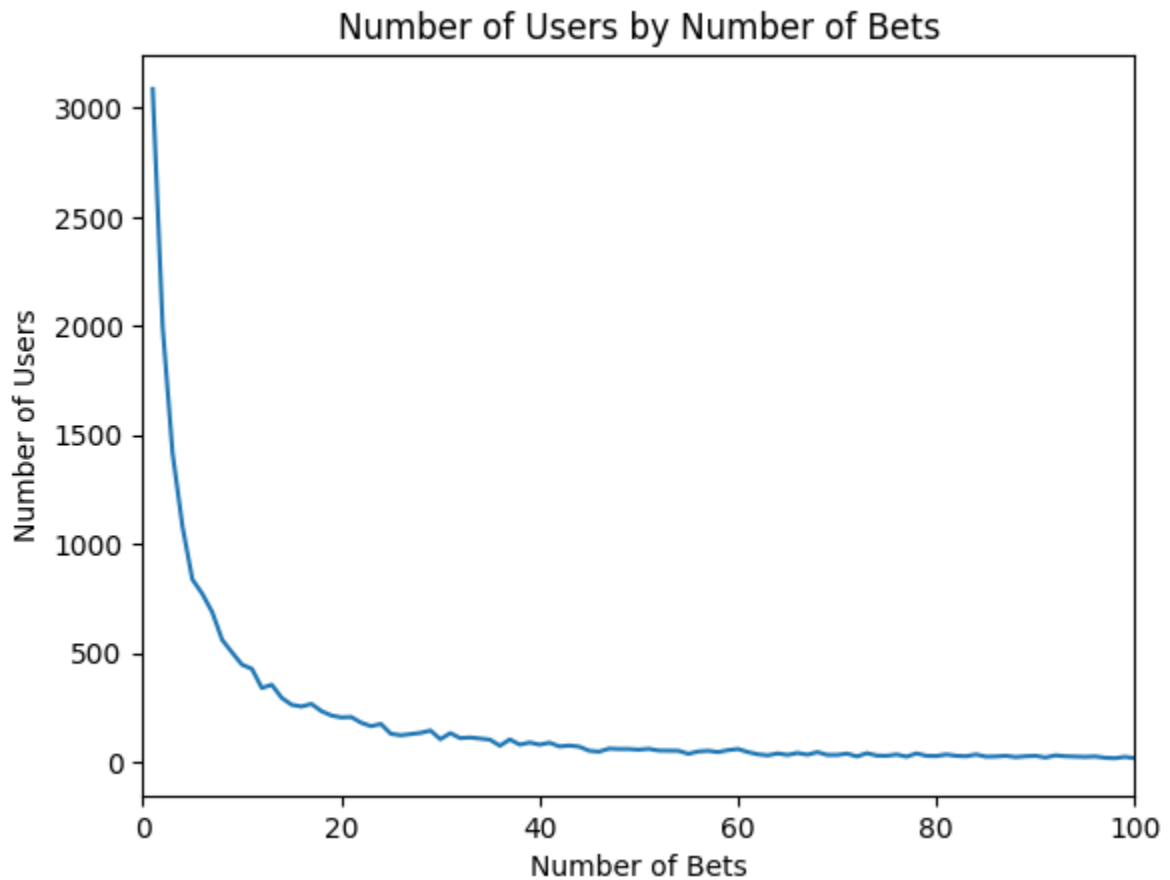
Percentage of future betting after winning first bet



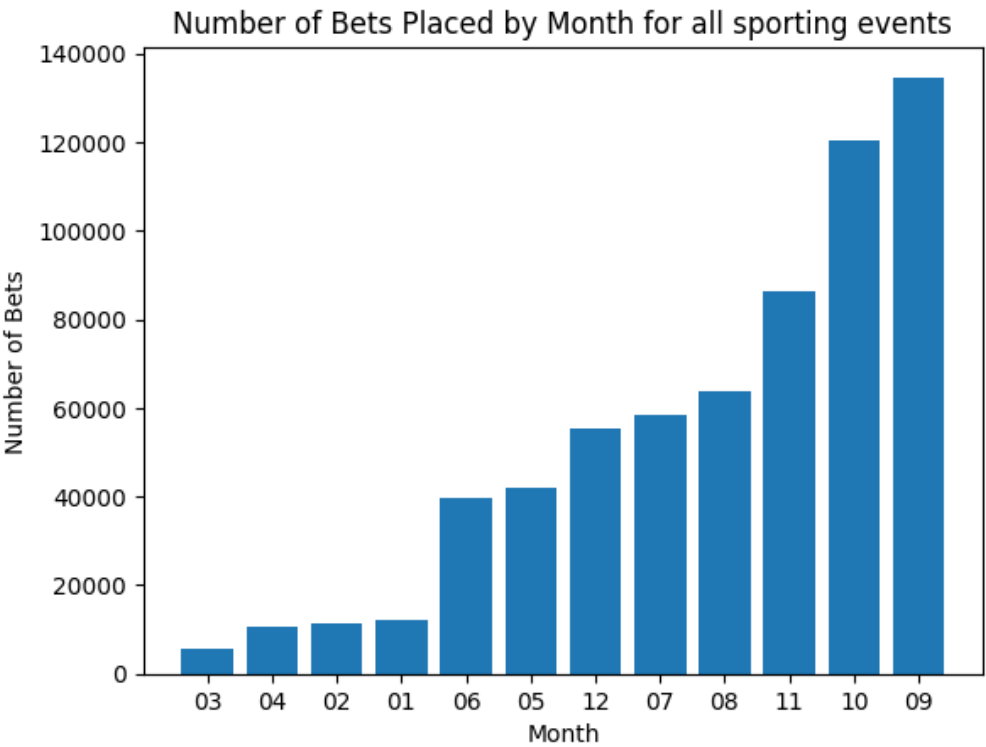
Actionable Insights:

After seeing these numbers and assuming they transition to real-world data, FanDuel should consider different promotions in order to increase user retention on the sportsbook. First off, when users download and sign up for FanDuel they are most likely ready to place a bet. With that being said, a focused promotion on the users second bet may work best. FanDuel could boost users odds on the second bet they place to entice them to keep using FanDuel.

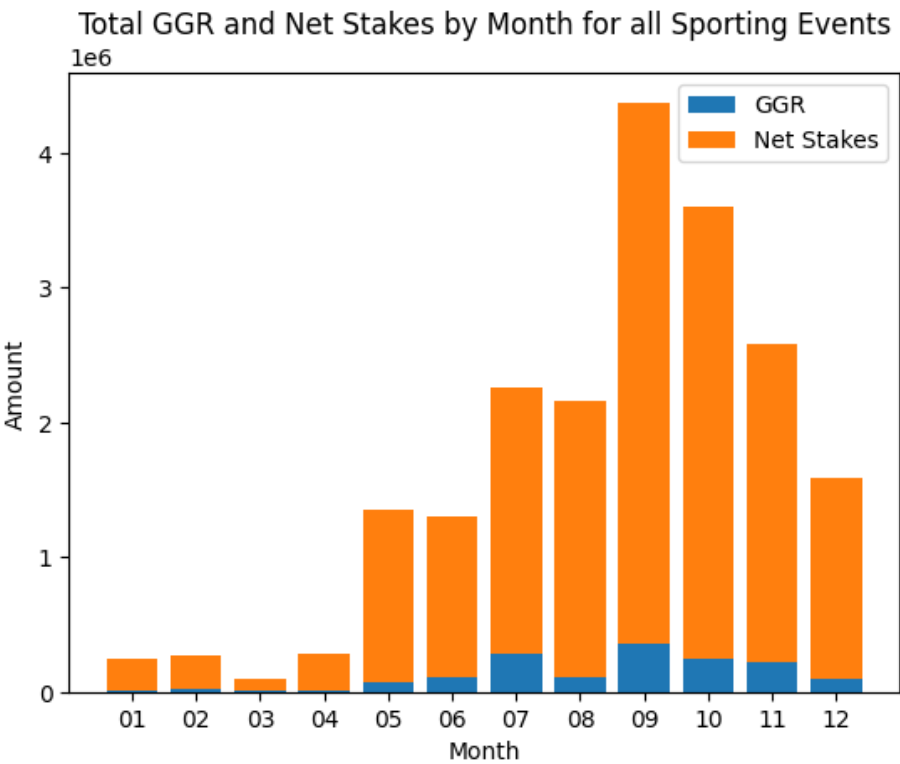
Reload bonuses could also entice users to bet again if given free bets or deposit matches for users who deposit into their account. If a user has money in their account they're more inclined to use it, especially if that amount is a high number. Meaning, users with 40\$ may be more inclined to bet money then those with only 20\$ in their accounts. These reload bonuses could give users the extra cushion they need to feel more incentivized to place more bets. But without having data on users balances and the frequencies in which different balance amounts place bets, this is just theory. In summary, a promotion applied when the user makes an account after their first bet would hopefully lead to a lower percentage of one-time users.



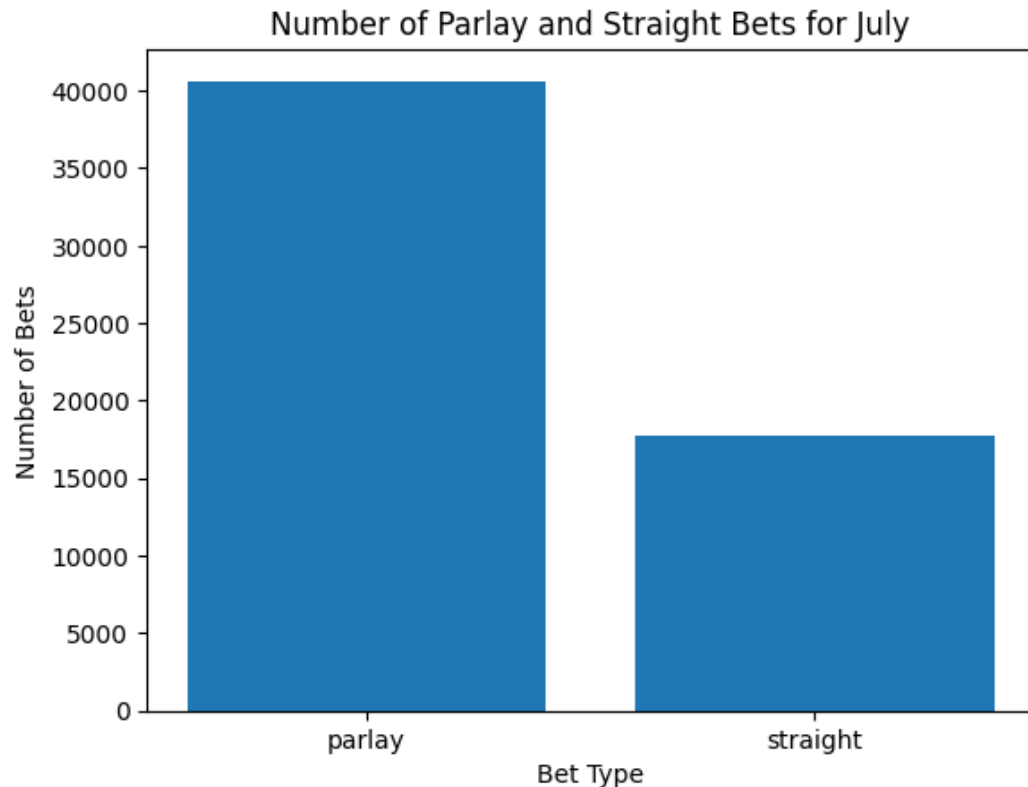
For my second actionable insight, I analyzed the number of bets placed for each month of the year. This can vary greatly from sport to sport but on the overall scale, we see November, October, and December to be substantial months where users place bets.



Taking this a step further, we can also see the total net_stakes and ggr per month.



Seemingly, the months with more bets have a higher ggr for the sportsbook. It's interesting to note that in July(month 7) we see a fairly high ggr for a relatively low net_stakes. Taking this a step further I decided to analyze why that was;



We have a large amount of parlay bets this month, which as stated earlier are more profitable for the sportsbook. MLB was the most-bet sport this month with over 40,000 bets placed. This could be because the All-Star game takes place this month. FanDuel could take advantage of this by applying bonuses directly to MLB games this month such as Boosting the Odds for picking the Home-Run Derby winner. This will hopefully incentivize users to stay involved as the MLB playoffs follow shortly in October. Even if the sportsbook decides to take a loss by offering large bonuses during this month, this could lead to more profit in upcoming months as users may become more involved in MLB and start betting on the playoffs.

My last actionable insight is to offer large losers and large winners major prizes.



Using a clustering algorithm I found common groups of users relating to net_stake and ggr. Focusing on the two outliers we see a group with a large negative ggr and one with a high positive ggr. The user(s) who incurred major loss and/or major gain should be granted VIP bonuses. Access to a special betting event or exclusive bonuses would hopefully keep these users using this sportsbook. Users with high-volume or high-value should be treated with special considerations although they aren't the majority of the sportsbook profit. Even if one of these users posted a photo of a big bet they won, this alone is free marketing and could draw more customers.

d.

I had mentioned many cross-sell strategies during my actionable insights but here are some more.

Target users who have won their first bet. As mentioned, users who have won their first bet are more likely to place another bet. FanDuel could target these users with promotions for other products or services, such as casino games, DFS, or racing.

Target users who place bets during certain months. FanDuel could target users who place bets during certain months with promotions for products or services that are popular during those months. For example, FanDuel could target users who place bets in November with promotions for the NFL playoffs.

Target users who place parlay bets. As mentioned earlier, parlay bets are more profitable for the sportsbook than straight bets. FanDuel could target users who place parlay bets with promotions that encourage them to place more parlay bets. For example, you could offer a bonus for every parlay that is won.

Target VIP users. As mentioned earlier, VIP should be granted to the most engaged users with the sportsbook and are therefore the most likely to generate revenue. You can reward VIP users with exclusive bonuses, such as access to exclusive events or special promotions.

Specific examples of cross-sell promotions:

- Offer a 20% discount on casino games to users who have won their first bet.
- Offer a free DFS contest to users who place bets during the month of November.
- Offer a bonus for every parlay that is won.
- Give VIP users access to exclusive events, bonuses or special promotion

2. What is a sportsbook research project you would be interested in conducting with access to FanDuel's data?

a. Submit a write-up of what this project would look like including the reason behind the idea, the hypothesis, variables you would want to look at, and a potential methodology (500-1000 Word).

Project Title:

Increasing FanDuel's User Retention Rate by Boosting Odds

Reason Behind the Idea:

The sports betting industry is highly competitive, and sportsbooks are always looking for ways to attract and retain users. One way to do this is to offer better odds and unique promotions. This can be done by boosting the odds of winning for users who have lost their previous bet, or for users who bet on a particular team or sport frequently.

Hypothesis:

I hypothesize that boosting odds will increase retention rate. In other words, I believe that users who are offered better odds are more likely to continue betting with a particular sportsbook. This is because better odds make it more likely that users will win their bets, which can lead to excitement and satisfaction.

Variables:

The following variables would be important to consider in this project:

- Amount of money bet
- Number of bets placed
- Time spent on the FanDuel website or app
- Customer satisfaction(or if this is hard to measure you could base satisfaction as a metric of the percent of users betting again)

Methodology:

The following methodology could be used to conduct this project:

1. Collect data on user behavior from the FanDuel website or app.
2. Identify users who have lost their previous bet, or who bet on a particular team or sport frequently.
3. Offer these users better odds.
4. Track the amount of money bet, the number of bets placed, the time spent on the FanDuel website or app, time of the day the user places their bets and customer satisfaction.

Conclusion:

This project would provide valuable insights into the effectiveness of boosting odds to increase retention rate. The findings of this project could be used by FanDuel to make decisions about how to attract and retain users.

In addition to the variables mentioned above, other factors that could be considered in this project include:

- The type of sport being bet on
- The time of year
- The day of the week
- The location of the game
- The weather conditions
- The popularity of the teams involved
- The outcome of the game (and significance of game, i.e. playoffs, Stanley Cup, regular season game)

By considering all of these factors, FanDuel can gain a more comprehensive understanding of the effectiveness of boosting odds to increase retention rate.

Here are some additional details about how to implement this project:

- The data that needs to be collected for this project includes the amount of money bet, the number of bets placed, the time spent on the sportsbook website or app, and customer satisfaction. This data can be collected through a variety of methods, such as website analytics, surveys, and customer feedback forms. Through the FanDuel application these numbers could be easily extracted.

- To identify users who have lost their previous bet, or who bet on a particular team or sport frequently, the sportsbook can use a variety of methods, such as tracking user behavior on the website or app, or using customer segmentation tools.
- Once the users have been identified, the sportsbook can offer them better odds on their next bet. This can be done through a variety of methods, such as email marketing, in-app notifications, or pop-up banners on the website.
- The sportsbook should track the amount of money bet, the number of bets placed, the time spent on the sportsbook website or app, and customer satisfaction to measure the effectiveness of the project. This data can be used to make adjustments to the project as needed.

Here are some potential challenges that may be encountered when implementing this project:

- FanDuel may not have access to the necessary data to track user behavior and identify users who are likely to be interested in better odds
- FanDuel may not have the resources to offer better odds to all users who are interested (too large of a loss in revenue)
- FanDuel may not be able to measure the effectiveness of the project due to a lack of data or too many factors affecting the psyche of the user and therefore hard for FanDuel to measure (i.e. offering multiple promotions at once)

Here are some potential solutions to these challenges:

- FanDuel can partner with a data analytics company to collect the necessary data.
- fanDuel can offer better odds to a select group of users who are likely to be interested and have a positive response to the promotions
- FanDuel can use a variety of methods to measure the effectiveness of the project, such as tracking user behavior, surveys, implementing one promotion at a time and customer feedback forms.

Overall, this project has the potential to increase retention rate for FanDuel users. By offering better odds to users who are likely to be interested, FanDuel can encourage users to continue betting with them.