REPORT – (Aditya Singh)

**Part A - Calculating loyalty points**  
Step1 -> performed data cleaning (converted Datetime column to datetime format)

Based on the above information and the data provided answer the following questions:

1. Find Player wise Loyalty points earned by Players in the following slots: -

a. 2nd October Slot S1 b. 16th October Slot S2 c. 18th October Slot S1 d. 26th October Slot S2

Step2 -> For this task I performed-

* Filtering of data according to given time frame, then
* Performing grouping of data according to user id.

2. Calculate overall loyalty points earned and rank players based on loyalty points in the month of October. In case of tie, number of games played should be taken as the next criteria for ranking.

Step3 ->Here procedure was same as of step 2 except here we did not filter using slots.

3. What is the average deposit amount?

4. What is the average deposit amount per user in a month?

5. What is the average number of games played per user?

Step4-> I performed 3,4,5 by grouping and then aggregating it using .mean()

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

After calculating the loyalty points for the whole month find out which 50 players are at the top of the leaderboard. The company has allocated a pool of Rs 50000 to be given away as bonus money to the loyal players. Now the company needs to determine how much bonus money should be given to the players. Should they base it on the amount of loyalty points? Should it be based on number of games? Or something else? That is for you to figure out. Suggest a suitable way to divide the allocated money keeping in mind the following points: 1. Only top 50 ranked players are awarded bonus

Step5->

- According to me, the primary method for allocation should be `LOYALTY POINT` as it considers `Deposit amount`, `number of deposits`, `withdrawable amount` and `no of games played` as well.

(On the other hand, if we select `game played` as a sole criterion for allocation, we may miss the chance of attracting players who deposit more), then use `games played` as a secondary criterion for allocation.

let’s take an example

85% of money should be distributed based on loyalty points (as it will welcome the profit) (X Rs) and 15% should be distributed based on games played (it will improve engagement time) (Y Rs)

-->Loyalty Bonus for Player= (Player’s Loyalty Points / Total Loyalty Points of Top 50) \* X

-->Games Bonus for Player= (Player’s Games Played / Total Games Played of Top 50) \* Y

**PART C -> Would you say that loyalty formula is fair or unfair?**

**Can you suggest any way to make it more robust?**

Step6->

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

I believe that ` (0.005 \* Withdrawal amount) ` portion should be minimized or excluded and its weightage should be added to `game played`. As it would encourage engagement.