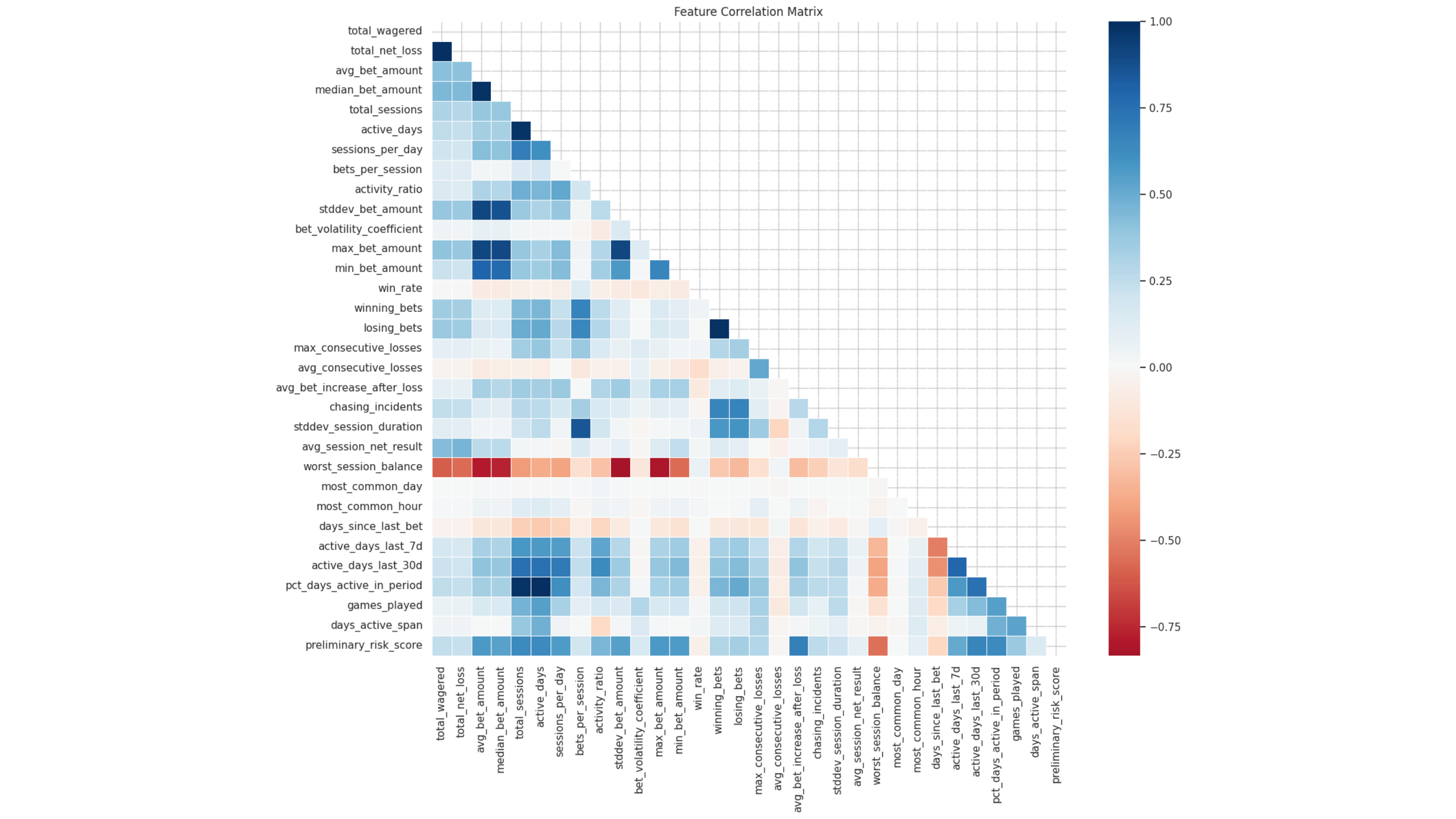
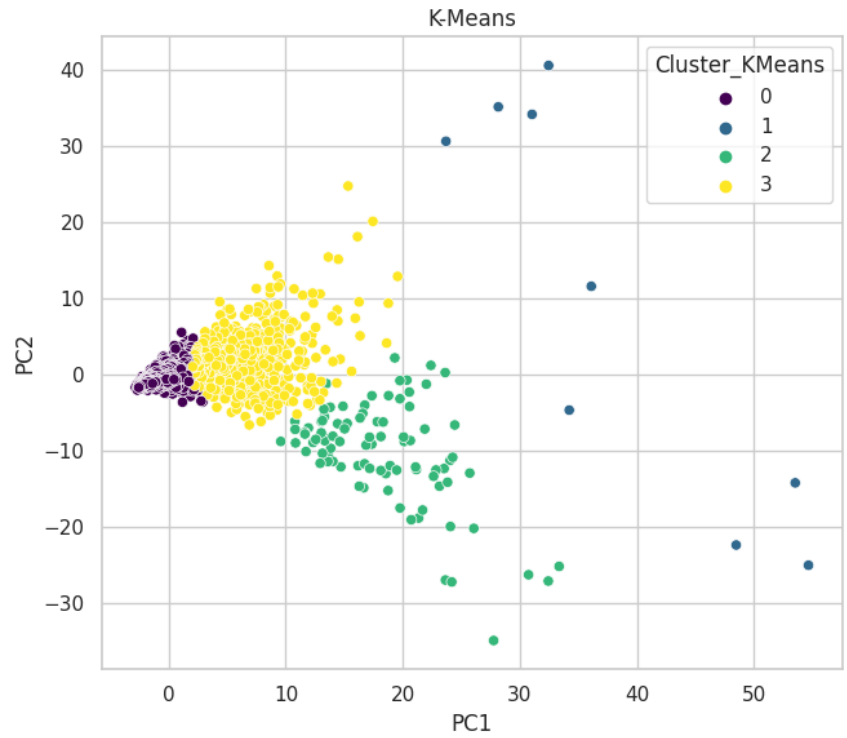
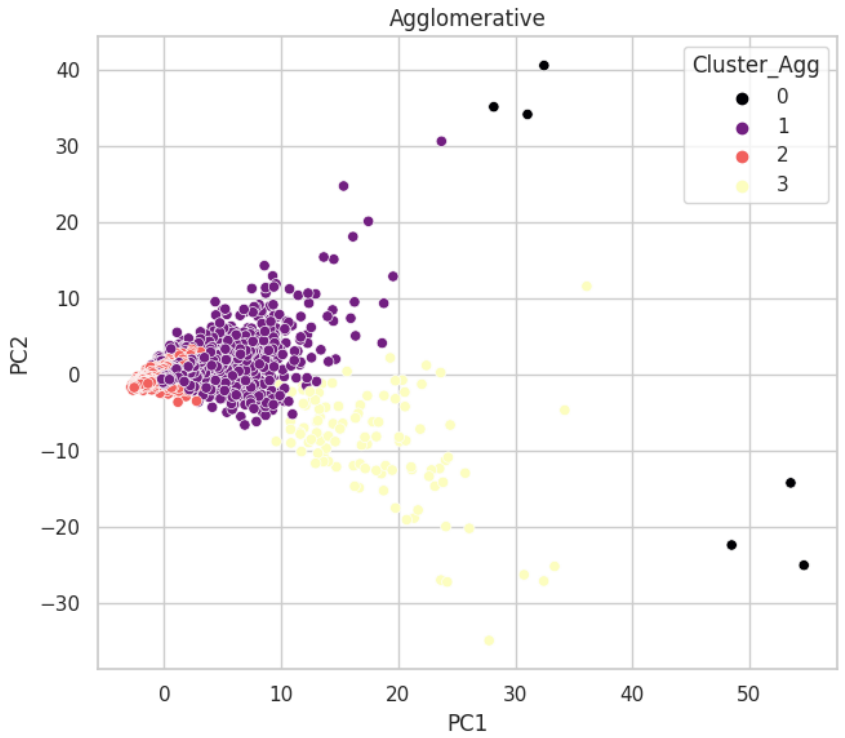
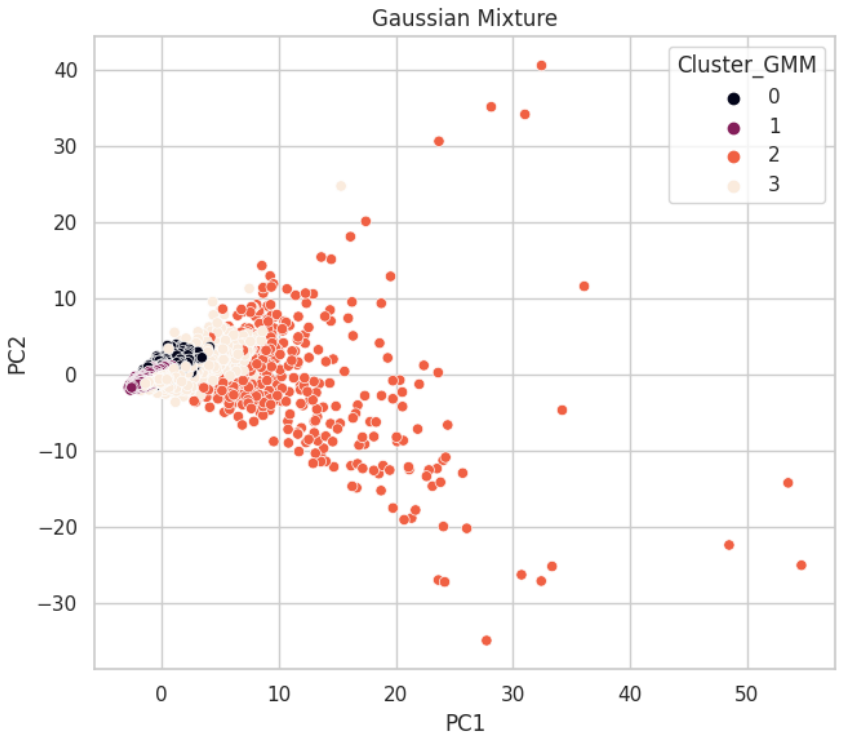
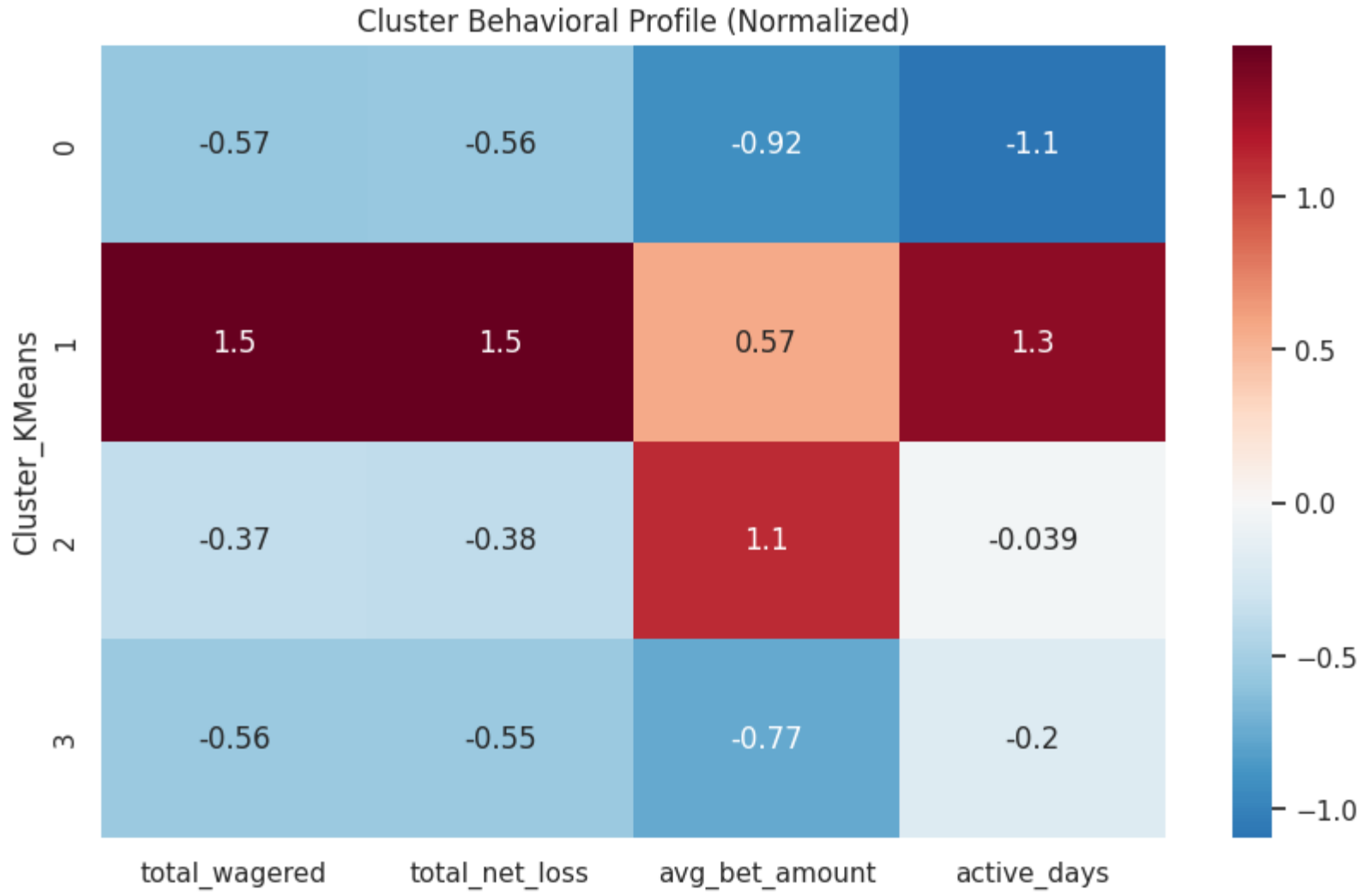

Feature Correlation Matrix
total_wagered
total_net_loss
avg_bet_amount
median_bet_amount
total_sessions
active_days
sessions_per_day
bets_per_session
activity_ratio
stddev_bet_amount
bet_volatility_coefficient
max_bet_amount
min_bet_amount
win_rate
winning_bets
losing_bets
max_consecutive_losses
avg_consecutive_losses
avg_bet_increase_after_loss
chasing_incidents
stddev_session_duration
avg_session_net_result
worst_session_balance
most_common_day
most_common_hour
days_since_last_bet
active_days_last_7d
active_days_last_30d
pct_days_active_in_period
games_played
days_active_span
preliminary_risk_score
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75


K-Means
Cluster_KMeans
0
1
2
3
PC1
PC2

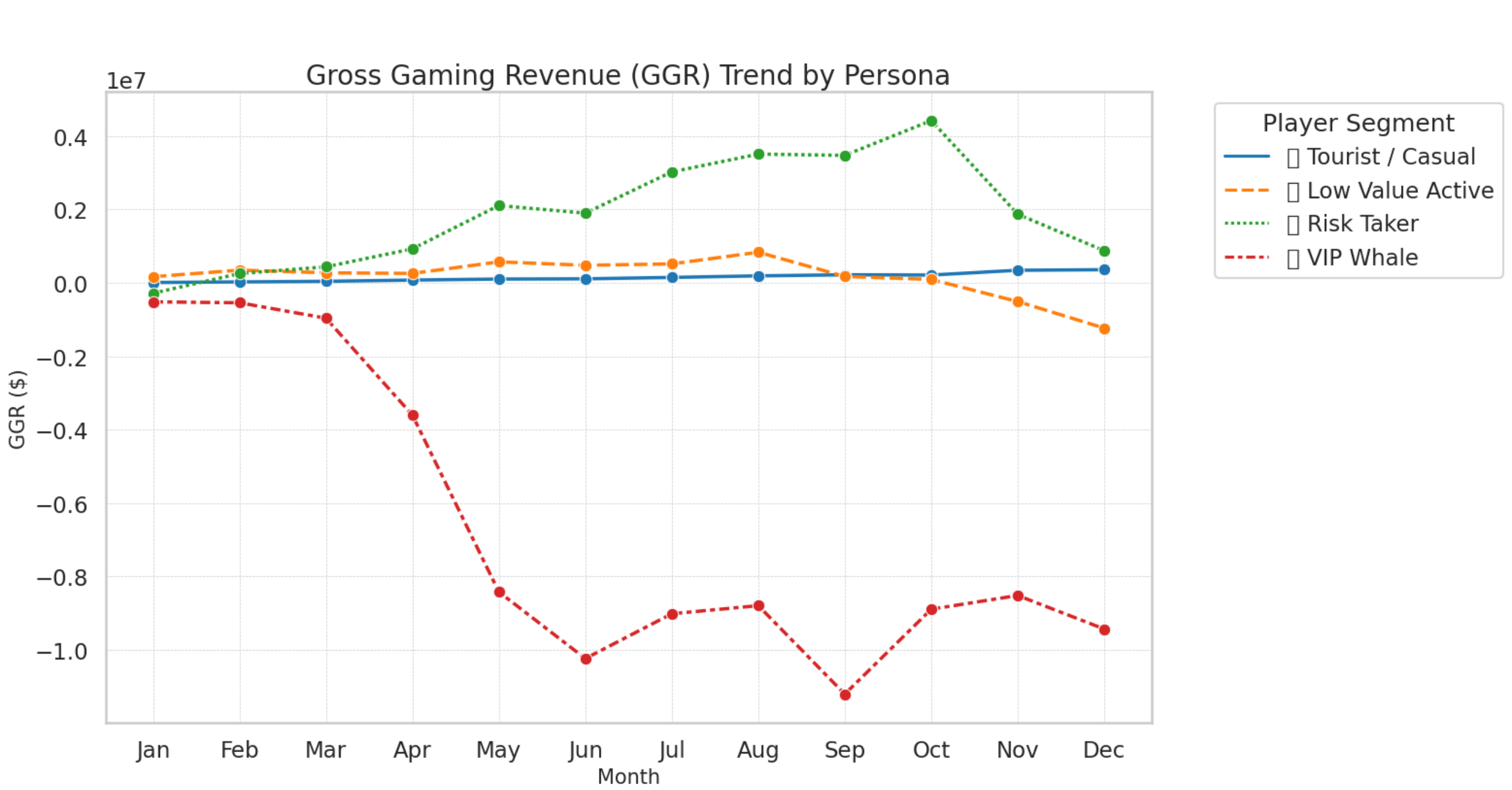

Agglomerative
Cluster_Agg
0
1
2
3
PC1
PC2

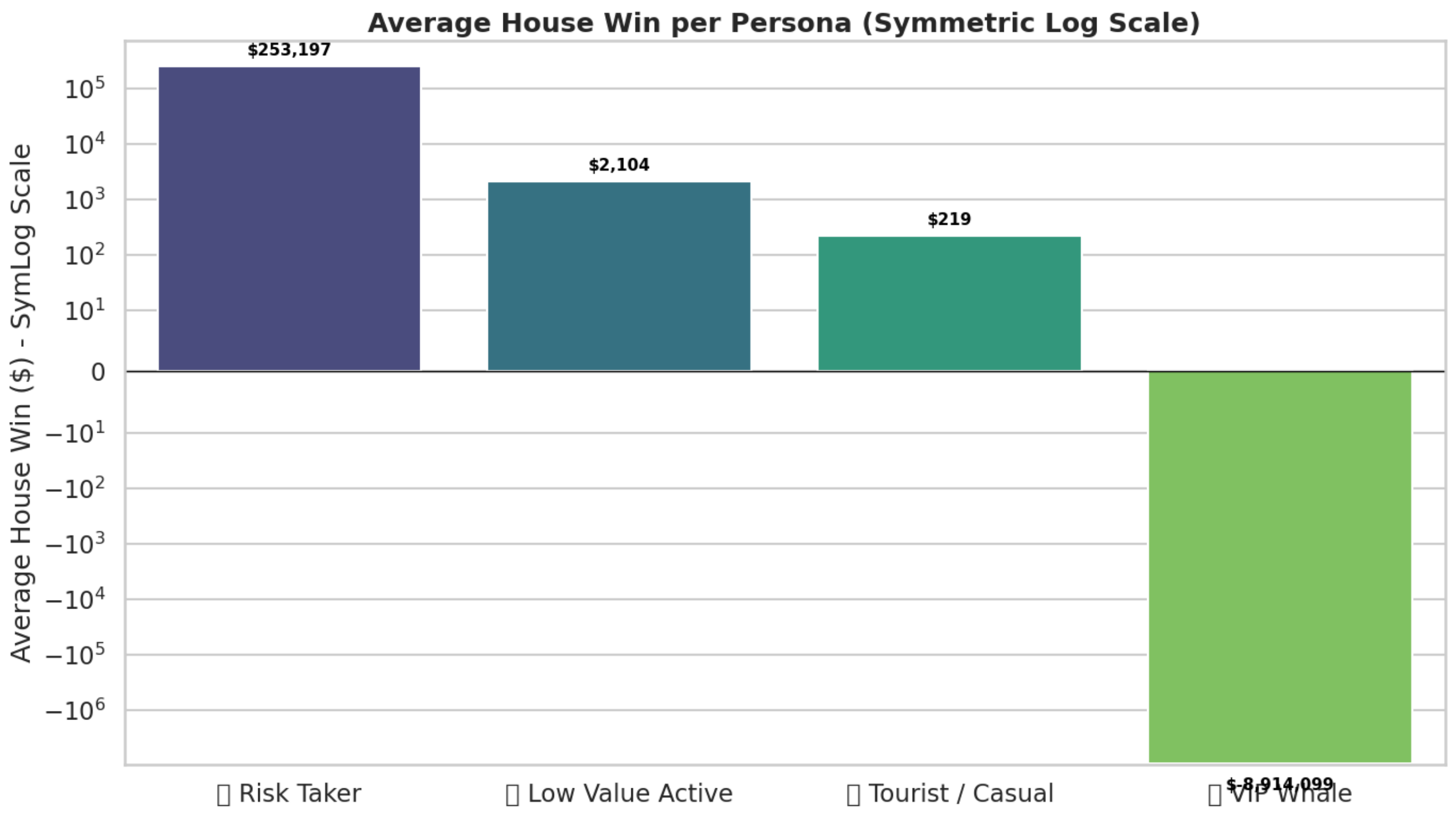

Gaussian Mixture
Cluster_GMM
0
1
2
3
PC1
PC2


Cluster Behavioral Profile (Normalized)
Cluster_KMeans
0
1
2
3
-0.57
-0.56
-0.92
-1.1
1.5
1.5
0.57
1.3
-0.37
-0.38
1.1
-0.039
-0.56
-0.55
-0.77
-0.2
total_wagered
total_net_loss
avg_bet_amount
active_days
1.0
0.5
0.0
−0.5
−1.0

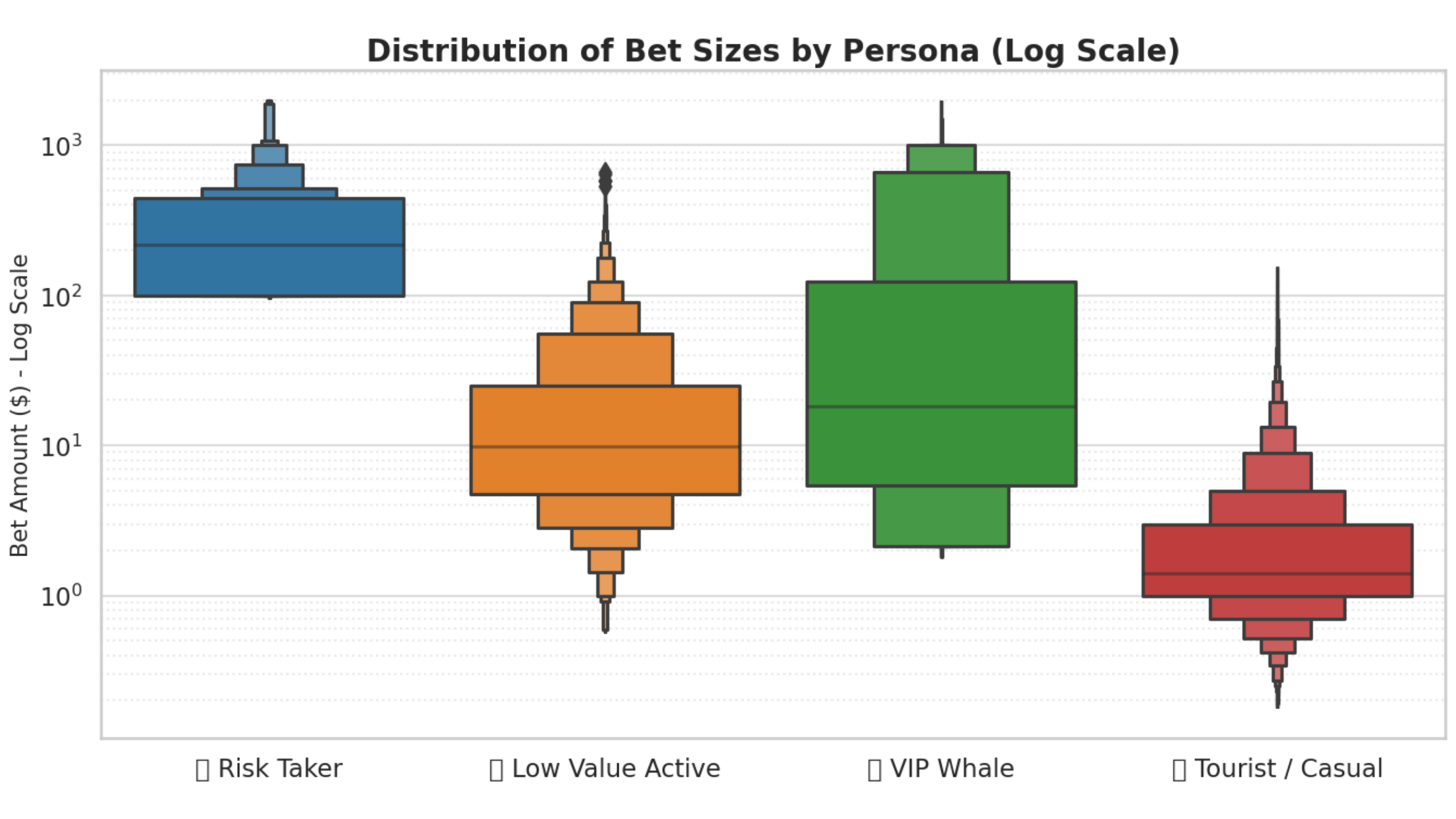
```
--- FORMATTED TABLE ---
                 total_wagered  total_net_loss  avg_bet_amount  active_days
Cluster_KMeans
0                    2,065.67          710.38            3.09        16.21
1                33,146,109.75   13,517,253.78          323.86       209.00
2                 3,206,134.57    1,201,323.12          439.51       100.12
3                   223,131.63       81,690.00           35.47        87.46
```

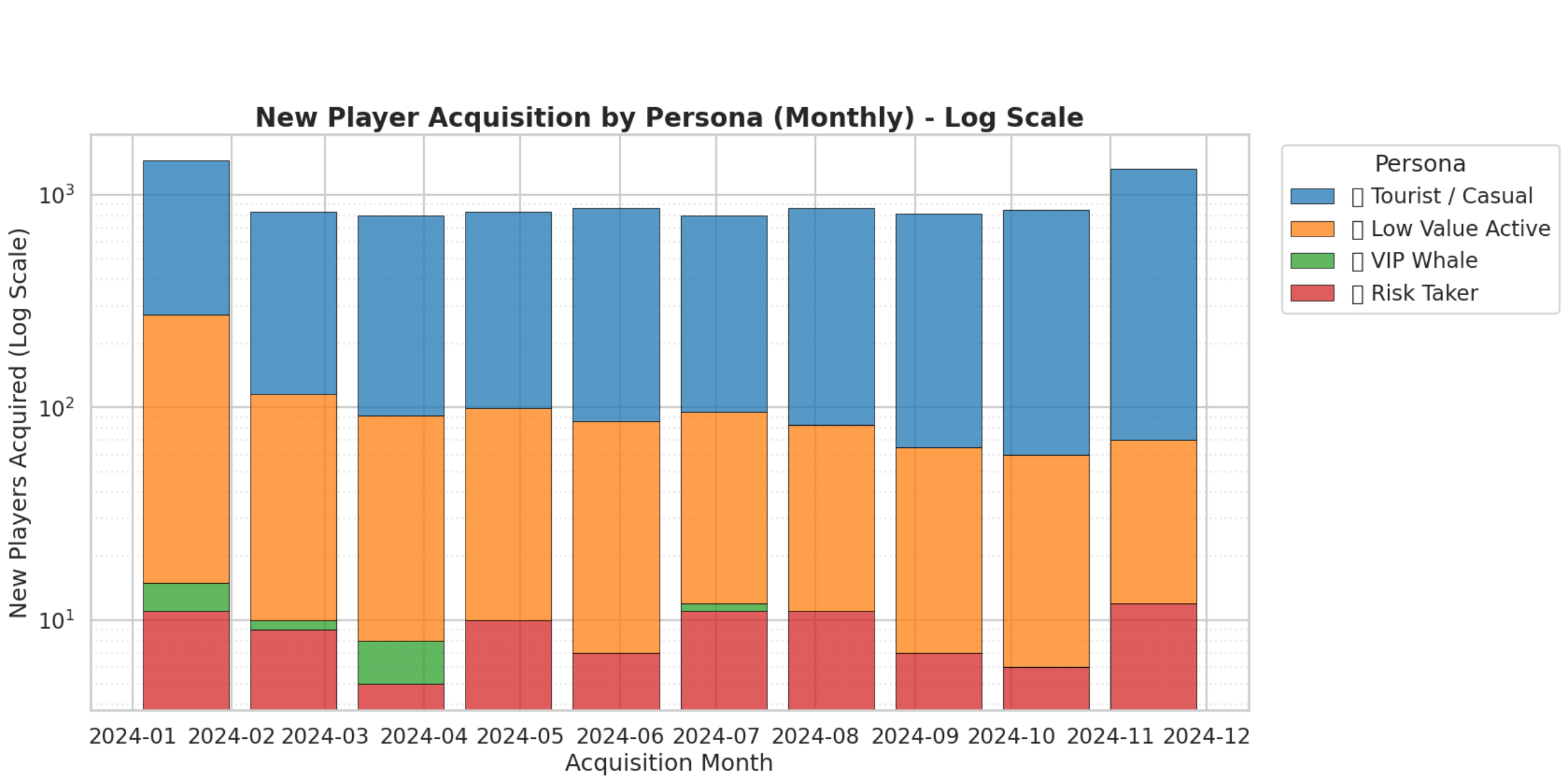
```
--- SCIENTIFIC CLUSTER LABELS ---
Cluster 0: 🏖️ Tourist / Casual
Cluster 1: 🌟 VIP Whale
Cluster 2: 🎲 Risk Taker
Cluster 3: 📉 Low Value Active
```

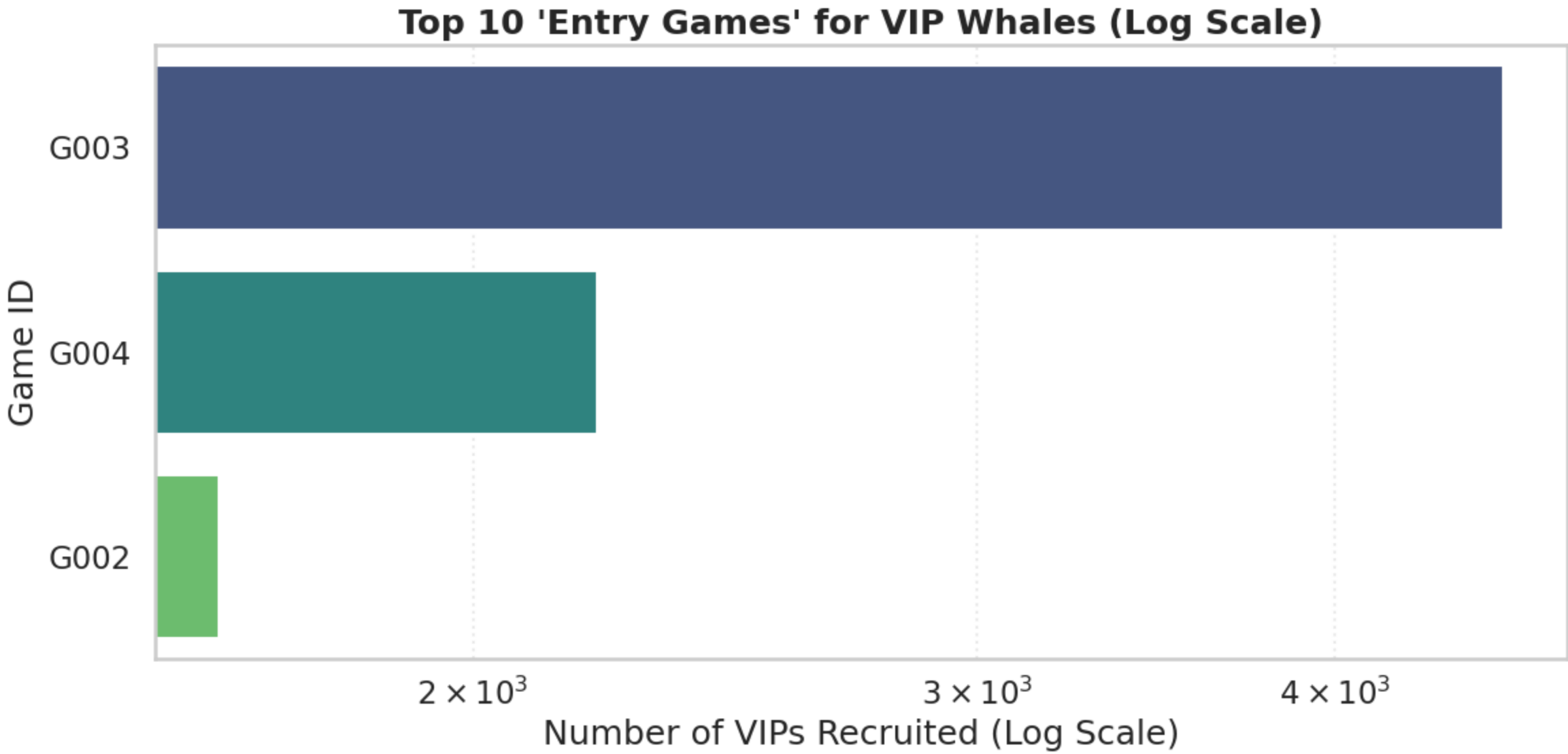

Gross Gaming Revenue (GGR) Trend by Persona
1e7
0.4
0.2
0.0
−0.2
−0.4
−0.6
−0.8
−1.0
GGR ($)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
Player Segment
Tourist / Casual
Low Value Active
Risk Taker
VIP Whale

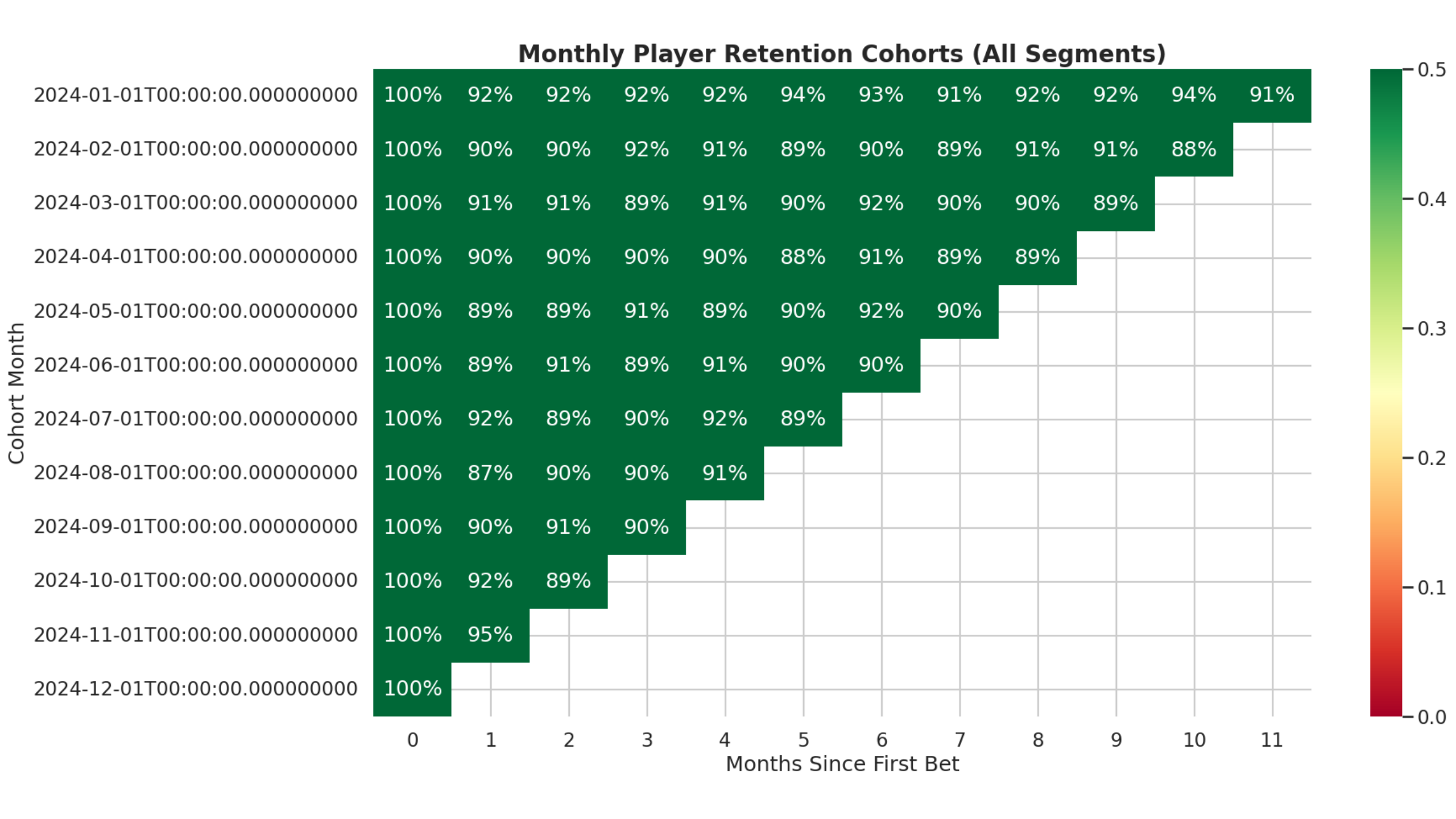


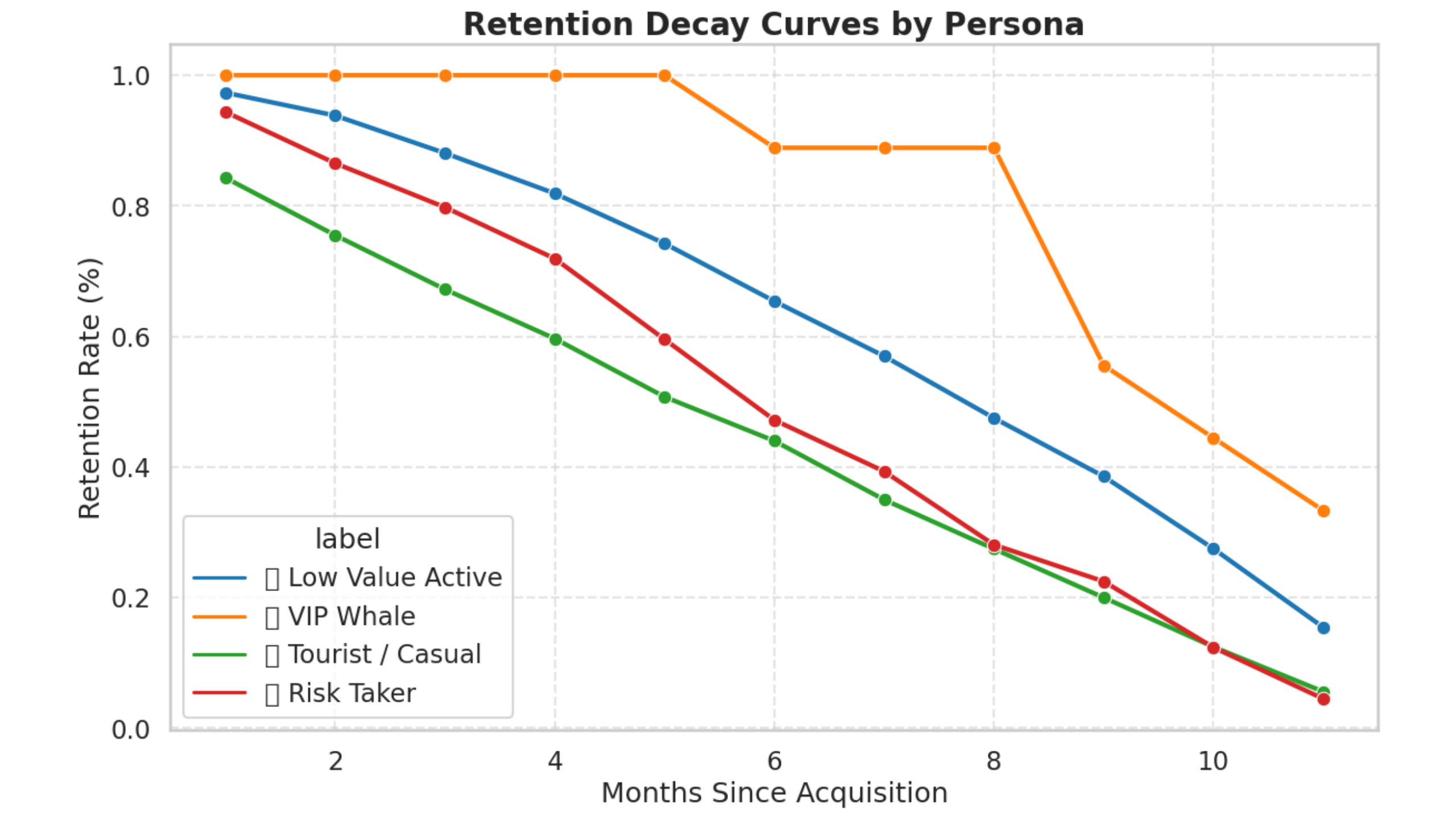
Average House Win per Persona (Symmetric Log Scale)
Average House Win ($) - SymLog Scale
$253,197
$2,104
$219
$-8,914,099
10^5
10^4
10^3
10^2
10^1
0
-10^1
-10^2
-10^3
-10^4
-10^5
-10^6
Risk Taker
Low Value Active
Tourist / Casual
VIP Whale

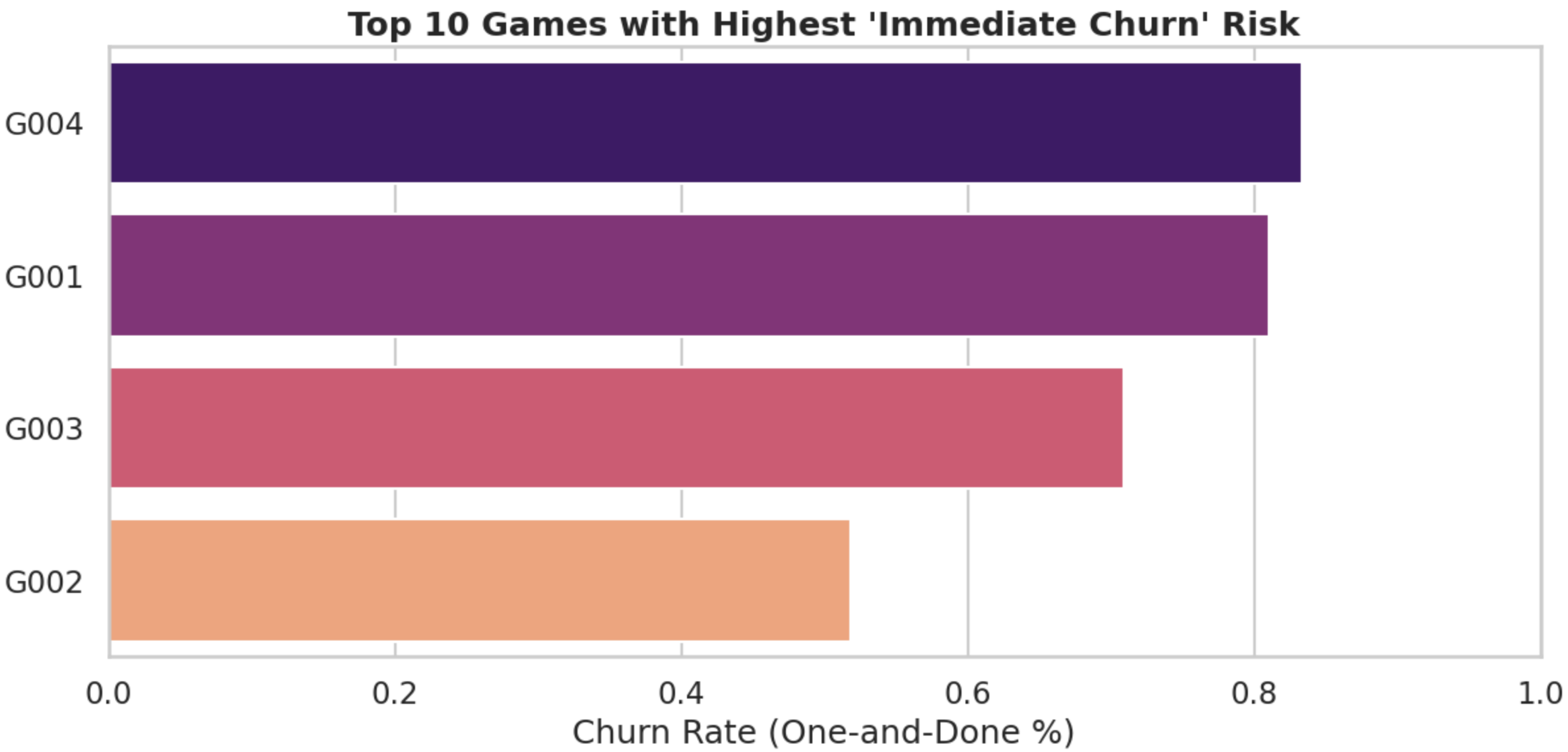

Distribution of Bet Sizes by Persona (Log Scale)
Bet Amount ($) - Log Scale
10^3
10^2
10^1
10^0
Risk Taker
Low Value Active
VIP Whale
Tourist / Casual


New Player Acquisition by Persona (Monthly) - Log Scale
New Players Acquired (Log Scale)
10^3
10^2
10^1
2024-01
2024-02
2024-03
2024-04
2024-05
2024-06
2024-07
2024-08
2024-09
2024-10
2024-11
2024-12
Acquisition Month
Persona
Tourist / Casual
Low Value Active
VIP Whale
Risk Taker


Top 10 'Entry Games' for VIP Whales (Log Scale)
Game ID
G003
G004
G002
2×10^3
3×10^3
4×10^3
Number of VIPs Recruited (Log Scale)


Monthly Player Retention Cohorts (All Segments)
Cohort Month
2024-01-01T00:00:00.000000000 100% 92% 92% 92% 92% 94% 93% 91% 92% 92% 94% 91%
2024-02-01T00:00:00.000000000 100% 90% 90% 92% 91% 89% 90% 89% 91% 91% 88%
2024-03-01T00:00:00.000000000 100% 91% 91% 89% 91% 90% 92% 90% 90% 89%
2024-04-01T00:00:00.000000000 100% 90% 90% 90% 90% 88% 91% 89% 89%
2024-05-01T00:00:00.000000000 100% 89% 89% 91% 89% 90% 92% 90%
2024-06-01T00:00:00.000000000 100% 89% 91% 89% 91% 90% 90%
2024-07-01T00:00:00.000000000 100% 92% 89% 90% 92% 89%
2024-08-01T00:00:00.000000000 100% 87% 90% 90% 91%
2024-09-01T00:00:00.000000000 100% 90% 91% 90%
2024-10-01T00:00:00.000000000 100% 92% 89%
2024-11-01T00:00:00.000000000 100% 95%
2024-12-01T00:00:00.000000000 100%
0 1 2 3 4 5 6 7 8 9 10 11
Months Since First Bet
0.5 0.4 0.3 0.2 0.1 0.0


Retention Decay Curves by Persona
Retention Rate (%)
1.0
0.8
0.6
0.4
0.2
0.0
2
4
6
8
10
Months Since Acquisition
label
□ Low Value Active
□ VIP Whale
□ Tourist / Casual
□ Risk Taker


Top 10 Games with Highest 'Immediate Churn' Risk
G004
G001
G003
G002
0.0
0.2
0.4
0.6
0.8
1.0
Churn Rate (One-and-Done %)