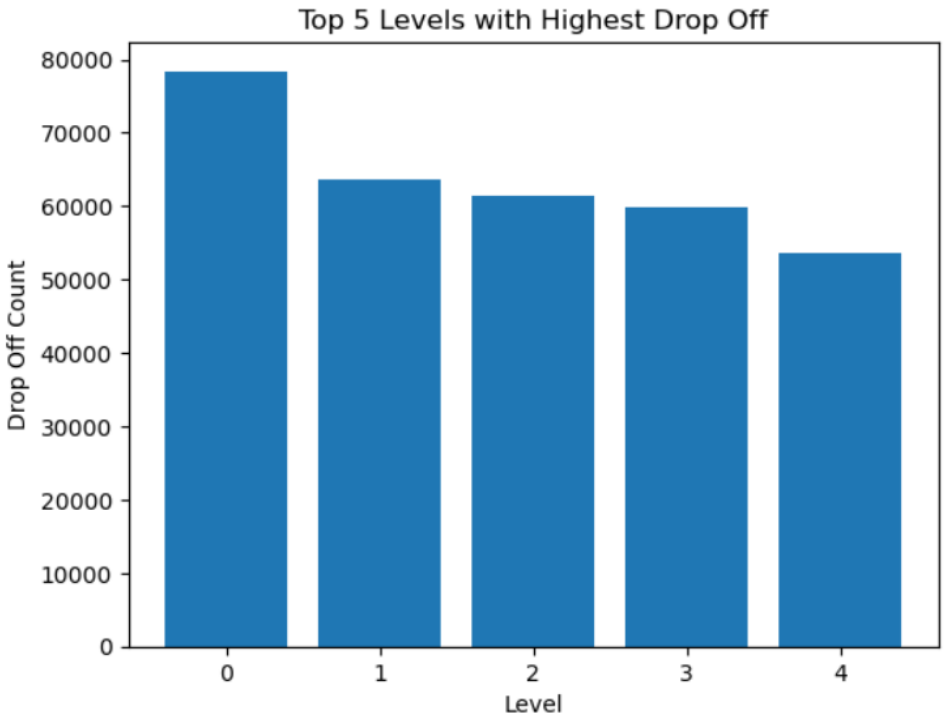
Optimzing Game Levels Report

The dataset is about various metrics related to gameplay such as level, number of drops off, win count, lose count, win playtime, and lose playtime. Using this dataset, we will analyze the factors that affect the drop off numbers and thereby optimize the levels.

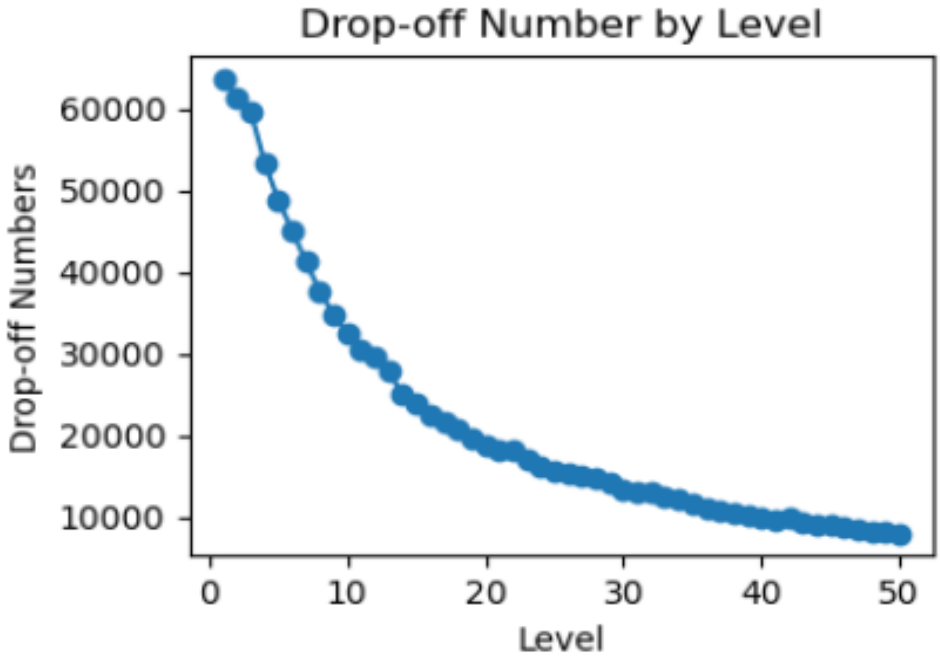
First let's start the analysis with the levels with the highest drop off volume:



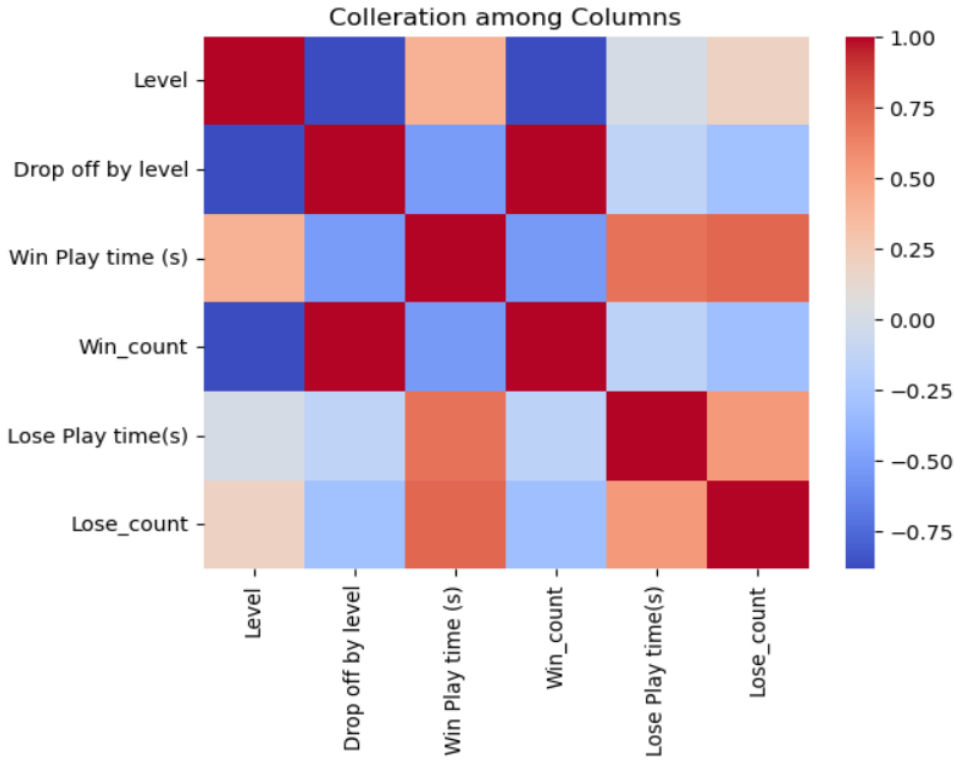
The chart above is the top 5 levels with the largest number of drop-off players, although level 0 is just a game download, it leads in this indicator with 78,397 drop-off times. This means that 78,397 players delete the game right at the time of downloading the game. From here we can believe that the waiting time to load the game is so long that a large number of players cannot wait patiently.

From the column chart we can also see that the largest number of drops off is mostly in the early levels.

Next let's see how drop off numbers change by level:

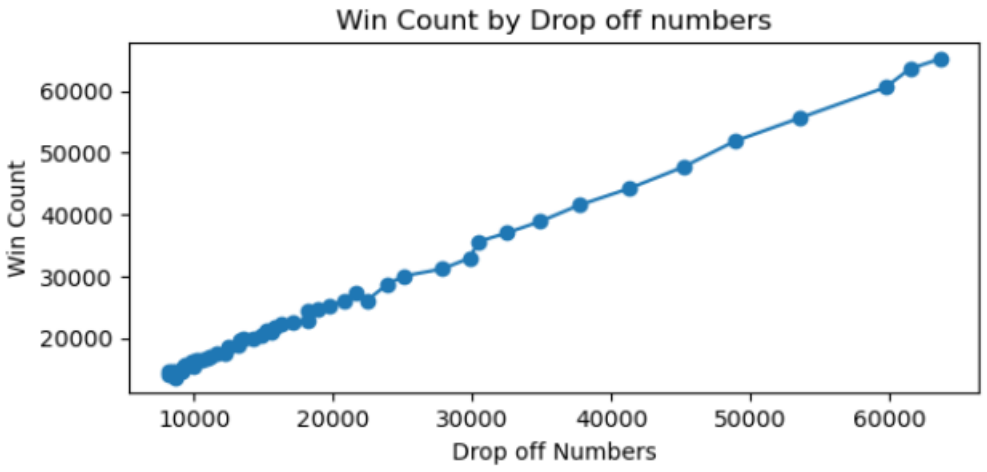


The chart above shows the inverse relationship between drop-off quantity and level. This can be explained that the longer players play, the less likely they are to leave. It can be explained that when sticking with the game for a long time, the player will have more motivation to continue playing. That's why game changes to motivate players at lower levels are important.



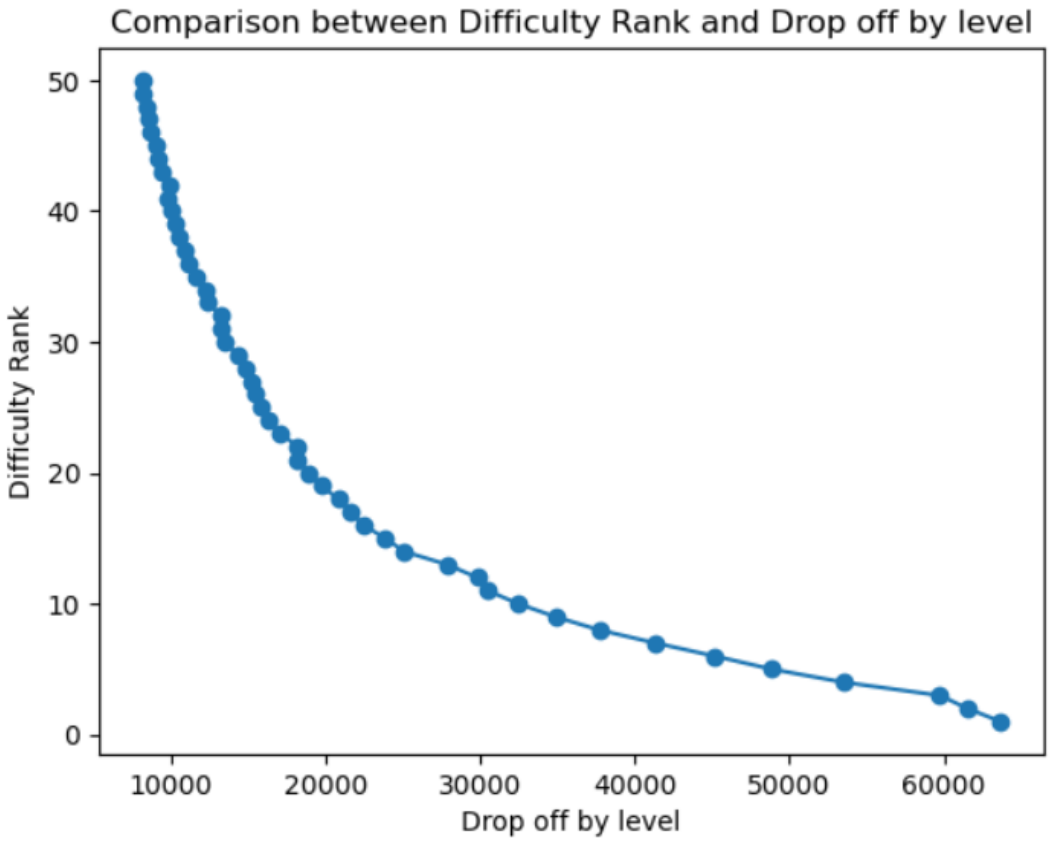
Looking at the heatmap between the data columns in the dataset, we can see that the red color is at the intersection of win count and drop off by level, which indicates that these two data fields have a positive relationship.

To see more clearly, let's look at the line chart between win count and drop off by level below:



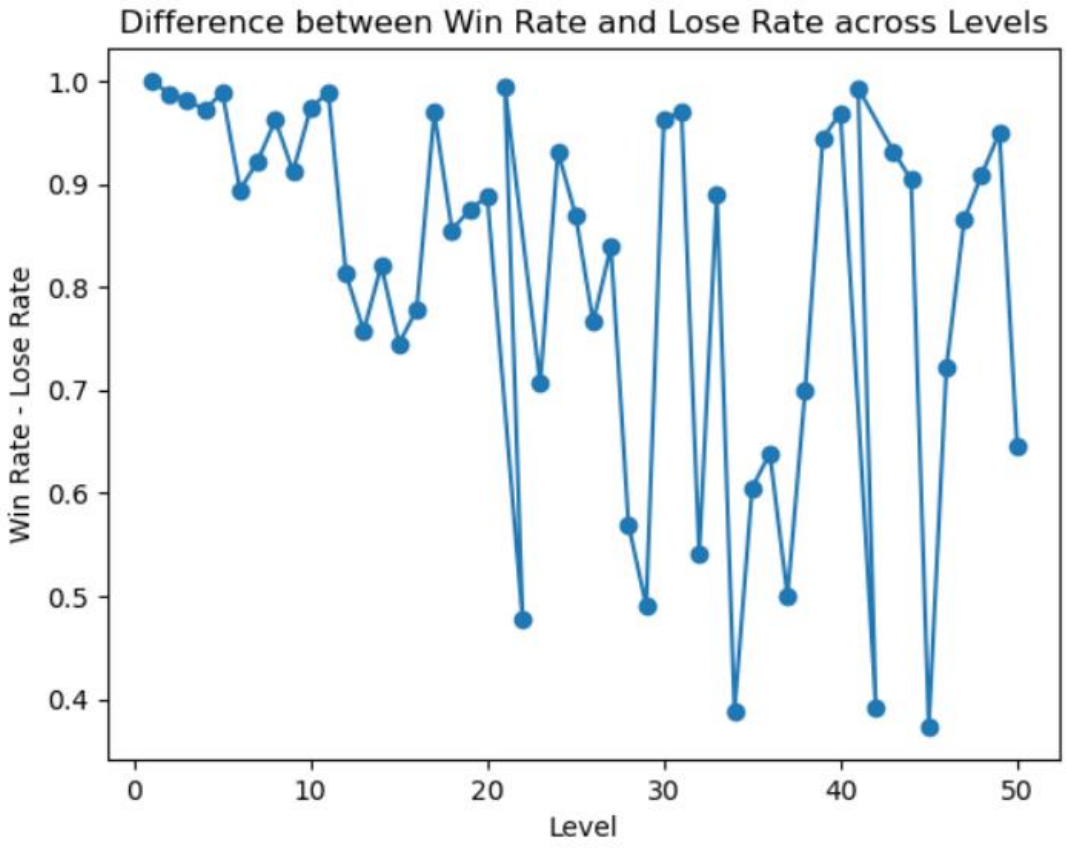
The graph shows a strong positive relationship between win count and drop-off numbers. This indicates that the more players win, the more likely they are to stop playing. From here, we can hypothesize that the difficulty of the game greatly affects the player's decision to quit the game.

To demonstrate the above hypothesis, I created a new column called Difficulty Rank by calculating the sum of the drop-off numbers, the ratio of losses to wins, and the ratio of time lost to win to rank the difficulty by levels.



From the chart above we can see very clearly the inverse ratio of Drop off by Level and Difficulty Rank. In other words, when the difficulty of the game is higher, players will be less inclined to quit the game. This can be explained that the low difficulty levels are not attractive to players, they feel they are not challenging enough, so they quit the game. Prove that our hypothesis is correct.

Next, let's analyze in detail what levels need to be adjusted to rebalance the game, by calculating the difference between the player's win rate and loss rate through each level.



The chart above shows that there is a big difference between the win and loss rates at levels 1, 21, 41, 11, 5, and 2 with a higher win rate than a loss. Game developers should consider adjusting the difficulty of these levels to make the game more balanced.

Conclusion

- The game loading time is too long, making a large number of players unable to wait patiently.
- It is necessary to improve the game to create more motivation for players through each level, especially in the early levels.
- When players win a lot, they tend to stop playing.
- The difficulty of the game's game greatly affects the number of players leaving the game, when the difficulty is higher, the player will be less likely to quit the game.
- The large difference between the win and loss rates at levels 1, 21, 41, 11, 5, and 2 causes game imbalance, which can make players feel bored and lose motivation.

Suggestions

- The game development team should optimize game loading time to minimize waiting time and ensure smooth gameplay.
- The game should be diversified content at each level, giving players a new feeling.
- The game development team should increase the difficulty of the game at certain levels especially at levels 1, 21, 41, 11, 5, and 2 to challenge players, making them feel more attractive.
- Implement a feedback system that provides players with information on their performance in each level. This can include scoring, achievements, or ratings. Additionally, introduce a clear progression system that shows players their advancement through levels and unlocks new content or features. These elements can increase motivation and provide a sense of accomplishment.