Report

Loyalty Points Formula Enhancement Report

Part A - Calculating loyalty points

1- I have set the datetime column as the index, enabling the calculation of loyalty points based on specific dates and times. This configuration facilitates the retrieval of user loyalty information according to specified date and time criteria.

2- I determine the number of games played by each user by counting the occurrences of their user ID, Similarly, I track the frequency of deposits and withdrawals made by users throughout the datasets, aggregating their deposit and withdrawal amounts by user. Subsequently, I merge all three datasets.

3- I applied the following formula to calculate users' loyalty points: **Loyalty Points = (0.01 * deposit) + (0.005 * Withdrawal amount) + (0.001 * (maximum of (#deposit - #withdrawal) or 0)) + (0.2 * Number of games played)**

4- To compute the average deposit amount, I summed all the deposit values and divided the total by the number of instances where deposit money was recorded per user. The resulting average deposit amount is **5492.185399701801** and to determine the deposit amount per user for a month, I divided each user's total deposit amount by 31, representing the average deposit per day in a month.

5- To compute the average number of games played per user, I summed all the values in the "number of games played by user" column and divided the total by the number of users. The resulting average number of games played is **355.266**.

Part B - How much bonus should be allocated to leaderboard players?

After sorting the dataset from highest to lowest based on loyalty points, I allocated a bonus of RS 50,000 to the top 50 loyal players. Rank 1 received the highest bonus amount, while rank 50 received the lowest.

The distribution of reward money follows this formula:

total_rewards = 50000

n=50 (Top 50 ranked players)

total_ranks = n*(n+1)/2 = 50*(50+1)/2 =1275

Shares = total_rewards*(n-rank+1)/total_ranks   (rank = 1 to 50)

Part C- Would you say the loyalty point formula is fair or unfair?

The loyalty points formula employed by ABC, a real-money online gaming company, is deemed fair. It meticulously assesses user loyalty based on three primary factors: the frequency of game participation, deposited funds, and withdrawal activities. These criteria effectively gauge user engagement and activity levels on the gaming platform. Consequently, the formula is considered equitable as it comprehensively accounts for key aspects of user interaction and involvement.

Can you suggest any way to make the loyalty point formula more robust?

Consider additional factors such as session duration, in-game achievements, social interactions within the platform, and referral activities to provide a more comprehensive assessment of user engagement.