FANDUEL SPORTSBOOK

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OVERVIEW

In this report, I will detail the comprehensive process undertaken to clean, organize, analyze, visualize, and report on the dataset provided in detail to be used for further understanding in conjunction with the PowerPoint Presentation. Additionally, the original request for the outline of a Sportsbook Generosity Experiment can be found here at the end of the report. The dataset captures transactional records related to user betting activity, including information on when, where, and on what types of events users placed their bets, as well as details such as odds, staking amounts, and Gross Gaming Revenue (GGR). The findings and recommendations are tailored to address the needs of marketing and business stakeholders, with a focus on actionable insights and strategies to enhance user engagement and revenue growth. The analysis revealed several key insights about Sportsbook Performance, Opportunity for Growth, User Behavior and much more. These were all taken into consideration when theorizing a Bonus Bet Promotion that would aim to increase engagement and provide more GGR for the business. Lastly, I'll outline an experiment of a Sportsbook Generosity Scheme which similarly has the aim of increasing engagement and retention of customers by trialing Flat vs Tiered Bonus Bets.

These strategies leverage the data to not only boost immediate activity but also foster deeper user loyalty. By targeting high-value segments, optimizing promotions for peak periods, and personalizing rewards, these recommendations aim to create a compelling, data-driven framework for user engagement. The findings and proposed initiatives are designed to align with business objectives, ensuring they deliver measurable value in both the short and long term.

DATA PREPARATION

DATA SUMMARY

The size of the data as a whole presented a significant challenge, as it was too large to open and process effectively in Excel. This limitation necessitated the use of Python, which provided the tools needed for thorough data exploration and analysis. Using Python, I was able to begin exploring the dataset, which revealed it contained over 4 million rows of data. The original dataset featured a variety of attributes, including State, PlayerID, WagerID, Bet Type, Net Staking, GGR, Sports League, Odds, and various timestamps. This extensive dataset offered a comprehensive view of customer behavior and provided the depth required for robust analysis.

ASSUMPTIONS

In order to analyze the data some assumptions had to be made off the early discoveries when first examining it. These were as follows:

- Each WagerID represents each leg of a parlay or a straight bet
- The WagerID is not unique
    - This was a unique finding and so in order to maintain data integrity when making any calculations I merged the PlayerID with the WagerID
    - This ensured that if there were duplicate WagerIDs then they would be made unique when paired with the respective PlayerID
- Parlays can include a combination of multiple sports leagues
    - This doesn't directly pose a problem but when trying to allocate ggr or staking by sport it then begs the question which sports receive the staking or ggr for mixed parlays

    - So the method I used to solve for this was by dividing the financial metrics of a parlay by it's size and splitting them proportionality
        - For example, a 3 Leg Parlay $30 with 2 NBA and 1 NFL selections would have $20 assigned to NBA and $10 assigned to NFL

CLEANING/REMOVED DATA

Finally before presenting any findings or analysis, cleaning the data was necessary as there were missing values in some columns, irrelevant data in others and other anomalies. Below are the respective data points I removed:

- NaN's in Decimal Odds column totaling 2,472 rows
- Legresults as "Void", "Open" or "Unknown" totaling 26,324 rows
- What appeared to be an input error within the "Placed_Date" column of "0021"
- Removed any related legs of bets from the steps above
    - all combinations of PlayerID and WagerID in these rows from the cleaned dataset
- Initial Row Count: 4,174,500
- Remaining Rows Count: 4,090,752
- Drop Rate 2% The size of the dataset isn't significantly affected by the removal of the respective rows.

MARKETING AND BUSINESS STAKEHOLDERS ANALYSIS

The analysis below dives into various aspects and dimensions of customer betting behavior on the FanDuel Sportsbook. These include Sportsbook Performance (Net Stake, GGR, GGR Margin), Opportunity for Growth, Customer Behavior and others. As Marketing and Business Professionals have many overlapping objectives the analysis is constructed to deliver as best information as possible to either party.

SPORTSBOOK ACTIVITY ANALYSIS

Looking into the general performance of the sportsbook we can see that it handled $78.4 million in bets returning a GGR of $5.7 million which yields a 7.36% Margin. This a decent Margin rate but still falls below a "Good" rate of 10%. Examining the breakdown of Straight Bets vs Parlays we see there is an interesting story. Though Straight Bets handle more in total ($67 Million to $11 Million) they return a lower Margin on average compared to Parlays (5.76% to 16.97%). This could be an opportunity for the Marketing team to exploit when rolling out Promotions, as we'd like to increase the engagement of Products that will yield us a higher margin.

Total			
Bet Type	**Net Staked**	**GGR**	**GGR Margin**
Straight	**$67,178,383.76**	**$3,868,435.18**	**5.76%**

Parlay	**$11,226,393.52**	**$1,904,912.32**	**16.97%**
Both	**$78,404,777.28**	**$5,773,347.50**	**7.36%**

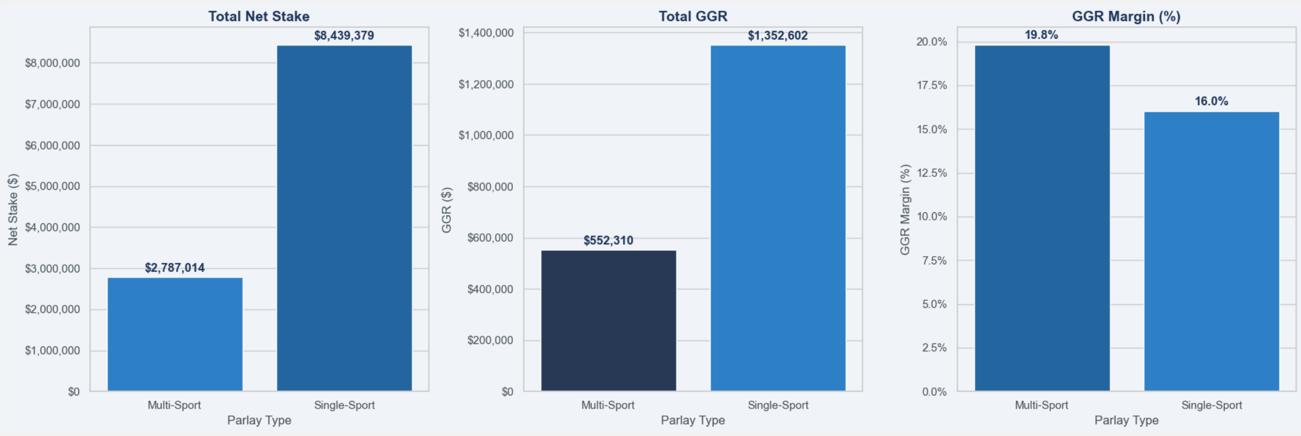
As the Parlay seems to be the more profitable product we'll analyze it by some of the relevant data points such as Sports League. Below is the breakdown of Parlays by the respective Sports League, and we can make some interesting observations. The League with the highest GGR Margin is not one of the 4 Major US Sports but rather the Champions League (European Football). This could be due to variance caused by the smaller stake compared to other leagues. The next 4 highest Margins belong to the 4 Major Professional US sports leagues (NBA, NHL, NFL, MLB). I would still recommend the Marketing Team take note of this and possibly attempt to expand activity with the Champions League.

Parlay			
Sport	**Total Net Staked**	**GGR**	**GGR Margin**
Champions League	**$69,268.85**	**$12,931.85**	**18.67%**
College Basketball	**$1,300,851.72**	**$148,309.51**	**11.40%**
College Football	**$706,447.08**	**$111,512.17**	**15.78%**
MLB	**$1,442,207.72**	**$241,067.53**	**16.72%**
NBA	**$3,374,298.22**	**$625,616.79**	**18.54%**
NFL	**$3,681,555.15**	**$646,958.66**	**17.57%**
NHL	**$651,764.78**	**$118,515.81**	**18.18%**
Total	**$11,226,393.52**	**$1,904,912.32**	**16.97%**

OPPORTUNITY FOR GROWTH (PARLAYS)

SINGLE SPORT PARLAY VS CROSS-SPORT PARLAY ANALYSIS

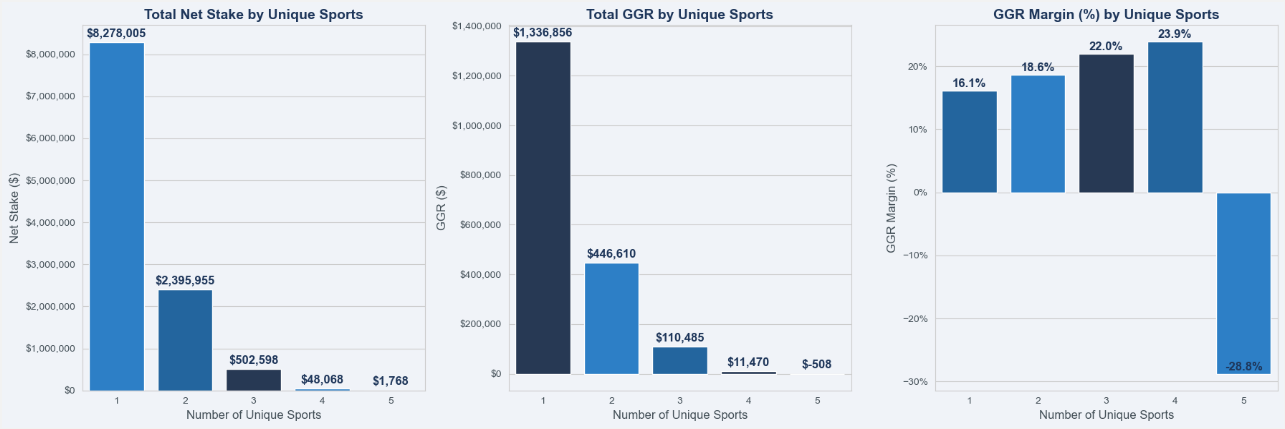
As Parlays offer the greatest margin for the business and is significantly higher than straight bets, I would classify it as an Opportunity for Growth that deserves more analysis. One way to segment parlays is to look into Single-Sport Parlays and Multi-Sport parlays. For example, Single-Sport Parlays would only have one distinct sports league on any of the legs while Multi-Sport Parlays could have a combination of sports such as NBA, NFL, etc. Analyzing our key metrics of Total Net Stake, Total GGR, and GGR Margin we can see the results below. We see that Single-Sport Parlays make up the majority of Staked Parlays and Total GGR. However, the margins for Multi-Sport Parlays are higher standing at 19.8% compared to 16%.



This finding leads me to believe that a possible Marketing campaign could be to promote cross sport parlays. Such campaigns have already taken place especially in the New York area which are advertised as "The Big Apple Parlay", combining selections of the Yankees, Mets, Knicks and others. These offerings can be attractive to bettors who are passionate about local teams while providing us higher margins and thus returns if engagement is increased.

PARLAYS BY SIZE

Single-sport parlays have proven to be the most engaging option for bettors, as reflected in key metrics like Net Stake and Gross Gaming Revenue (GGR). This consistent trend suggests that bettors are more likely to place parlays within a single sport due to their familiarity and confidence in predicting outcomes within that category. The simplicity and perceived ease of analyzing and making predictions within one sport make single-sport parlays an appealing choice for the average bettor. This high level of engagement highlights the importance of understanding user preferences and optimizing the betting experience around this type of wager. However, when we move to multi-sport parlays, a noticeable decline in engagement is evident with each additional sport included. This trend signals that while bettors may be attracted to the excitement and potential rewards of diversifying their wagers across multiple sports, the increased complexity of accurately predicting outcomes across different events reduces overall participation. The challenge of managing and evaluating multiple variables at once can be daunting, leading to decreased user confidence and fewer bets placed. This shift in behavior provides important insights into the way bettors interact with more complicated wagering options and underlines the need for strategies that address these challenges.



From a financial perspective, margin analysis reveals that the sportsbook stands to benefit as more sports are added to a parlay. With each additional leg, the probability of a winning bet decreases, which shifts the odds in the sportsbook's favor and increases the overall margin. While this shift is profitable for the sportsbook, it also implies a higher level of risk for the bettor, making multi-sport parlays a more complex and less appealing option for many users. This dynamic is crucial for the sportsbook's strategy, as it highlights a balance between encouraging engagement with high-margin bets and ensuring that bettors remain interested and active. Anomalous data, such as the observed negative margin for parlays involving five different sports, presents an intriguing challenge. This result could indicate an outlier or a skewed outcome due to an unusual number of unexpected results impacting the data set. It's important for the sportsbook to determine whether this negative margin is a consistent trend or a one-off anomaly. Understanding the underlying reasons for such results could help refine predictive models and adjust future strategies.

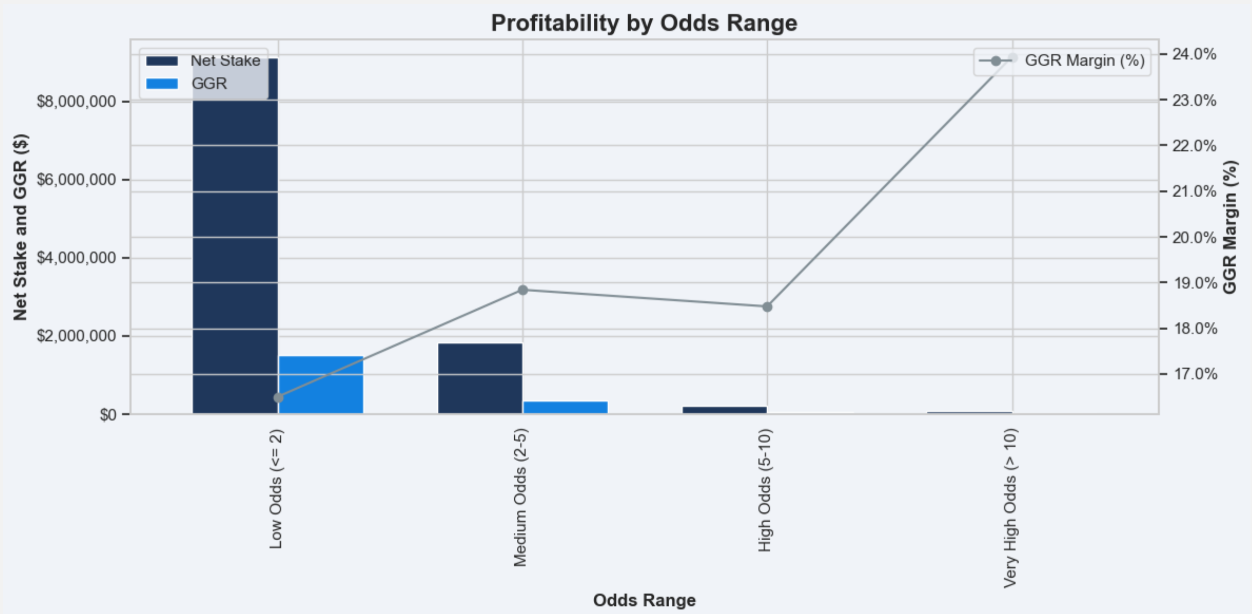
The potential for growth lies in finding ways to improve engagement with multi-sport parlays. While these bets naturally carry a higher margin for the sportsbook, they also present an opportunity to attract more bettors by addressing their concerns about complexity and risk. Strategies like targeted promotions, better odds, and incentive-based betting options could draw more interest to these higher-margin wagers. Additionally, providing educational content on constructing successful multi-sport parlays and designing user-friendly interfaces that simplify the betting process could help bridge the gap between complexity and user engagement. By making multi-sport parlays more accessible and appealing, the sportsbook can capitalize on their higher profitability while boosting overall customer participation and revenue.

PROFITABILITY BY ODDS

Profitability by odds offers a valuable perspective on how different types of parlays contribute to the sportsbook's bottom line. Analyzing this segment reveals a clear pattern: as the odds increase, the GGR (Gross Gaming Revenue) margin tends to rise. This is an expected finding, as higher odds inherently carry greater risk for bettors, leading to a higher profit margin for the sportsbook when those bets do not succeed. However, this relationship also presents a unique challenge for the business. Many bettors are naturally risk-averse and are less likely to engage with bet types that are perceived as high-risk, even when they offer higher potential returns.

The data shows that engagement, as measured by Net Stake, decreases significantly as we move from low odds to very high odds categories. This is a critical insight, indicating that while higher odds can lead to better margins, they are not attractive enough to draw significant bettor activity. This represents an untapped opportunity for the sportsbook to increase revenue by finding ways to drive engagement with higher-risk, higher-margin bets. To address this challenge, strategic marketing initiatives are needed to entice more bettors to place wagers at higher odds. One potential approach is implementing promotional tactics such as "Bad Beat" exceptions, where bettors who experience a close loss could receive their initial stake back. This type of offer can help soften the blow of high-risk betting and increase the appeal of these wagers. Other strategies might include introducing bet insurance, offering bonuses for multi-leg parlays that include higher odds, or leveraging personalized communication to highlight the potential rewards of engaging with these bet types.

Educating bettors on the potential upside of higher odds while managing their perceived risk can also make a difference. Tailored content, such as guides on how to build successful high-odds parlays or tools that allow for risk assessment, could help bettors feel more confident when engaging with these options. By addressing the barriers to entry for higher-odds betting and showcasing its benefits, the sportsbook can capture more of the potential revenue from this lucrative segment while maintaining user interest and loyalty. Ultimately, while higher odds provide better margins for the sportsbook, their current low engagement level presents both a challenge and an opportunity. Strategic marketing and educational initiatives designed to increase participation in higher-odds parlays could unlock a significant revenue stream and strengthen the sportsbook's overall profitability.



CUSTOMER BEHAVIOR

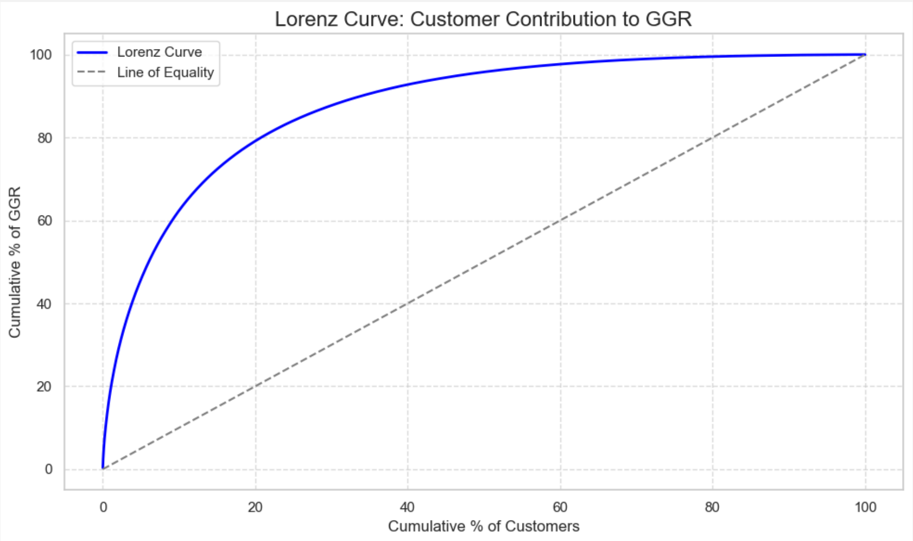
Understanding customer engagement with our products requires a deep dive into key metrics such as churn, activity, retention, customer lifetime value (both historical and predictive), segmentation, and other behavioral indicators. These factors paint a comprehensive picture of how customers interact with our sportsbook and reveal critical patterns in their engagement and spending habits.

The data shows that the behavior of our average customer reflects strong, long-term engagement with significant financial contributions. Over an average of four months, the typical player stakes a total of $2,158 across 65 bets, with an average wager of $36.58. This suggests that customers are inclined toward frequent, mid-sized bets that sustain their participation over time. With an average return of $57.36 for every $100 wagered, customers experience an expected house edge, reinforcing the profitability of the model. This engagement translates to an average Gross Gaming Revenue (GGR) of $158.97 per customer, emphasizing the value of sustained play among this group. However, averages alone can be misleading. High-spending customers significantly skew the data, making it essential to also consider the median customer for a more representative view. Median customers typically place 13 bets, staking $228 over a two-month period, with a much lower median wager size. Their Return to Player (RTP) of $40.07 per $100 wagered highlights quicker churn, potentially characteristic of less experienced or casual bettors. With a median GGR of $33.13, this group contributes less revenue per individual but constitutes a much broader portion of the user base.

This dual perspective on customer behavior reveals both opportunities and challenges. The averages highlight a core segment of loyal, high-value customers who account for a substantial share of revenue. These players are pivotal to the sportsbook's success and require tailored strategies to maintain their loyalty and maximize their lifetime value. At the same time, the medians underscore the importance of engaging a larger base of casual bettors, whose shorter-term activity and lower spending offer untapped growth potential. By leveraging this data, we can better align our strategies to address the diverse needs of our customer base. For high-value players, enhanced experiences such as personalized promotions, exclusive tools, and loyalty programs can sustain engagement and maximize revenue. For casual bettors, strategies such as easy onboarding, engaging campaigns, and retention-focused incentives can encourage more consistent activity and higher spending. Together, these approaches will ensure continued growth and a balanced, sustainable revenue model across all customer segments.

CUSTOMER CONTRIBUTION TO GGR: INSIGHTS AND IMPLICATIONS

The distribution of Gross Gaming Revenue (GGR) among our profitable customers highlights a striking pattern of concentration. A mere 6% of our profitable customers are responsible for generating 50% of the total GGR. Expanding further, the top 21% contribute 80% of GGR, and 34% drive 90%. Notably, 72% of these customers account for an overwhelming 99% of GGR, leaving a small proportion of revenue generated by the remaining 28%. This data underscores the heavy reliance of the business on a small segment of high-value customers. These top-tier contributors are the lifeblood of our revenue stream, but this dependence introduces inherent vulnerabilities. A shift in behavior, such as reduced betting activity, departure due to dissatisfaction, or external factors like economic downturns, could result in a significant and rapid decline in GGR. Moreover, such reliance magnifies the impact of competitive actions, such as promotional offers by rivals, or regulatory changes that could disproportionately affect these top contributors.



While the concentration of revenue presents risks, it also highlights key opportunities. The top 6% of customers clearly represent a lucrative segment, suggesting that efforts to identify, attract, and retain similar high-value bettors could be highly rewarding. By analyzing the behaviors and preferences of these top contributors, the business can fine-tune its offerings and marketing efforts to expand this valuable cohort. At the same time, the 28% of profitable customers contributing to just 1% of GGR present an untapped opportunity. Even modest increases in their activity—through personalized promotions, enhanced loyalty programs, or improved user experiences—could have a significant impact on diversifying and stabilizing revenue streams. Increasing engagement within this broader customer base would not only boost overall GGR but also reduce dependence on the top 6%.

To safeguard against the risks associated with revenue concentration, the business must focus on diversification and customer retention strategies. Developing tailored rewards for mid-tier customers and designing promotions aimed at encouraging sustained engagement from casual bettors could help broaden the revenue base. Additionally, investing in data analytics to track and predict customer behavior can enable proactive measures to address potential churn among high-value customers. Simultaneously, fostering customer loyalty within the top 6% through exclusive incentives, VIP programs, or personalized services can help retain this crucial segment. Such strategies not only minimize the immediate risks of revenue volatility but also position the business for long-term, sustainable growth by catering effectively to a diverse range of customers.

INSIGHTS AND SUMMARY

The sportsbook's performance highlights key opportunities and challenges that require strategic attention. While the UEFA Champions League delivers the highest margin among sports, its low staking and revenue engagement suggest a disconnect between its profitability potential and customer interest. This presents an opportunity to explore targeted promotions or enhanced experiences to drive higher participation. Similarly, larger and multi-sport parlays generate the most GGR but attract limited engagement, signaling a need to better market these options or simplify their appeal to increase uptake. The reliance on high-value customers is particularly notable, with 21% of profitable users contributing 80% of GGR. This underscores the critical importance of retaining these customers through personalized experiences, loyalty rewards, and proactive engagement strategies. At the same time, the business must focus on converting more users into this high-value segment by identifying traits and behaviors associated with profitability and tailoring interventions accordingly. Balancing these efforts can unlock sustainable growth while mitigating risks associated with revenue concentration.

BONUS BET PROMOTION

To create impactful bonus bet promotions, the segmentation of High Value Customers (HVCs) and analysis of their betting behaviors should inform both the design and targeting of offers. The top 21% of bettors, recognized as HVCs, demonstrate high Gross Gaming Revenue (GGR) returns, significant engagement, and repeat activity. Structuring promotions around these high-value bettors ensures a focused approach that drives retention, engagement, and lifetime value.

Customers can be categorized into four staking sizes: Low, Medium, High, and Very High. This segmentation supports the implementation of tiered free bet offers that align with their betting behaviors and preferences. For example, low stakers can be offered smaller free bets (e.g., $5–$10) to encourage continued engagement. Medium stakers can be incentivized with moderately sized free bets (e.g., $15–$25) to stimulate incremental volume. High and very high stakers can be rewarded with larger free bet opportunities (e.g., $50+) tied to specific multi-leg or high-stakes wagers to reinforce loyalty and amplify GGR. Promotions that encourage multi-sport parlays are particularly effective due to their higher GGR margins and potential for greater customer engagement. For instance, tiered free bets that are usable only on pre-selected parlays can be offered to incentivize cross-sport betting. An example of such a promotion could be: "Bet on all New York City teams to win across four major sports; if one leg loses, the free bet is reissued as parlay insurance." This kind of offer not only drives multi-sport engagement but also encourages customers to explore a broader range of betting options while providing a safety net that adds value to their betting experience. To evaluate the success of these promotions, it is essential to track and analyze key metrics. First, measuring GGR uplift can highlight the revenue increase driven by targeted promotions. Additionally, assessing engagement impact by monitoring changes in session frequency, bet volume, and time spent on the platform helps understand the effectiveness of the promotions. Lastly, retention metrics are vital for tracking reductions in customer churn and improvements in lifetime value for HVCs.

Refining promotional strategies further requires integrating bet- and customer-related data insights. Customer-related data such as session activity, wallet history, and referral patterns can provide critical information. For example, analyzing session activity can reveal betting frequency and engagement levels, while wallet history offers insights into deposit amounts, withdrawal patterns, and financial habits. Referral patterns can identify clusters of bettors and their shared behaviors, allowing for targeted campaigns that leverage group dynamics. Bet-related data is equally important. Understanding bet types and preferences can help tailor promotions around specific wagers such as spreads, over/under, or proposition bets. Event timelines and payout speeds can enhance customer satisfaction by ensuring timely payouts. Reviewing the effectiveness of prior promotions can inform adjustments to thresholds and offer structures, making future promotions more effective. By combining these data points, the business can craft highly personalized campaigns that resonate with HVCs' preferences and habits. This data-driven approach ensures that promotions not only attract high-value bettors but also maintain their loyalty and engagement over time.

In summary, through segmentation and data-driven insights, bonus bet promotions can effectively target HVCs by staking size and engagement patterns. Multi-sport parlays with tiered free bets and parlay insurance encourage cross-sport participation and higher stakes. Tracking GGR uplift, engagement, and retention metrics ensures the alignment of promotional strategies with business goals. Additionally, we can then notice patterns in customers that have the potential to be HVC's. Finally, leveraging comprehensive bet- and customer-related data creates a foundation for personalized and impactful campaigns, fostering loyalty and maximizing lifetime value for high-value bettors.

SPORTSBOOK GENEROSITY EXPERIMENT

Crafting effective promotions is a cornerstone of success in the sportsbook industry. Promotions serve as key levers to boost customer engagement, foster loyalty, and drive sustainable revenue growth. The need for strategic promotional design becomes especially apparent in a competitive landscape where customer preferences and behaviors can vary significantly. This study evaluates the relative impact of two distinct promotional structures—flat bonus bets and tiered bonus bets—on customer behavior and Gross Gaming Revenue (GGR). The study employs a randomized controlled trial (RCT) to rigorously analyze how these promotions resonate across diverse customer segments and influence both short-term and long-term engagement metrics.

The hypothesis driving this experiment is that "tiered bonus bets yield higher GGR and engagement, particularly among high-value bettors who are motivated by escalating rewards". Conversely, "flat bonus bets are hypothesized to increase GGR and engagement among casual and lapsed bettors due to their simplicity and ability to lower participation barriers". The primary objective is to determine which promotional strategy optimally enhances key business outcomes such as GGR, engagement, and retention. The results of this analysis will provide actionable insights for refining promotional design to maximize effectiveness.

METHODOLOGY

To ensure the reliability and validity of the experiment, the study draws on FanDuel's extensive user base. A stratified random sampling method would be used to select the respective customers as it would be an unbiased representation of the population. The sample size of approximately 17,000 users (16,588) was determined using statistical calculations to achieve a 99% confidence level with a ±1% margin of error. The calculation follows the formula: where the Z-score (2.576 for 99% confidence), represents the proportion of the population (0.5, assuming maximum variability), and is the margin of error (0.01). This robust sample size ensures sufficient statistical power to detect meaningful differences in outcomes across experimental groups.

To enhance representativeness, the sample was stratified into three key customer segments: casual bettors, lapsed bettors, and high-value bettors. Casual bettors engage sporadically and typically prefer promotions that lower barriers to participation. Lapsed bettors represent users who have recently disengaged and require incentives to reactivate their interest. High-value bettors contribute a disproportionate share of revenue and are likely to respond favorably to targeted incentives. Stratification ensures the experiment captures behavioral nuances across these diverse segments, allowing for tailored insights into promotional effectiveness. The study's experimental design employs a three-group RCT spanning a 30-day intervention period, followed by a 30-day cool-down phase to assess retention effects. Participants were randomly assigned to one of the following groups:

- **Group A:** Receives a flat $25 bonus bet for placing a qualifying bet of $50 or more.
- **Group B:** Receives tiered rewards based on qualifying bets: $10 for a $50 bet, $25 for a $100 bet, and $50 for a $200 bet.
- **Group C:** Serves as the control group and receives no promotional incentives.

This structure ensures an unbiased evaluation of the causal effects of promotional strategies on user behavior and GGR.

METRICS AND ANALYSIS

The study employs a comprehensive set of performance metrics to evaluate the impact of the promotional structures. These include:

- **Gross Gaming Revenue (GGR):** Total revenue generated per group.
- **Net Stake Per User:** Average betting amount adjusted for bonuses.
- **Bet Frequency:** Changes in the number of bets placed.
- **Redemption Rates:** Percentage of users redeeming the promotional offers.
- **Behavioral Shifts:** Indicators such as diversification into new bet types or increased multi-sport parlays.

Retention during the cool-down phase is a critical metric for assessing the long-term efficacy of each promotional structure. Additionally, subgroup analyses are conducted to determine which strategies resonate most with specific customer segments, such as casual versus high-value bettors. For instance, high-value bettors may exhibit greater responsiveness to tiered bonuses due to their incremental nature, while casual bettors may find flat bonuses more appealing for their simplicity. These analyses provide a nuanced understanding of customer behavior and preferences.

CHALLENGES AND MITIGATIONS

Conducting an experiment of this scale presents several challenges. Timing is a critical factor, as external variables such as major sporting events could artificially inflate engagement levels and distort results. To mitigate this, the trial is scheduled during periods of stable betting activity. Additionally, the risk of cannibalization—where promotions merely shift existing spending patterns without generating new revenue—is addressed by analyzing net user spend across groups to confirm incremental gains.

CONCLUSION

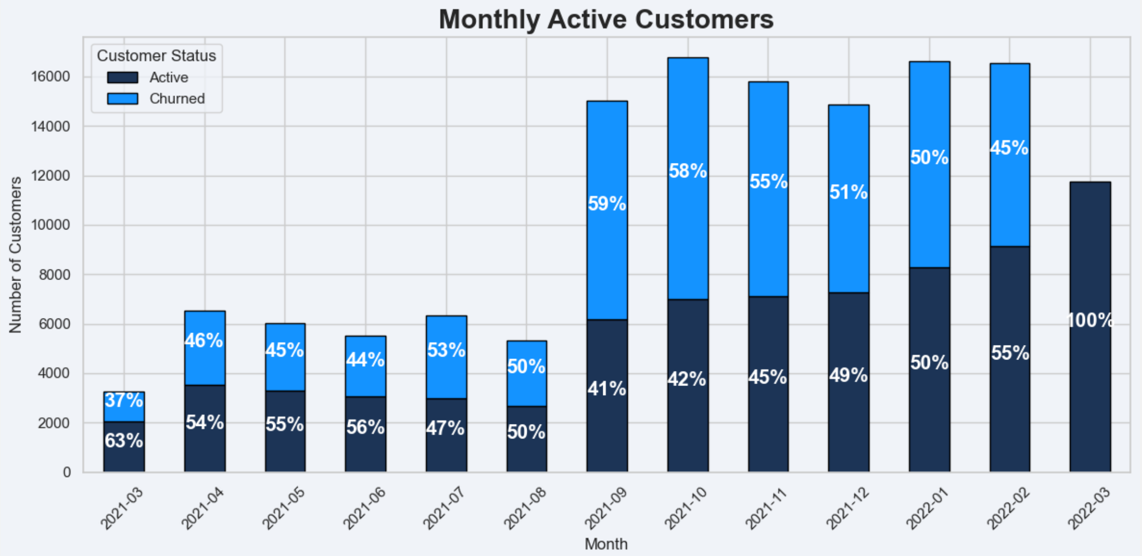
By rigorously evaluating flat versus tiered bonus bets, this experiment aims to optimize promotional strategies that maximize GGR and customer engagement. The use of a statistically robust sample and a stratified design ensures the findings are representative of the broader customer base, providing actionable insights into customer behavior and preferences. These results will guide future promotional initiatives, striking a balance between short-term revenue objectives and long-term customer loyalty. Ultimately, this approach underscores the sportsbook’s commitment to delivering data-driven, customer-centric experiences that foster sustainable growth in a competitive and dynamic industry.

APPENDIX

CHURN AND ACTIVITY

Unlike subscription-based businesses, where churn is clearly defined by the act of cancellation, defining churn in our sportsbook requires a subjective approach. For this analysis, churn is defined as a customer not placing a bet within 30 days of their last recorded activity in the dataset. Using this definition, we can track the total number of customers over time, examining the percentage who remain active versus those who have churned within each period. The data reveals a consistent churn rate over time, fluctuating between 45% and 60% of the total user base. This stability in churn rates is notable, especially against the backdrop of an expanding customer base. Over the past year, the number of active users has steadily grown, reaching approximately 9,000 active users per month as of February 2022. While the increase in absolute churn numbers reflects this growth in total customers, it is encouraging to see the active base growing at a healthy rate as well.

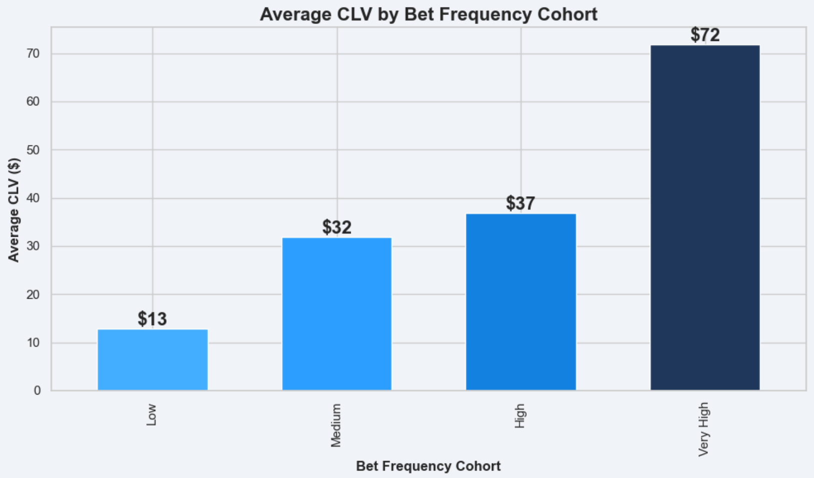
Seasonal trends have a significant impact on customer engagement. The start of the American football and basketball seasons in autumn drives a substantial uptick in the user base, as these two sports dominate our sportsbook, accounting for over 80% of total staked dollars. This seasonal surge highlights the importance of tailoring marketing and promotional efforts around these key periods to capitalize on heightened interest and maximize user acquisition. However, the overall churn rates point to potential challenges in customer retention. While the business is successfully attracting new users, its ability to retain them beyond initial activity could be considered suboptimal. This may be symptomatic of a lack of sustained engagement strategies, limited retention-focused incentives, or competition drawing customers elsewhere. It's important to note that acceptable churn rates can vary widely by industry, but maintaining a churn rate in the higher end of this range may not be ideal for long-term growth.



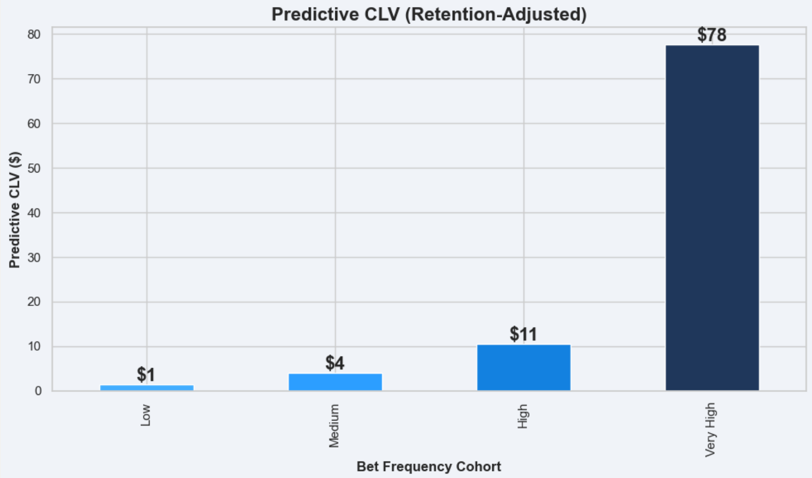
To address these retention challenges, the business could focus on creating a more engaging customer experience and implementing targeted retention strategies. Personalized promotions, loyalty programs, or rewards for consistent play could help to foster longer-term engagement. Additionally, analyzing the behaviors and preferences of both active and churned customers could provide actionable insights to refine retention strategies further. While the steady growth in the active user base is a positive sign, reducing churn should be a key priority. By encouraging longer-term activity and re-engaging churned users through tailored campaigns, the business can build a more robust and loyal customer base, ensuring continued growth and revenue stability in the face of increasing competition.

CUSTOMER LIFETIME VALUE

Customer Lifetime Value (CLV) is a critical metric for evaluating the long-term revenue potential of our customers. By examining both historical and predictive CLV, we gain a deeper understanding of how customers have contributed to our success in the past and how they might behave in the future. This dual perspective offers valuable insights into where our strengths lie and where opportunities for growth and improvement exist.



Historically, the average CLV across all customers has been $37.91, with a median value of $15.00. The disparity between these figures points to a heavily skewed distribution, where a smaller group of high-value customers drives a significant portion of the revenue. For instance, the top 10% of customers boast a CLV threshold of $140.00 or more, underscoring their importance to the business. This high-value segment comprises 3,626 users whose contributions are pivotal to our overall profitability. However, the low median CLV suggests that the majority of the customer base contributes far less. This dynamic reveals both a strength and a challenge. While the reliance on high-value customers highlights the effectiveness of catering to this lucrative group, it also signals an opportunity to engage the broader audience of mid-tier and casual bettors. This wider segment of customers holds untapped potential that, if unlocked, could significantly enhance overall CLV and revenue stability.

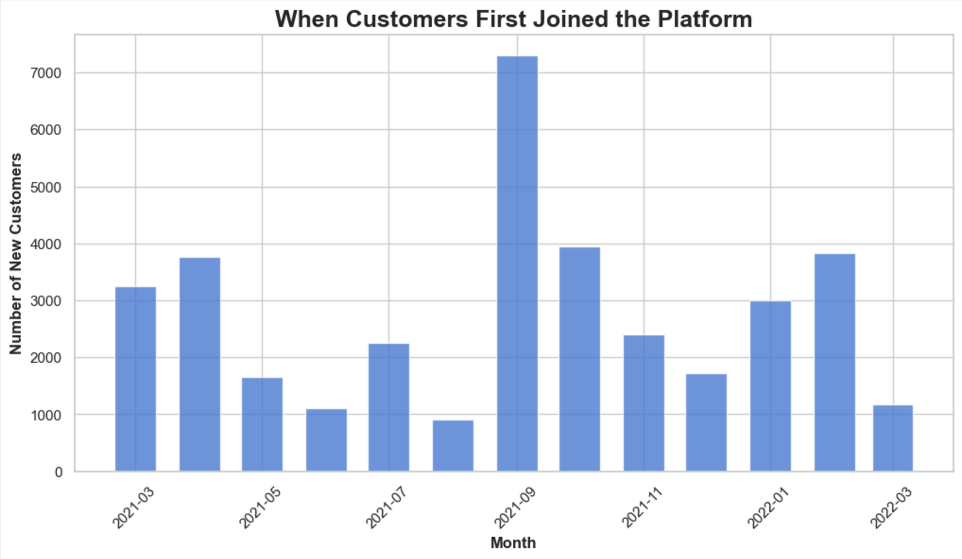


Looking forward, predictive models reveal a more cautious outlook. Based on forecasted retention rates, the average CLV is projected to decline to $23.42, with a median of just $7.31. This stark reduction reflects the challenges of sustaining long-term engagement and spending without targeted interventions. If current trends continue, the business risks underutilizing the potential of its existing customer base, leaving significant revenue unrealized. The divergence between historical and predictive CLV underscores the need for proactive strategies to safeguard against this potential decline. High-value customers remain a critical pillar of revenue, but their finite number makes them a vulnerable segment. To maximize their contributions, the business must focus on maintaining their loyalty through exclusive offers, personalized services, and VIP programs. At the same time, the broader customer base presents a significant growth opportunity. Encouraging greater engagement among mid-tier and casual bettors through targeted campaigns, loyalty incentives, and improved user experiences could help balance the revenue mix and foster more sustainable growth.

By addressing both the high-value segment and the wider customer base, the business can create a more diversified and resilient revenue model. Investments in predictive analytics and data-driven marketing will be essential to these efforts, allowing for tailored strategies that meet the unique needs of different customer groups. Bridging the gap between historical performance and predicted outcomes will not only stabilize revenue but also position the business for long-term success in a competitive market.

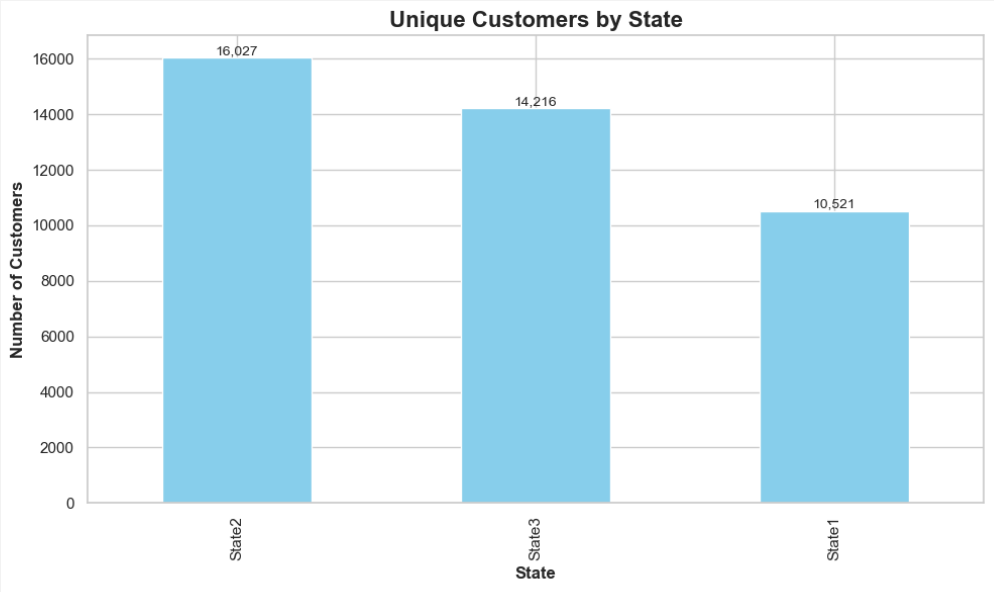
TIME ANALYSIS

Examining our data points under the context of time we can gather relevant insights. For example, we see below when customers placed their "first" bets. As we aren't certain of their sign up period and any previous bets outside of the data I was given I assume their first bet is truly their first bet. There is a spike in September this likely due to the start of the NFL and College Football Seasons. This declines significantly but then begins to increase again in the post season of the NFL.

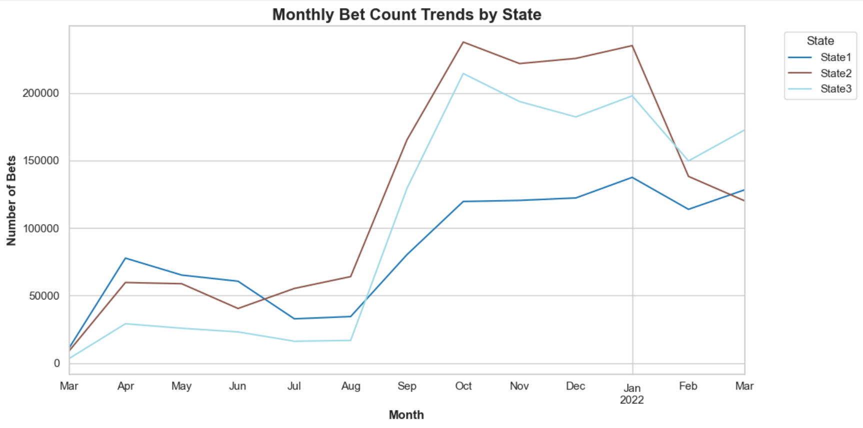


CUSTOMER LOCATION

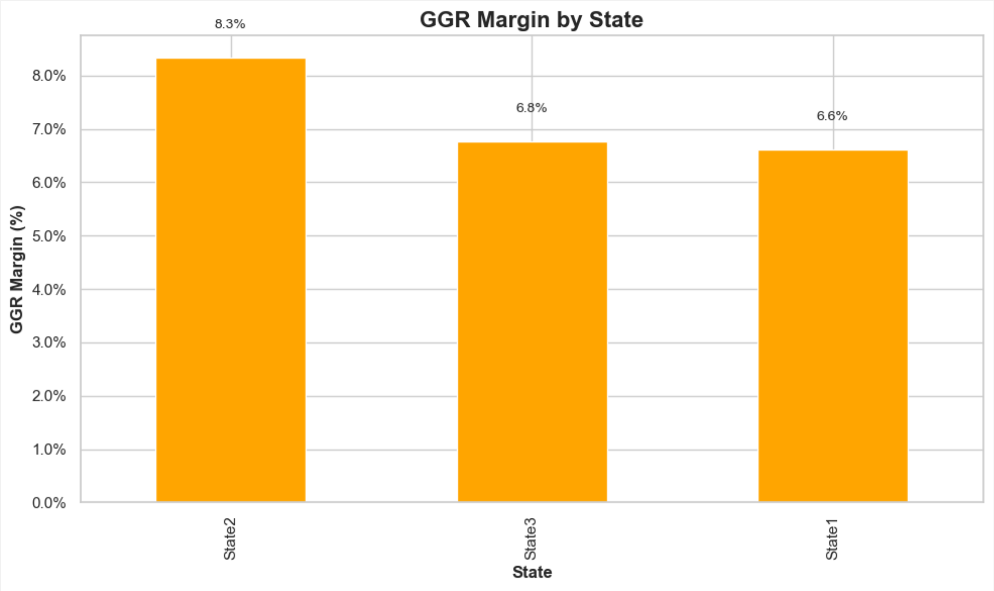
One valuable dimension for understanding our customers is **Location**. Examining the sample of users across the three states provided reveals notable differences in customer size, albeit not dramatically so. State 2 leads with 16,027 customers, followed by State 3 with 14,216 customers, and State 1, which has the smallest customer base at 10,621. These variations in customer size may be attributed to factors such as state legislation and market maturity, as well as cultural and demographic influences, including financial demographics, local preferences, and societal attitudes.



When analyzing betting activity over time, it becomes evident that the states follow similar trends, suggesting that they are likely at comparable stages of market maturity. For instance, if one state were significantly less mature, we might expect to see a more pronounced spike in activity relative to its sample size. However, betting activity across states generally scales with their population sizes, reinforcing the idea of comparable maturity levels.



The margin performance across states aligns with the observed trends in customer size and betting activity. State 2 has the highest margin at 8.3%, followed by State 3 at 6.8%, and State 1 at 6.6%. These figures indicate that margins, like customer size and betting activity, correlate with the relative standing of each state. Across all examined metrics—unique customers, betting activity, and margin performance—a consistent pattern emerges. State 2 leads across the board, holding the top position in customer size, betting activity, and margins. State 3 maintains a steady middle position, while State 1 lags behind. These insights provide a clear framework for prioritizing efforts and tailoring strategies by state, based on customer engagement and market characteristics.


GGR Margin by State
8.3%
6.8%
6.6%
8.0%
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
GGR Margin (%)
State2
State3
State1
State