**questions:  
1. Find Playerwise Loyalty points earned by Players in the following slots:-  
 a. 2nd October Slot S1**

SELECT player\_id,

SUM(0.01 \* CASE WHEN activity\_type = 'Deposit' THEN amount ELSE 0 END) +

SUM(0.005 \* CASE WHEN activity\_type = 'Withdrawal' THEN amount ELSE 0 END) +

SUM(0.2 \* num\_games) +

(0.001 \* GREATEST(SUM(deposit\_count - withdrawal\_count), 0)) AS total\_loyalty\_points

FROM( select \* from master\_activity\_data

where timing between '02-10-2022 00:00' and '02-10-2022 11:59'

group by player\_id) as timeslot group by player\_id

order by total\_loyalty\_points desc

**b. 16th October Slot S2**

SELECT player\_id,

SUM(0.01 \* CASE WHEN activity\_type = 'Deposit' THEN amount ELSE 0 END) +

SUM(0.005 \* CASE WHEN activity\_type = 'Withdrawal' THEN amount ELSE 0 END) +

SUM(0.2 \* num\_games) +

(0.001 \* GREATEST(SUM(deposit\_count - withdrawal\_count), 0)) AS total\_loyalty\_points

FROM( select \* from master\_activity\_data

where timing between '16-10-2022 12:00' and '16-10-2022 23:59'

group by player\_id) as timeslot group by player\_id

order by total\_loyalty\_points desc

**b. 18th October Slot S1**

SELECT player\_id,

SUM(0.01 \* CASE WHEN activity\_type = 'Deposit' THEN amount ELSE 0 END) +

SUM(0.005 \* CASE WHEN activity\_type = 'Withdrawal' THEN amount ELSE 0 END) +

SUM(0.2 \* num\_games) +

(0.001 \* GREATEST(SUM(deposit\_count - withdrawal\_count), 0)) AS total\_loyalty\_points

FROM( select \* from master\_activity\_data

where timing between '18-10-2022 00:00' and '18-10-2022 11:59'

group by player\_id) as timeslot group by player\_id

order by total\_loyalty\_points desc

**b. 26th October Slot S2**

SELECT player\_id,

SUM(0.01 \* CASE WHEN activity\_type = 'Deposit' THEN amount ELSE 0 END) +

SUM(0.005 \* CASE WHEN activity\_type = 'Withdrawal' THEN amount ELSE 0 END) +

SUM(0.2 \* num\_games) +

(0.001 \* GREATEST(SUM(deposit\_count - withdrawal\_count), 0)) AS total\_loyalty\_points

FROM( select \* from master\_activity\_data

where timing between '26-10-2022 12:00' and '26-10-2022 23:59'

group by player\_id) as timeslot group by player\_id

order by total\_loyalty\_points desc

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

Code:

SELECT player\_id, total\_loyalty\_points,

RANK() OVER (ORDER BY total\_loyalty\_points DESC) AS arank

FROM (

SELECT player\_id,

SUM(0.01 \* CASE WHEN activity\_type = 'Deposit' THEN amount ELSE 0 END) +

SUM(0.005 \* CASE WHEN activity\_type = 'Withdrawal' THEN amount ELSE 0 END) +

SUM(0.2 \* num\_games) +

(0.001 \* GREATEST(SUM(deposit\_count - withdrawal\_count), 0)) AS total\_loyalty\_points

FROM master\_activity\_data

GROUP BY player\_id

) AS loyalty\_data  
  
result:

|  |  |  |
| --- | --- | --- |
| player\_id | total\_loyalty\_points | arank |
| 634 | 83843.33 | 1 |
| 99 | 23665.74 | 2 |
| 672 | 22757.78 | 3 |
| 212 | 22199.28 | 4 |
| 740 | 19211.82 | 5 |
| 566 | 19153.76 | 6 |
| 714 | 16764.23 | 7 |
| 421 | 15446.46 | 8 |
| 369 | 14438.44 | 9 |
| 30 | 14053.38 | 10 |
| 587 | 13638.88 | 11 |

**3. What is the average deposit amount?**

SELECT round(AVG(user\_deposit),2) AS avg\_deposit\_per\_user

FROM (

SELECT player\_id, SUM(amount) AS user\_deposit

FROM master\_activity\_data

WHERE activity\_type = 'Deposit'

GROUP BY player\_id

) AS deposits\_per\_user;

Result:

|  |
| --- |
| avg\_deposit\_per\_user |
| 104669.7 |

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

Code:

SELECT player\_id, SUM(amount)/Count(player\_id) AS avg\_user\_deposit

FROM master\_activity\_data

WHERE activity\_type = 'Deposit'

GROUP BY player\_id  
  
Result:

|  |  |
| --- | --- |
| player\_id | avg\_user\_deposit |
| 357 | 7593.067 |
| 776 | 1116.671 |
| 492 | 2394.737 |
| 803 | 6238.095 |
| 875 | 1070.912 |
| 39 | 3056.818 |
| 539 | 2685.055 |
| 560 | 1925.082 |
| 30 | 26058.82 |
| 367 | 750 |
| 831 | 579.7736 |

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

SELECT round(AVG(total\_games),0) AS avg\_games\_per\_user

FROM (

SELECT player\_id, SUM(num\_games) AS total\_games

FROM master\_activity\_data

WHERE activity\_type = 'Game'

GROUP BY player\_id

) AS games\_per\_user;  
  
result:

|  |
| --- |
| avg\_games\_per\_user |
| 355 |

**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’s 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**

SQL code  
*WITH ranked\_players AS (*

*SELECT player\_id, total\_loyalty\_points,*

*RANK() OVER (ORDER BY total\_loyalty\_points DESC) AS arank*

*FROM (*

*SELECT player\_id,*

*SUM(0.01 \* CASE WHEN activity\_type = 'Deposit' THEN amount ELSE 0 END) +*

*SUM(0.005 \* CASE WHEN activity\_type = 'Withdrawal' THEN amount ELSE 0 END) +*

*SUM(0.2 \* num\_games) +*

*(0.001 \* GREATEST(SUM(deposit\_count - withdrawal\_count), 0)) AS total\_loyalty\_points*

*FROM master\_activity\_data*

*GROUP BY player\_id*

*) AS loyalty\_data*

*)*

*SELECT player\_id, total\_loyalty\_points,* *arank as rank\_on\_points,*

*(total\_loyalty\_points / (SELECT SUM(total\_loyalty\_points) FROM ranked\_players WHERE arank <= 50)) \* 50000 AS allocated\_bonus*

*FROM ranked\_players*

*WHERE arank <= 50;*

*result:*

|  |  |  |  |
| --- | --- | --- | --- |
| player\_id | total\_loyalty\_points | rank\_on\_points | allocated\_bonus |
| 634 | 83843.33 | 1 | 6638.861745 |
| 99 | 23665.74 | 2 | 1873.894625 |
| 672 | 22757.78 | 3 | 1802.000995 |
| 212 | 22199.28 | 4 | 1757.778142 |
| 740 | 19211.82 | 5 | 1521.22597 |
| 566 | 19153.76 | 6 | 1516.627965 |
| 714 | 16764.23 | 7 | 1327.421495 |
| 421 | 15446.46 | 8 | 1223.077835 |
| 369 | 14438.44 | 9 | 1143.261357 |
| 30 | 14053.38 | 10 | 1112.770917 |
| 587 | 13638.88 | 11 | 1079.950554 |
| 222 | 13348.8 | 12 | 1056.981669 |
| 352 | 13040.65 | 13 | 1032.581573 |
| 365 | 12855.08 | 14 | 1017.887419 |
| 920 | 12535.8 | 15 | 992.6066632 |
| 162 | 12483.6 | 16 | 988.4733755 |
| 415 | 12304.42 | 17 | 974.2851925 |
| 569 | 12285.42 | 18 | 972.7813726 |
| 786 | 12097.22 | 19 | 957.8788117 |
| 2 | 12040.48 | 20 | 953.3859597 |
| 238 | 11638.84 | 21 | 921.5836365 |
| 992 | 11627.78 | 22 | 920.7078071 |
| 28 | 10622.45 | 23 | 841.1041702 |
| 538 | 10298.62 | 24 | 815.4625045 |
| 208 | 9840.406 | 25 | 779.1806318 |
| 989 | 9789.2 | 26 | 775.1260508 |
| 978 | 9399.005 | 27 | 744.2297253 |
| 915 | 9340.002 | 28 | 739.5577641 |
| 678 | 9292.421 | 29 | 735.790217 |
| 78 | 9134.9 | 30 | 723.3174275 |
| 909 | 9068.07 | 31 | 718.0257107 |
| 182 | 8840.907 | 32 | 700.0385454 |
| 93 | 8814.822 | 33 | 697.9730892 |
| 200 | 8365.783 | 34 | 662.4173925 |
| 259 | 8265.515 | 35 | 654.4779961 |
| 306 | 8260.857 | 36 | 654.1091675 |
| 344 | 8239.608 | 37 | 652.4266344 |
| 601 | 8128.062 | 38 | 643.5942261 |
| 515 | 7882.608 | 39 | 624.1587473 |
| 294 | 7633.973 | 40 | 604.4713913 |
| 681 | 7551.664 | 41 | 597.9540201 |
| 950 | 7498.395 | 42 | 593.7360871 |
| 675 | 7102.849 | 43 | 562.41606 |
| 663 | 6981.217 | 44 | 552.7850246 |
| 438 | 6974.456 | 45 | 552.2496768 |
| 619 | 6970.413 | 46 | 551.9295449 |
| 245 | 6656.115 | 47 | 527.0428772 |
| 547 | 6410.942 | 48 | 507.6296484 |
| 612 | 6402.05 | 49 | 506.9255642 |
| 949 | 6262.112 | 50 | 495.8450276 |

**Part C  
  
Would you say the loyalty point formula is fair or unfair?  
  
Can you suggest any way to make the loyalty point formula more robust?**

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

The current loyalty points formula seems to favor financial transactions more than actual gameplay:

🔹 Players can simply deposit more money to rack up loyalty points instead of actively participating in games.  
🔹 Withdrawals have a minimal penalty, so someone could deposit a large amount, withdraw it later, and still earn high points.  
🔹 Gaming activity feels undervalued, with only 0.2 points per game, making it less rewarding compared to deposits and withdrawals.

**Suggested Improvements:**

* **Remove withdrawal-based points** – It doesn’t encourage real engagement.
* **Replace the deposit-withdrawal difference** with metrics like player tenure and win rate. This way, loyalty points reward long-term engagement and skill, keeping users more invested in the platform.