ABC Gaming Company Analysis

Date: 15 June 2025

EXECUTIVE SUMMARY

Analysed the given user gameplay, deposits, and withdrawal data. Performed pre-processing on the data to standardise column names, convert to datetime format and create two slots, S1 and S2. Loyalty points were computed for each user based on the given formula and weightage. Further more loyalty points were calculated for given dates and slots along with overall loyalty points in the month of October, average deposit amount, average deposit amount per user and average number of games played per user.
The top 50 players with the highest loyalty points were allocated bonuses accordingly by the company.

INTRODUCTION

ABC is a real-money online gaming company that offers multiplayer games such as Ludo, where users can register as players, deposit money, and participate in games with other users. Winners are allowed to withdraw their earnings, while the platform charges a nominal fee for providing these services.
To improve user retention and reward player engagement, ABC has implemented a loyalty point system. This system calculates points based on key player activities such as the amount deposited, amount withdrawn, number of games played, and how frequently deposits are made compared to withdrawals. Each activity has an assigned weightage, and the total loyalty points are calculated using a weighted formula.

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

METHODOLOGY

DATA USED

- User gameplay logs (user id, games played, date time)
- Deposit records (user id, date time, amounts)
- Withdrawal records (user id, date time, amounts)

TOOLS

- Python, Pandas, Numpy, Matplotlib
- Jupyter Notebook

DATA FINDINGS

PART A

Given : Two slots, S1 from 12am-12pm and S2 from 12pm-12am

Main stats for each given slot:

Time Slot	Total Users	User id-highest loyalty score
2nd Oct, S1	636	User 634
16th Oct, S2	594	User 634
18th Oct, S1	622	User 634
26th Oct, S2	628	User 714

Slot 1

Top scorers(634, 672, 566) all have huge withdrawals but almost no games played.
Their loyalty score is clearly being driven by how much money they pulled out, not by gaming activity.

Slot 2

User 634 again has the highest loyalty points but it is all because of the huge withdrawal(298 k) they did
Next users (212, 99, 28..) are heavy depositors (approx 100k each) with zero withdrawals. Their game counts are still zero.

Slot 3

User 634 tops by withdrawing over 544k in just two withdrawals
User 208 follows by deposit(170 k) and playing 7 games with no withdrawals.

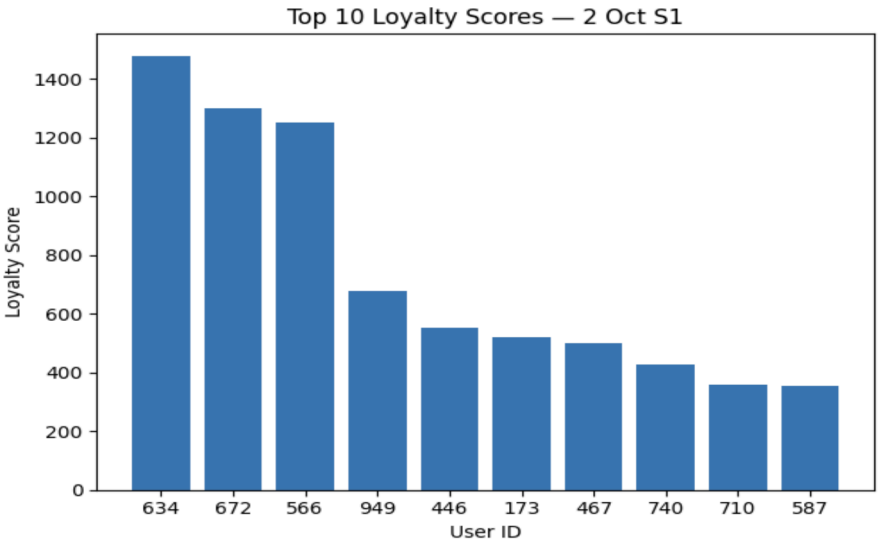
Slot 4

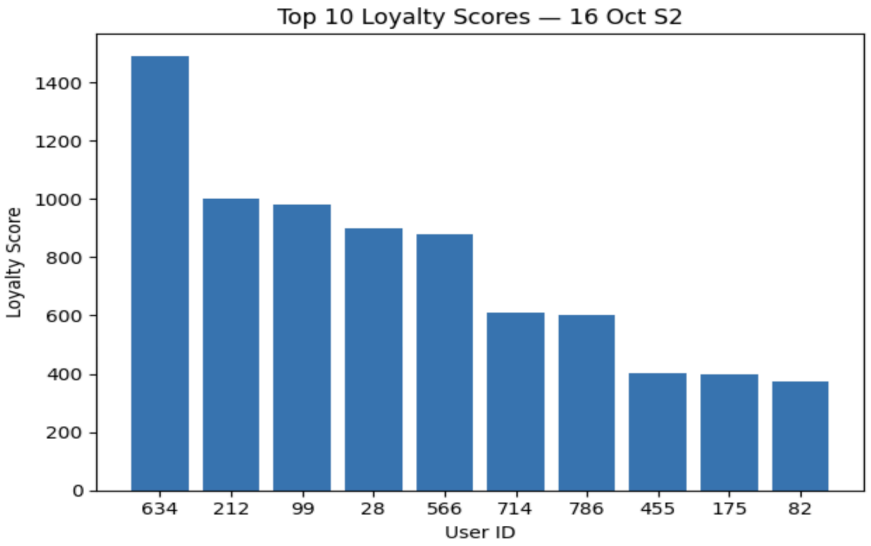
A new user(714) leads all because of the 200k deposit done by them.

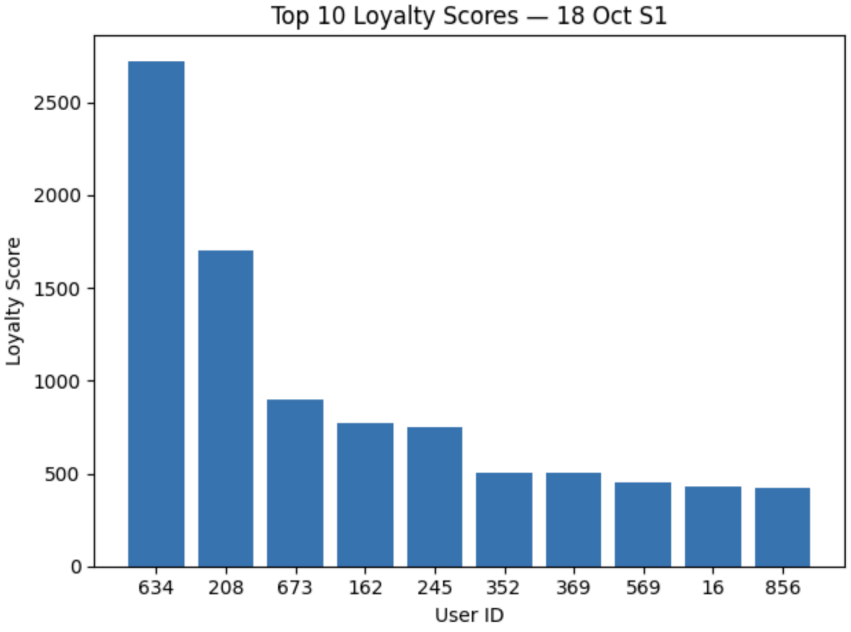
Based on monthly loyalty points calculated and ranked, users 672, 634, 212, 566, 740 are the top 5 users with the highest loyalty score.

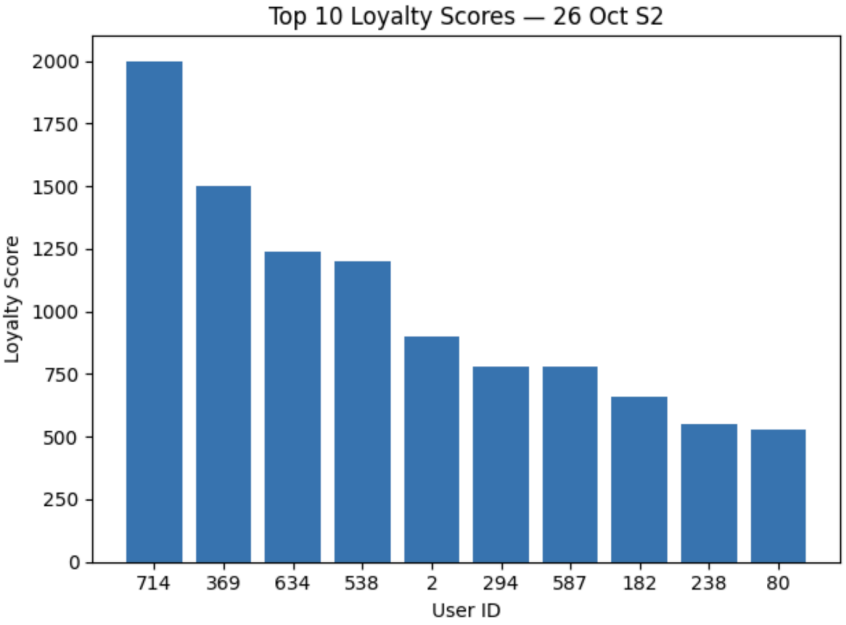
Average deposit amount: 5492.19

Overall average games played per user: 355.267 but average number of games played per user is just


Top 10 Loyalty Scores — 2 Oct S1
Loyalty Score
0
200
400
600
800
1000
1200
1400
634
672
566
949
446
173
467
740
710
587
User ID


Top 10 Loyalty Scores — 16 Oct S2
Loyalty Score
0
200
400
600
800
1000
1200
1400
634
212
99
28
566
714
786
455
175
82
User ID

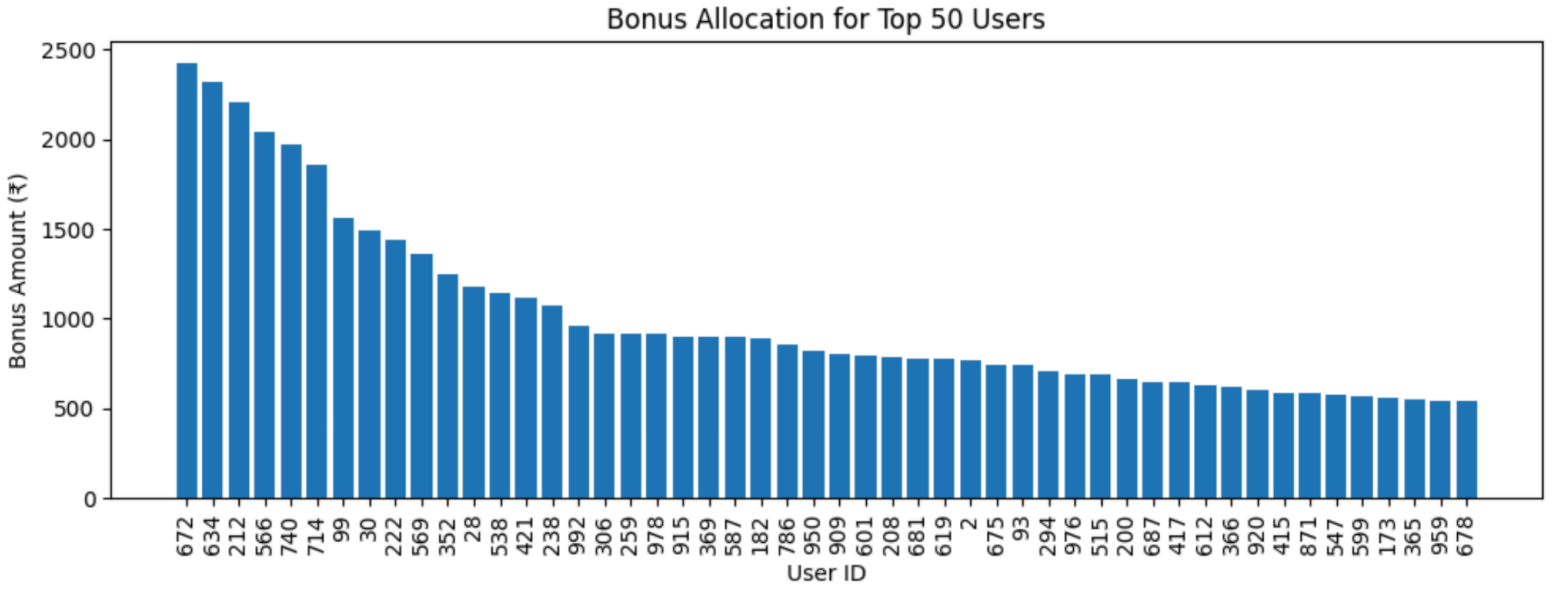

Top 10 Loyalty Scores — 18 Oct S1
Loyalty Score
0
500
1000
1500
2000
2500
634
208
673
162
245
352
369
569
16
856
User ID



PART B

The loyalty score is the most appropriate metric, as it handles key engagement and revenue-driving features such as deposit amounts, gameplay frequency and related activities and that is why bonuses are allocated according to the loyalty score.

user 672 was ranked first with the highest loyalty score and therefore received the highest bonus of ₹2422.17 whereas user 678 was ranked last on the top 50 list and received a bonus of ₹542.81



LOYALTY FORMULA IMPROVEMENT

The loyalty formula fairly balances engagement and revenue by weighting gameplay frequency and deposit amounts to recognize both active participation and financial contribution. By assigning a higher weight to games played, it motivates users to return and engage regularly, supporting retention. The deposit and withdrawal ensures that users who invest in the platform receive appropriate recognition, aligning rewards with business objectives.

However in some places, the formula is not fair and therefore a few changes are recommended to improve the formula. The changes are listed below.
Remove or Subtract Withdrawal Component

- Including a positive weight for withdrawals goes against the goal of retaining funds, it should be excluded or deducted.
- Altering this prevents rewarding fund removal and better aligns the score with the company's retention objectives.

Increase Weight for Games Played

- Raising the games-played multiplier further prioritizes engagement over large one-time deposits.
- This adjustment ensures frequent players gain more benefits, supporting sustained activity.

Introduce Consistent Login rewards

- Adding a modest reward for regular logins encourages daily engagement and keeps the platform active.
- Eventually consistent login leads to more gameplay and deposits, reinforcing long-term user activity.

CONCLUSION

- Big deposits or withdrawals dominate the loyalty score
- Game count is secondary and only becomes important after you have moved large sums of money.
- Few transactions can still get your score high if the amounts are large.
- The biggest bonuses go to those who put the most money into the platform.
- Almost everyone active on the platform earns something, as there are no entirely inactive users.

Recommendations for ABC Gaming Company

Revise the loyalty formula.
Subtract withdrawal amounts instead of adding them and increase games played weightage to 0.5
Revised formula = (0.01 × deposit) - (0.005 × withdrawal) + (0.5 × games played) + (0.1 × net deposits).

Add a daily-login bonus.
Award a small fixed number of points for each consecutive day a user logs in.

Targeted rewards
Find users with large deposits/withdrawals and games played and offer them personalized promotions or VIP perks.

Track session
Incorporate time-spent playing into the loyalty score to reward deeper engagement.

Optimize slot timings
Run campaigns during low-activity slots to boost engagement when user activity is minimal and promote ads or marketing schemes during high activity slots to capitalize.