Part A

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

a. 2nd October Slot S1

A total of **1,561,430 players** earned loyalty points in **Slot S1 on 2nd October**. The highest scoring player was **User ID 989** with **26,723,229 points**, followed by **421 and 16**

user_id	only_date	loyalty
989	2022-10-02	26,723,229
421	2022-10-02	22,990,420.665
16	2022-10-02	15,319,650.71
587	2022-10-02	12,003,248.8
920	2022-10-02	10,515,569.6
856	2022-10-02	9,835,239.5
502	2022-10-02	8,458,966.32
602	2022-10-02	7,593,035.32
9	2022-10-02	6,972,021.84
565	2022-10-02	6,865,643.52

b. 16th October Slot S2

A total of **1,679,126 players** earned loyalty points in **Slot S1 on 2nd October**. The highest scoring player was **User ID 663** with **41,068,816 points**, followed by **421 and 407**

user_id	only_date	loyalty
663	2022-10-16	41,068,816
421	2022-10-16	22,990,420.665
407	2022-10-16	14,797,302
587	2022-10-16	10,828,848.8
16	2022-10-16	8,476,095.355
502	2022-10-16	8,458,966.32
547	2022-10-16	8,316,959.04
448	2022-10-16	6,281,606.29
618	2022-10-16	5,575,108
377	2022-10-16	5,370,594.03

c. 18th October Slot S1

A total of **2,289,271players** earned loyalty points in **Slot S1 on 2nd October**.
The highest scoring player was **User ID 663** with **63,472,316 points**, followed by **16 and 856**

user_id	only_date	loyalty
663	2022-10-18	63,472,316
16	2022-10-18	37,985,731.42
856	2022-10-18	32,406,139.5
989	2022-10-18	26,723,229
502	2022-10-18	16,917,932.64
421	2022-10-18	16,451,020.665
547	2022-10-18	11,689,198.56
208	2022-10-18	9,425,860.08
565	2022-10-18	8,649,963.52
137	2022-10-18	6,842,007.2

d. 26th October Slot S2

A total of **1,036,767players** earned loyalty points in **Slot S1 on 2nd October**.
The highest scoring player was **User ID 920** with **28,154,228.8 points**, followed by **421 and 407**

user_id	only_date	loyalty
920	2022-10-26	28,154,228.8
421	2022-10-26	20,374,660.665
407	2022-10-26	18,346,302
137	2022-10-26	9,658,807.2
238	2022-10-26	9,453,164.8
182	2022-10-26	7,344,102.77
587	2022-10-26	5,561,224.4
612	2022-10-26	5,391,257.43
565	2022-10-26	5,217,141.76
946	2022-10-26	3,653,076

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.

Output:

user_id	total_dd	total_wd	total_games	loyalty	loyalty_rank
421	114,910,336,800	195,732,168,687	12,948,012	2,130,353,813.835	1
663	95,214,875,000	96,593,650,400	11,649,820	1,437,446,966	2
502	27,376,549,200	132,807,568,824	16,461,522	941,095,640.52	3
365	37,634,421,000	66,091,624,450	1,210,110	707,044,354.25	4
16	29,402,127,027	47,286,935,514	4,407,858	531,337,519.44	5
920	17,820,212,800	66,277,949,760	1,987,024	509,989,281.6	6
587	3,944,222,400	88,516,730,000	522,608	482,130,395.6	7
989	16,660,800,000	55,772,028,000	833,040	445,634,748	8
856	26,885,925,000	35,033,175,000	1,991,550	444,423,435	9
618	9,943,137,820	59,261,202,000	5,065,060	396,750,400.2	10

3. What is the average deposit amount?

The average deposit amount across all users and dates is **5492.18**

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

the average deposit amount per user in a month of October is **104669.65**

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

The average number of games played per user are **355.26**

Part-b

50 players who are at the top of the leaderboard are as follows:

User IDs: 421, 663, 502, 365, 16, 920, 587, 989, 856, 618, 9, 754, 992, 407, 946, 565, 836, 296, 78, 39, 93, 289, 547, 238, 927, 97, 795, 352, 612, 922, 137, 602, 168, 449, 182, 448, 208, 985, 987, 828, 85, 540, 47, 372, 27, 377, 699, 218, 31, 654

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365	37,634,421,000	66,091,624,450	1,210,110	707,044,354.25	4
16	29,402,127,027	47,286,935,514	4,407,858	531,337,519.44	5
920	17,820,212,800	66,277,949,760	1,987,024	509,989,281.6	6
587	3,944,222,400	88,516,730,000	522,608	482,130,395.6	7
989	16,660,800,000	55,772,028,000	833,040	445,634,748	8
856	26,885,925,000	35,033,175,000	1,991,550	444,423,435	9
618	9,943,137,820	59,261,202,000	5,065,060	396,750,400.2	10
9	5,954,620,896	63,840,612,864	3,351,096	379,419,492.48	11
754	26,029,630,000	21,630,058,032	3,010,656	369,048,721.36	12
992	21,986,364,114	27,543,928,932	491,634	357,681,612.6	13
407	18,398,016,000	23,828,493,000	3,052,140	303,733,053	14
946	7,403,960,700	30,301,584,000	1,071,990	225,761,925	15
565	7,115,422,080	29,199,242,240	3,122,560	217,774,944	16

Recommendation:

The ₹50,000 bonus pool can be distributed proportionally based on total loyalty points earned by the top 50 players during the month.

This ensures fairness by rewarding players who contributed both in terms of monetary activity and game engagement.

Players with more deposits, withdrawals, and gameplay will receive higher bonuses, motivating well-rounded platform usage.

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

The loyalty formula is fair however it does favor deposits more as the reward for depositing is more however that can encourage more new users or old one to deposit more.

However he current formula doesn't give enough incentive to retain or hold money on the platform. Because withdrawing gives more loyalty points (0.005 per ₹) than the tiny bonus (0.001) for keeping funds in, players are naturally encouraged to withdraw sooner rather than hold their money.

Suggestion

The current formula does not have any time related concept to it, like if a regular players are being treated same as the person who is not that regular. We can have something like this:

0.05* (steak in days)

This can encourage people to play regularly.