Tackling Customer Churn at Planet Fitness

Business Problem & Goal of Analysis:

Business Problem:
Planet Fitness is facing a high customer churn rate, where customers discontinue their memberships. The Chief Marketing Officer (CMO) has expressed concern about members in the "fitness-curious" segment—customers who may either leave for more exclusive gyms or stop going to the gym altogether. Reducing churn in a cost-efficient manner is critical for stabilizing growth and maintaining profitability.

Goal of Analysis:
The goal is to identify the key factors contributing to customer churn, understand the behaviors of customers most likely to churn, and design actionable strategies to improve retention. Specifically, our objectives are to:

- Leverage the available data to extract meaningful insights about customer demographics, payment behaviors, and gym usage patterns.
- Build a predictive model to identify members at risk of churning.
- Offer clear, actionable recommendations to reduce churn while minimizing costs and risks.

Key Insights and Recommendations:

Key Insight 1: Payment-Related Factors

- Payment-Related Factors: Members with low down payments and non-recurring payment methods were significantly more likely to churn. This emphasizes the importance of financial commitment in reducing churn.

Recommendations:
Enhance Payment Strategies:

- Higher Down Payments: Introduce discounts or perks for members willing to pay higher down payments. This increases financial commitment, which correlates with lower churn.
- Recurring Payments: Promote recurring payment methods like Direct Debit by offering incentives. This method has been associated with reduced churn rates.

Key Insight 2: Usage Frequency

- Usage Frequency: Members with very low gym usage had a higher likelihood of churning, indicating that engagement plays a vital role in retention.

Recommendations:
Boost Member Engagement:

- Target Low Usage Members: Provide personalized offers, such as free personal training sessions or group fitness challenges, to members with low usage to foster engagement.
- Gamification: Use gamified challenges to encourage frequent visits, such as rewards for completing a set number of gym visits per month.

Key Insight 3: Age Filtering

- Age Filtering: After cleaning the data by removing ages below 16 and above 99, the realistic demographic insights revealed that age had some influence on retention but was not the primary driver.

Recommendations:

Demographic-Specific Marketing:

- Customize campaigns for different age groups and genders to better connect with members on a personal level, thus boosting loyalty.

Exploratory Data Analysis (EDA) findings:

1. **Usage Frequency Drives Churn**
   The first insight to emphasize is that gym usage frequency is the most significant indicator of potential churn. Members who use the gym less frequently, especially those classified as "Very Low" or "Low" usage, are at a high risk of churning. This suggests that focusing on engagement and increasing member activity levels can be key to reducing churn.
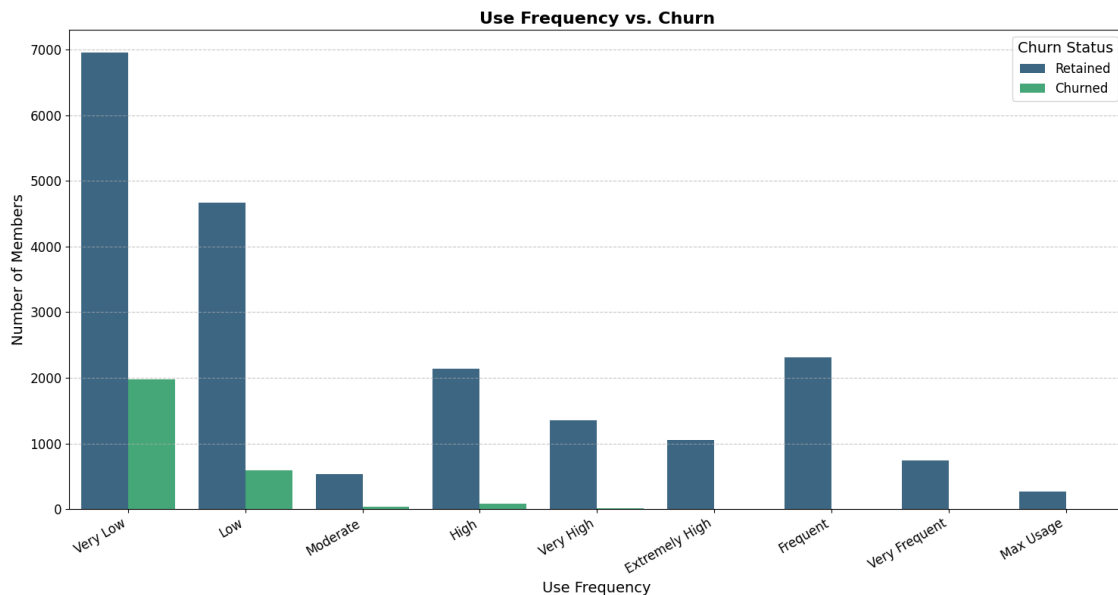

2. **Payment-Related Factors Are Strong Predictors**
   Next, we highlight the importance of financial commitment. Members with **lower down payments** or who use **non-recurring payment methods** (such as cash or one-time payments) are more likely to churn. Ensuring a stronger initial financial commitment and promoting recurring payments may help improve retention.

Feature Importance - Optimized Random Forest
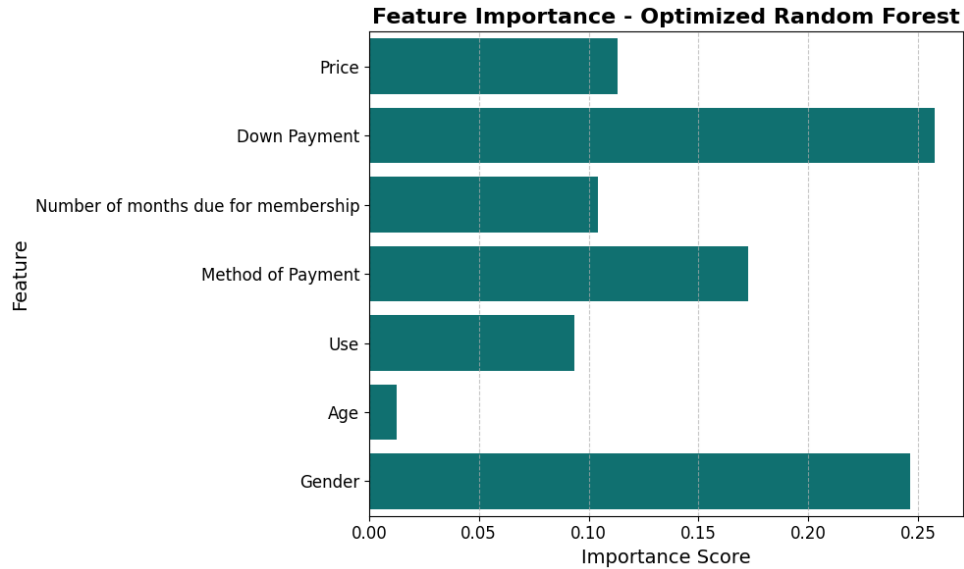
3. **Price Sensitivity**

There is a clear correlation between the price of memberships and churn. Lower-tier memberships are associated with higher churn rates. This indicates a potential issue with perceived value; members may not feel that the lower-priced options provide enough incentive to continue.

Distribution of Membership Price
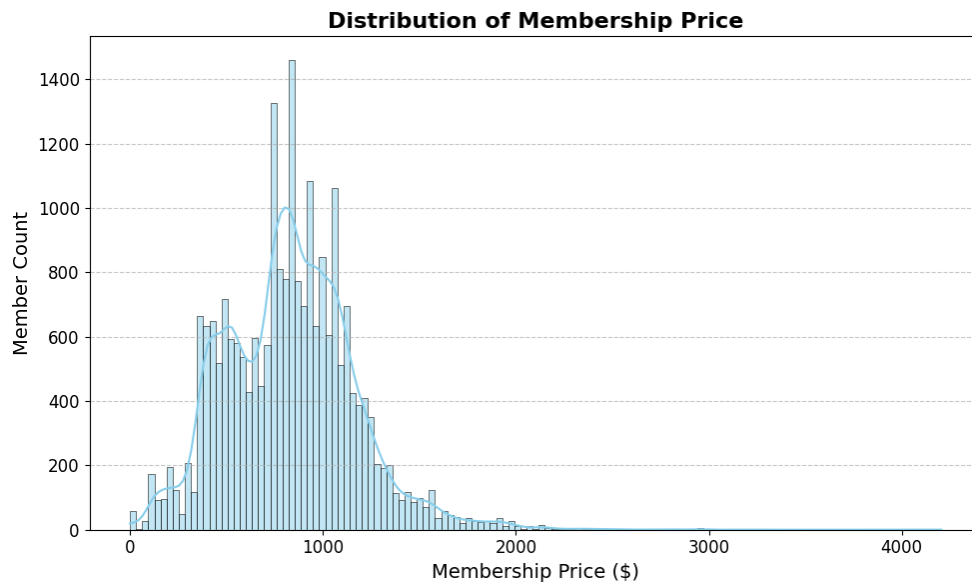
4. **Age Group Usage Patterns Impact Churn**

This visualization highlights the older members, especially those aged 65 and above, tend to churn more despite their engagement levels being initially high. In contrast, younger age groups (18-55) show consistent retention, even with lower usage. This insight suggests that retention strategies might need to be different across age segments, focusing more on personalized engagement for older members to sustain their membership and encourage long-term loyalty.
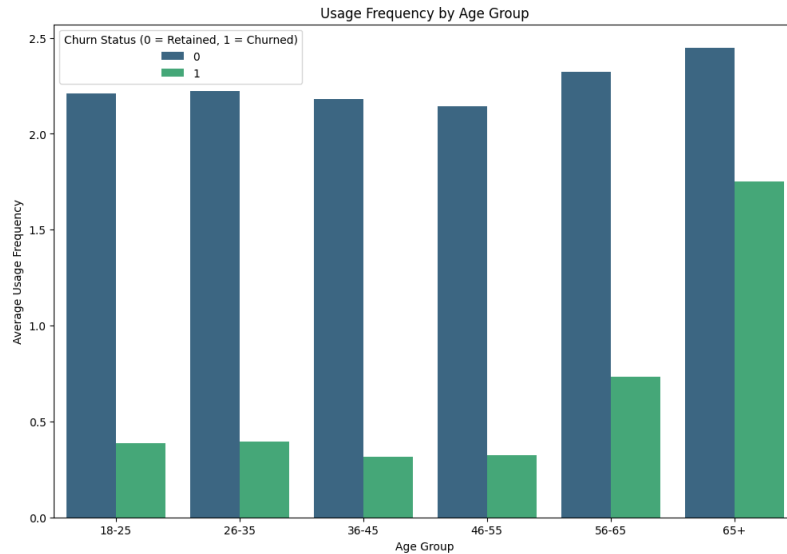
Modeling Approach:

To effectively address the churn problem, we explored several modeling approaches, including:

- Logistic Regression: Provided basic interpretability but lacked effectiveness in accurately identifying churned members.
- Random Forest: Initial model achieved high accuracy but showed limitations in identifying minority (churned) classes.
- Random Forest with SMOTE: Improved recall for the churned class, effectively addressing class imbalance.
- Optimized Random Forest: This final version provided the best balance between recall and precision for the churned class, making it suitable for practical deployment.

Model Performance:

- Optimized Random Forest achieved recall of 0.67 and precision of 0.58 for the churn class, striking a good balance between catching potential churners and minimizing false positives.

- Confusion Matrix: Visualized the model's performance, showing the ability to correctly predict customers at risk of churning.
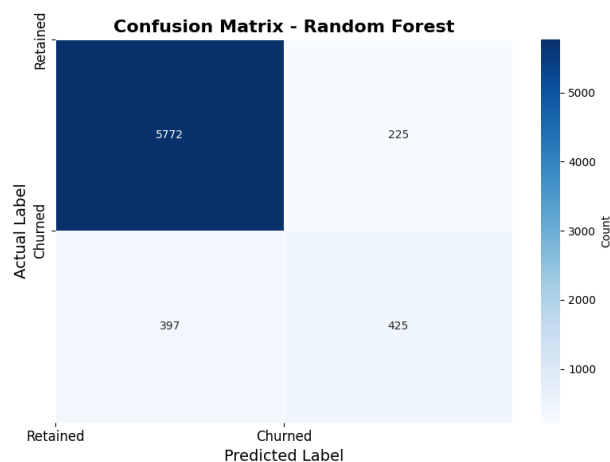
Feature Importance and Recommendations

Feature Importance

The Optimized Random Forest Model provided insights into which features contribute most to predicting churn:

- Down Payment and Payment Method were the most significant predictors, emphasizing the importance of financial commitment.

- Usage Frequency also played a crucial role, indicating that keeping members engaged is key to retention.

Feature Importance Chart: Helped illustrate the importance of each feature, making it clear where interventions are likely to be most effective.

Recommendations

1. Enhance Payment Strategies:

   - Higher Down Payments: Introduce discounts or perks for members willing to pay higher down payments. This increases financial commitment, which correlates with lower churn.
   - Recurring Payments: Promote recurring payment methods like Direct Debit by offering incentives. This method has been associated with reduced churn rates.

2. Boost Member Engagement:

   - Target Low Usage Members: Provide personalized offers, such as free personal training sessions or group fitness challenges, to members with low usage to foster engagement.
   - Gamification: Use gamified challenges to encourage frequent visits, such as rewards for completing a set number of gym visits per month.

3. Address Outstanding Payments:

   - Implement a reminder system for overdue payments, including flexible payment options to reduce cancellations due to payment issues.

4. Demographic-Specific Marketing:

   - Customize campaigns for different age groups and genders to better connect with members on a personal level, thus boosting loyalty.

Questions for the Client:

- To the Marketing Team: Are there any ongoing loyalty or incentive programs that target members at risk of churning? If yes, how effective have these been?

- To the Operations Team: Can we gather additional data on member interactions outside of gym visits (e.g., participation in virtual events or social activities)? This information might provide a more holistic view of engagement.

- To the Finance Team: Are there any constraints or preferences regarding payment flexibility programs that we should consider while designing intervention strategies?

Data Quality Questions:

- Are there missing or additional features that could be made available to enhance the analysis? For example, data on customer feedback, participation in gym events, or the use of personal trainers.

- Can we get more granular data on membership tenure, such as the exact date of enrollment, or any significant events during the membership (e.g., pauses, complaints)?

- How consistent is the data collection process for member usage? Are there potential biases in how usage is tracked (e.g., under-reporting of visits)?

Conclusion:

Addressing customer churn at Planet Fitness requires a data-driven approach that focuses on the core issues highlighted by the EDA and modeling process. By focusing on payment behaviors, usage frequency, and personalized engagement, Planet Fitness can significantly reduce churn rates while optimizing costs.

The Optimized Random Forest Model provides actionable predictions for identifying members at risk of churning, allowing for proactive intervention. By targeting key drivers such as Down Payment and Usage Frequency, management can take impactful steps towards enhancing member retention.

Executive Summary:

The primary goal of this proposal is to address the customer churn issue faced by Planet Fitness. Customer churn poses a significant threat to revenue stability and growth. Our objective is to understand the factors that contribute most to churn and to develop effective strategies to mitigate it, enhancing customer retention.

To achieve this, we conducted an extensive Exploratory Data Analysis (EDA) and developed a predictive model to identify members most likely to churn. Based on these findings, we propose targeted actions, focusing on key drivers such as payment-related factors, membership usage, and specific demographics.