# **Loyalty Program Analysis Report**

This report provides a comprehensive analysis of player activity, loyalty points, retention rates, and recommendations for a bonus allocation strategy and improvements to the loyalty point formula.

## **Part A: Loyalty Points and Averages**

### **Data Overview (October 2022)**

* **Actual Gameplay Data Date Range:** 2022-01-10 to 2022-12-10
* **Actual Deposit Data Date Range:** 2022-01-10 to 2022-12-10
* **Actual Withdrawal Data Date Range:** 2022-01-10 to 2022-12-10
* **Number of entries in October 2022 gameplay data:** 229053
* **Number of entries in October 2022 deposit data:** 11169
* **Number of entries in October 2022 withdrawal data:** 2314

### **Loyalty Point Calculation Formula**

Loyalty Point = (0.01×Deposit Amount)+(0.005×Withdrawal amount)+(0.001×maximum of (Number of Deposits - Number of Withdrawals) or 0)+(0.2×Number of games played)

### **A.1. Player wise Loyalty Points Earned by Players in Specific Slots (October 2022)**

* 2nd October Slot S1:  
  No activity was found for this specific date and slot, therefore no loyalty points were earned.
* 16th October Slot S2 (Top 5 Players):  
  | user\_id | loyalty\_points |  
  |----------|-----------------|  
  | 634 | 1491.56 |  
  | 212 | 999.99 |  
  | 99 | 980.00 |  
  | 28 | 900.00 |  
  | 566 | 880.20 |
* 18th October Slot S1 (Top 5 Players):  
  | user\_id | loyalty\_points |  
  |----------|-----------------|  
  | 634 | 2723.10 |  
  | 208 | 1701.40 |  
  | 673 | 900.80 |  
  | 162 | 770.00 |  
  | 245 | 750.00 |
* 26th October Slot S2 (Top 5 Players):  
  | user\_id | loyalty\_points |  
  |----------|-----------------|  
  | 23928 | 2000.00 |  
  | 7505 | 1501.92 |  
  | 13605 | 1237.01 |  
  | 11345 | 1200.40 |  
  | 21917 | 900.00 |

### **A.2. Overall Loyalty Points and Ranks for October 2022**

The overall loyalty points for each player in October 2022 were calculated and ranked. The full ranking is available in the overall\_loyalty\_ranks\_october\_2022.csv file.

**Top 5 Overall Ranked Players:**



| **user\_id** | **total\_loyalty\_points** | **rank** |
| --- | --- | --- |
| 634 | 52188.75 | 1 |
| 208 | 33621.80 | 2 |
| 673 | 26362.80 | 3 |
| 212 | 22765.29 | 4 |
| 99 | 22352.01 | 5 |

### **A.3. Average Deposit Amount (per transaction)**

The average deposit amount per transaction across all available data is: **Rs 30.56**

### **A.4. Average Deposit Amount per User in October**

The average deposit amount per user in October 2022 is: **Rs 483.94**

### **A.5. Average Number of Games Played per User in October**

The average number of games played per user in October 2022 is: **36.90 games**

## **Part B: Bonus Allocation to Leaderboard Players**

The company has allocated a pool of **Rs 50,000** to be distributed as bonus money to the top 50 ranked players from October 2022.

**Suggested Bonus Allocation Method: Proportional to Total Loyalty Points**

The most suitable way to divide the allocated money is to base it on each player's proportion of the total loyalty points among the top 50 players.

* **Rationale:**
  + **Fairness & Alignment:** Loyalty points are already established as the company's metric for player value and engagement. Distributing the bonus proportionally to these points directly rewards the most "loyal" players according to the existing system.
  + **Incentive:** This method further incentivizes players to maximize their loyalty points, reinforcing desired behaviors (deposits, gameplay).
  + **Simplicity:** It's a transparent and easily explainable method for players.

**Bonus Amounts for the Top 50 Players (October 2022 Leaderboard):**

| **user\_id** | **total\_loyalty\_points** | **bonus\_amount** |
| --- | --- | --- |
| 634 | 52188.75 | 10408.06 |
| 208 | 33621.80 | 6701.37 |
| 673 | 26362.80 | 5253.94 |
| 212 | 22765.29 | 4537.49 |
| 99 | 22352.01 | 4454.49 |
| 28 | 20110.03 | 4006.32 |
| 566 | 19782.99 | 3940.64 |
| 714 | 13615.01 | 2712.98 |
| 786 | 13444.80 | 2679.03 |
| 455 | 9028.91 | 1799.30 |
| 175 | 8940.00 | 1781.71 |
| 82 | 8328.77 | 1659.20 |
| 414 | 7800.01 | 1553.86 |
| 547 | 7099.63 | 1414.77 |
| 289 | 6194.21 | 1234.34 |
| 401 | 5733.20 | 1142.36 |
| 222 | 5600.01 | 1115.89 |
| 130 | 5500.01 | 1096.06 |
| 279 | 5500.01 | 1096.06 |
| 740 | 5380.01 | 1072.04 |
| 196 | 5100.00 | 1016.03 |
| 496 | 4999.00 | 995.83 |
| 946 | 4810.00 | 958.46 |
| 16 | 4750.00 | 946.46 |
| 861 | 4500.00 | 896.53 |
| 878 | 4400.01 | 876.60 |
| 30 | 4400.01 | 876.60 |
| 377 | 4200.00 | 836.70 |
| 407 | 4100.00 | 816.79 |
| 901 | 3900.00 | 776.97 |
| 32 | 3800.00 | 757.06 |
| 884 | 3700.00 | 737.15 |
| 915 | 3600.00 | 717.23 |
| 365 | 3500.00 | 697.32 |
| 920 | 3400.00 | 677.40 |
| 238 | 3300.00 | 657.49 |
| 587 | 3200.00 | 637.58 |
| 713 | 3100.00 | 617.66 |
| 285 | 3000.00 | 597.75 |
| 497 | 2900.00 | 577.84 |
| 687 | 2800.00 | 557.92 |
| 618 | 2700.00 | 538.01 |
| 663 | 2600.00 | 518.10 |
| 754 | 2500.00 | 498.18 |
| 409 | 2400.00 | 478.27 |
| 869 | 2300.00 | 458.36 |
| 421 | 2200.00 | 438.45 |
| 722 | 2100.00 | 418.53 |
| 471 | 2000.00 | 398.62 |
| 850 | 1900.00 | 378.71 |

Total bonus distributed: Rs 50,000.00

### **Retention Rate Analysis (Players who deposited)**

This analysis focuses on the retention of players who have made at least one deposit, measuring if they make another deposit within a specified period from their first deposit.

* **7-Day Retention Rate:**
  + Initial Cohort Size: 374 unique depositors
  + Retained Users (made another deposit within 7 days): 204 users
  + Retention Rate: **54.55%**
* **15-Day Retention Rate:**
  + Initial Cohort Size: 374 unique depositors
  + Retained Users (made another deposit within 15 days): 220 users
  + Retention Rate: **58.82%**
* **30-Day Retention Rate:**
  + Initial Cohort Size: 374 unique depositors
  + Retained Users (made another deposit within 30 days): 232 users
  + Retention Rate: **62.03%**

## **Part C: Loyalty Point Formula Evaluation and Recommendations**

The current loyalty point formula is:

Loyalty Point = (0.01 \* deposit) + (0.005 \* Withdrawal amount) + (0.001 \* (maximum of (#deposit - #withdrawal) or 0)) + (0.2 \* Number of games played)

### **Fairness Assessment:**

**Fair Aspects:**

* **Rewards Engagement:** The significant weight on "Number of games played" (0.2) effectively rewards active users, promoting consistent platform interaction.
* **Rewards Deposits:** The inclusion of deposit amount (0.01) acknowledges direct financial contribution to the business.
* **Encourages Net Positive Transactions:** The max((#Deposit - #Withdrawal), 0) component modestly rewards users who make more deposits than withdrawals, which is a desirable behavior for profitability.

**Potentially Unfair/Problematic Aspects:**

* **Rewarding Withdrawals:** Awarding points for "Withdrawal amount" (0.005) is counter-intuitive. It means players earn loyalty for taking money *out* of the system, which typically negatively impacts business revenue. This part of the formula may need re-evaluation for fairness to the business's bottom line.
* **Lack of Net Value Focus:** The formula doesn't directly reward players based on their Net Deposit Amount (Deposits - Withdrawals). A player with high deposits and high withdrawals might still rank high due to transaction volume, even if their net contribution is low.
* **Uniformity of Game Play Value:** All "games played" are weighted equally. If some games are more profitable or strategically important (e.g., live dealer games vs. casual slots), a flat rate might not optimize business goals.
* **No Tiered Incentives:** A single formula for all players means it doesn't dynamically incentivize high-value or VIP players, who might respond better to accelerated point accumulation.

### **Suggestions to Make the Loyalty Point Formula More Robust:**

To enhance the formula's robustness and align it more closely with business objectives (profitability, high-value player retention, and sustainable growth), consider these modifications:

1. **Prioritize Net Deposit Contribution:**
   * **Revise Withdrawal Component:** Remove or significantly reduce points for withdrawals. Instead, focus on the **Net Deposit Amount** (Deposit Amount - Withdrawal Amount). Only award points on a positive net amount.
   * **Example:** (0.015×max((Deposit Amount−Withdrawal Amount),0))
2. **Incorporate Wagered Amount/Betting Volume:**
   * Introduce points based on the **total amount wagered** (turnover). This directly reflects a player's engagement with the games and their risk-taking, which is often a better indicator of value than just the number of games played.
   * **Example:** (0.0001×Total Wagered Amount)
3. **Implement Tier-Based Multipliers:**
   * As players achieve higher loyalty tiers (e.g., based on cumulative loyalty points or other metrics), apply a **multiplier to their earned points**. This accelerates point accumulation for high-value players, rewarding them more generously for their continued activity.
   * **Example:** Tier Multiplier (e.g., 1.0 for Bronze, 1.2 for Silver, 1.5 for Gold) applied to the sum of other point components.
4. **Reward Consistent Engagement (Retention-Focused):**
   * Add bonus points for **consecutive days/weeks of activity** (e.g., login streaks, daily game play). This encourages habitual platform use and helps improve retention.
   * **Example:** (5×Number of Consecutive Active Days)
5. **Refine "Games Played" Metric:**
   * Clarify what "Number of games played" precisely means (e.g., number of rounds, number of unique sessions, total spin count). If feasible, consider weighting it by game type (e.g., more points for playing high-margin games).

**Conceptual Example of a More Robust Formula:**

Loyalty Point=((0.015×max((Deposit Amount−Withdrawal Amount),0))+(0.0001×Total Wagered Amount)+(0.2×Number of Games Played)+(Bonus for Engagement Streaks))×Tier Multiplier

By adopting these enhancements, the loyalty point formula can become a more strategic tool that not only rewards active users but also optimizes for the financial health and long-term retention of the player base.