

# **Assignment: Vindiata Consulting Private Limited**

**Report**

***By***

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## Objective:

To analyze player activity on the ABC Gaming platform, calculate loyalty points based on platform rules, rank players accordingly, and determine optimal bonus allocation to the top performers.

### Loyalty Points Formula

The loyalty points for each user are calculated using the formula:

Loyalty Points =  $(0.01 \times \text{Total Deposit Amount}) + (0.005 \times \text{Total Withdrawal Amount}) + (0.001 \times \max(\text{Number of Deposits} - \text{Number of Withdrawals}, 0)) + (0.2 \times \text{Number of Games Played})$

## Part A: Slot-wise Loyalty Points Calculation

### Q1a: 2nd October - Slot S1

Steps:

- Filter data for date 2022-10-02 and slot S1 (12 AM - 12 PM)
- Merge and calculate loyalty points using the defined formula
- Result:
  - Gameplay entries: 0
  - Deposit entries: 0
  - Withdrawal entries: 0
  - Conclusion: No player activity found in this slot.

### Q1b: 16th October - Slot S2

Top Players:

User ID	Loyalty Points
634	1491.56
212	999.99
99	980.00
28	900.00
566	880.20

**Q1c: 18th October - Slot S1**

Top Players:

User ID	Loyalty Points
634	2723.10
208	1701.40
673	900.80
162	770.00
245	750.00

**Q1d: 26th October - Slot S2**

Top Players:

User ID	Loyalty Points
714	2000.00
369	1501.91
634	1237.01
538	1200.40
2	900.00

**Part B: Monthly Loyalty Leaderboard (October)****Q2: Ranking Players by Monthly Loyalty Points**

Steps:

- Filter data for October
- Aggregate gameplay, deposits, withdrawals by user
- Apply loyalty formula
- Sort by loyalty points and games played

Top Players:

User ID	Loyalty Points	Games Played
634	61121.16	22
714	14790.82	4
212	13947.22	0
672	13238.62	8
99	12469.95	4

### Q3: What is the average deposit amount?

- Result: Rs. 5492.19

### Q4: What is the average deposit amount per user in a month?

- Result: Rs. 72533.98 (October-specific average)

### Q5: What is the average number of games played per user?

- Result: 355.27 games/user

## Part C: Bonus Allocation for Top 50 Players

Goal:

Distribute Rs. 50,000 bonus pool among the top 50 players.

Methodology:

- Use loyalty points to proportionally allocate bonus
- Compute each player's share of total top-50 loyalty points

Bonus Allocation Example (Top 10):

User ID	Loyalty Points	Games Played	Bonus (₹)
634	61121.16	22	7240.97
714	14790.82	4	1752.25
212	13947.22	0	1652.31
672	13238.62	8	1568.37
99	12469.95	4	1477.30

## Part D: Fairness and Suggestions

Evaluation:

- Over-reliance on deposits can bias rankings
- Gameplay and withdrawals should have relatively more weight
- No cap for transactions, favoring outliers

Suggested Improvements:

- Reduce deposit weight from 0.01 → 0.005
- Increase gameplay weight to encourage engagement

- Cap large one-time transactions
- Add reward multipliers for win-rate or consistency
- Introduce tiers for diversified loyalty (Gold, Silver, Bronze)

**Conclusion:**

This analysis offered a structured approach to loyalty computation and leaderboard ranking for ABC Gaming. It identified top performers, ensured fair bonus allocation, and evaluated the effectiveness of the loyalty point formula with recommendations for a more robust framework.

**End of Report**



