

DraftKings Fantasy Sports Analytics: Insights & Recommendations

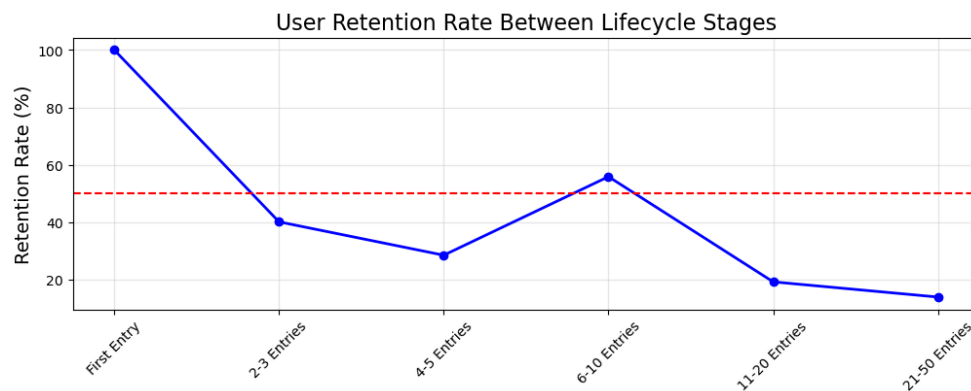
Introduction

This analysis examines a week of DraftKings NBA daily fantasy sports contest data from December 2017. The dataset contains detailed information on contests, user entries, player performance, and projections across various contest types and entry fee levels. The primary goal of this study is to identify opportunities to enhance the fantasy sports experience, optimize contest structures, and develop data-driven strategies to improve user engagement and retention.

Analysis 1: User Lifecycle & Retention

Methodology

The analysis tracked user progression through different stages of platform engagement, from first entry to becoming regular participants. By calculating retention rates between sequential lifecycle stages, critical drop-off points and opportunities to improve the user journey were identified.



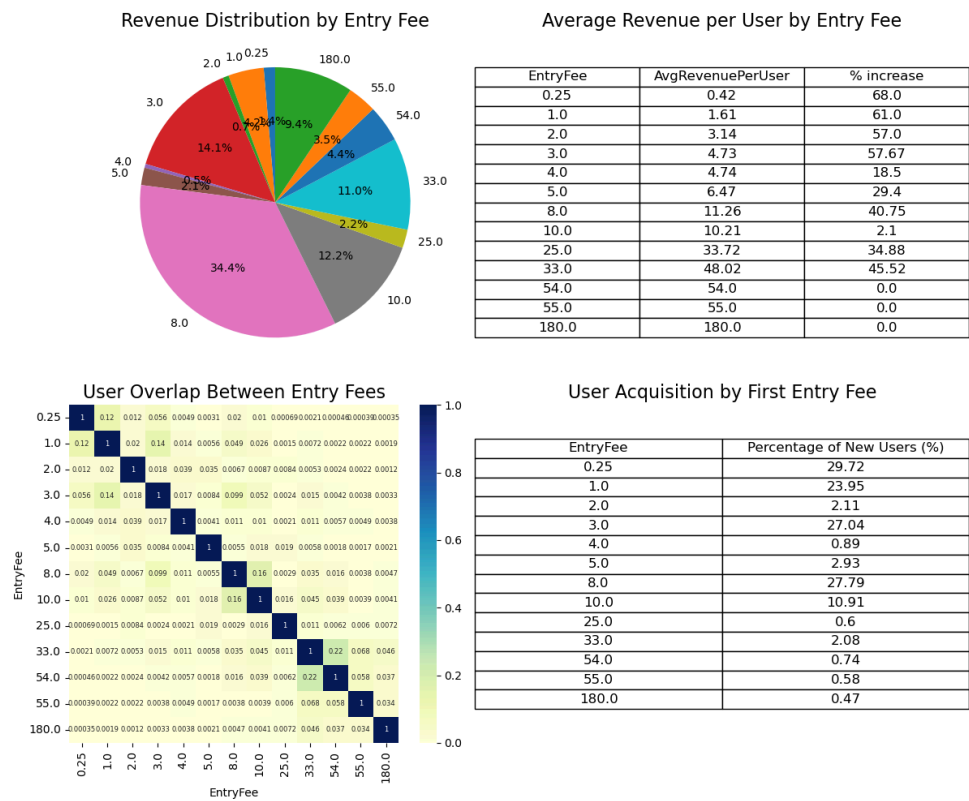
Key Findings

- **Critical Early Drop-off:** After their first entry, only about 40% of users continue to make 2-3 entries, representing the largest single drop in the retention curve.
- **Secondary Valley:** Retention drops again to approximately 30% at the 4-5 entries stage, indicating another critical decision point for users.
- **Engagement Recovery:** An interesting uptick occurs at the 6-10 entries stage (nearly 60% retention), suggesting users who reach this threshold develop stronger platform engagement.
- **Long-term Decline:** After the 6-10 entries peak, retention steadily deteriorates, reaching below 15% by the 21-50 entries stage.

Analysis 2: Contest Economics & Entry Fee Optimization

Methodology

This analysis examined the relationship between entry fees, revenue generation, user acquisition, and cross-contest participation. By visualizing revenue distribution and user behavior across different price points, opportunities to optimize the contest portfolio can be identified.



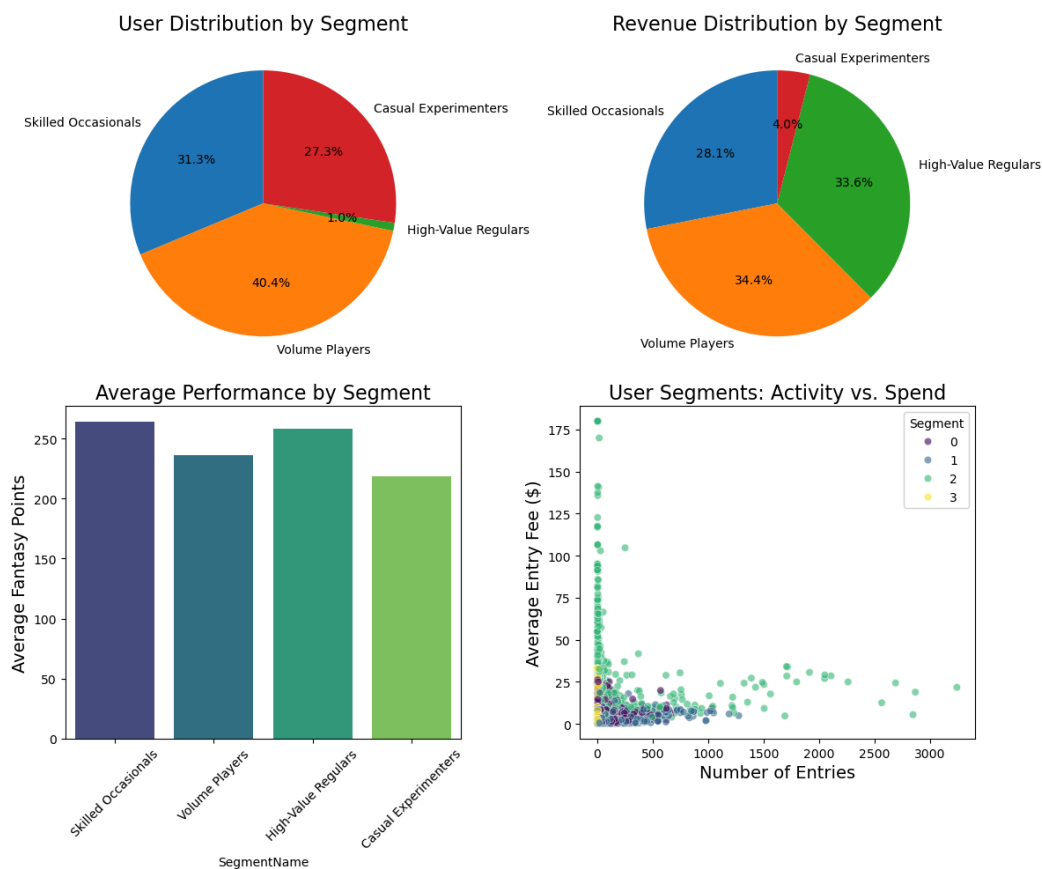
Key Findings

- **Revenue Concentration:** \$8 entry fee contests generate the largest revenue share (34.4%), while mid-tier entry fees (\$3-10) collectively account for over 60% of total platform revenue.
- **Revenue Efficiency:** Higher entry fee tiers show significant increases in average revenue per user, with notable jumps at the \$8→\$10 (40.75% increase) and \$25→\$33 (45.52% increase) transitions.
- **Limited Tier Mobility:** The user overlap heatmap revealed minimal crossover between entry fee tiers, with users typically staying within their preferred price range.
- **Acquisition Channels:** Lower entry fees (\$0.25, \$1) and the strategically positioned \$3 and \$8 tiers serve as the primary entry points, accounting for over 80% of new user acquisition.

Analysis 3: User Segmentation & Targeting

Methodology

Using clustering analysis on behavioral metrics including activity level, spending patterns, and performance, four distinct user segments were created. An analysis was then done to determine their contribution to platform revenue and engagement to develop targeted strategies for each group.



Key Findings

- **High-Value Asymmetry:** High-Value Regulars comprise only 1.0% of users but generate 33.6% of revenue, representing the highest value-to-volume ratio.
- **Performance Paradox:** Skilled Occasionals achieve the highest average fantasy point scores despite not being the highest spenders, suggesting untapped potential.
- **Volume Opportunity:** Volume Players (40.4% of users, 34.4% of revenue) represent a stable base with room for increased engagement through optimized offerings.
- **Conversion Potential:** Casual Experimenters (27.3% of users) contribute only 4.0% of revenue but represent a significant conversion opportunity with the right engagement strategy.

Potential Improvement Initiatives

Based on these analyses, different strategic initiatives could be implemented to enhance the DraftKings fantasy sports experience and business performance:

1. Lifecycle-Optimized Onboarding Experience

- **First-Time User Enhancement:** Create "Quick Win" guarantees for first-time users with partial refunds or free entries if they don't place in the top 70%.
- **Critical Transition Support:** Develop a targeted "5-Entry Achievement" program to help users navigate the challenging 4-5 entry valley with loyalty milestones and personalized skill development.
- **Engagement Amplification:** Expand successful elements from the 6-10 entry stage to earlier and later phases to maintain the engagement momentum.

2. Contest Portfolio Optimization

- **Strategic \$8 Expansion:** Develop additional \$8 contest formats to enhance the already successful price point with variations in prizes and roster requirements.
- **Tiered Progression Pathways:** Create explicit progression paths between adjacent fee tiers where overlap already exists (e.g., \$3→\$8, \$8→\$10) through targeted promotions and "level-up" incentives.
- **Portfolio Rebalancing:** Consolidate underperforming fee tiers (\$4, \$5) in favor of strengthening the most effective acquisition and revenue tiers (\$3, \$8).

3. Segment-Specific Experience Enhancement

- **High-Value Expansion Program:** Identify and convert potential High-Value Regulars from the Skilled Occasionals segment, focusing on top performers who aren't yet high spenders.
- **Skilled Occasional Retention:** Develop specialized contests and retention mechanics for Skilled Occasionals that reward performance over frequency, with weekend-focused events that match their play patterns.
- **Casual Experimenter Development:** Create a structured skill development journey to improve Casual Experimenters' performance and increase their conversion to higher-value segments.