Super Mario Maker and Difficulty Preferences

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Purpose of Document:

This document is intended to provide an exploration into what kinds of levels players decide to play in Super Mario Maker, based on data contained within each level. More specifically, it will try to find if there is a preference for easier more casual levels. This will be determined by the number likes (also known as stars) and the total number of unique players. It will then dive into what the proportions of all the levels of a certain theme are a certain difficulty. Lastly, it will determine which level themes contain the most levels of a certain difficulty.

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Executive Summary

For as long as platformers have been around, there have always been people who have wanted to create their own levels and publish them to the world. In 2015, Nintendo granted this ability with the release of their new game Super Mario Maker. In it, there is an entire course editor with the different physics engines and features from their most popular 2D Mario releases. Given that the ability to make any level has nearly endless possibilities, especially when you consider the differences between the different games, there is a wide range of difficulty for the levels, leading to Nintendo to include the feature to sort levels by difficulty.

For this report, I want to explore and prove that most players are looking for a more casual/laidback level to play, rather than a super difficult “test your skills” kind of level to play. In addition, I want to prove that the game style of Super Mario World contains the most difficult levels compared to the rest of the themes. This report will attempt to explore how different statistics tracked within the game relate to the difficulty of the level. In this case, we will be looking at the number of likes and the number of unique players. In addition, I will explore the level themes and which percentage of levels make up a certain difficulty. Lastly, I will look at whether there is a correlation between the amount of levels of a certain theme match up with the number of engagements with that theme for a given difficulty.

After examining the data, it was unsurprising to see that there was a clear preference for normal levels. However, this was only a slight lead ahead of the more difficult levels, but easy levels were some of the least popular levels out of the entire dataset. My prediction on the popularity of the difficult levels was correct; however, I didn’t expect the data to be so close. In terms of what the distribution of level difficulty looks like compared to each level theme, there are more normal levels than any other difficulty. In addition, there are more easy levels compared to expert or super expert, but the engagements for more difficult levels are higher. Lastly, each game’s theme followed the trend of the entire dataset, with the only real outlier being the popularity for the easy difficulty for the New Super Mario Bros. U was much more popular than all the other easy levels, and even more popular than some theme’s normal difficulty. Overall, the data was surprising, proving me wrong that Super Mario World would have more people playing difficult levels.

Section One – Which Difficulty is the Most Popular:

Chart, bar chart

Description automatically generated

Figure 1.1: Data for the entire dataset

After looking at the overall data for the whole dataset, and we already notice something interesting when looking at the unique player and number of stars for each difficulty. As shown in the image above, both the expert and superExpert difficulties have more unique players compared to the easy levels, but less than the normal levels. In addition, this data also holds true for the number of stars for each difficulty. However, as expected, there is a clear correlation between the difficulty and the number of attempts. It’s clear from this image that normal levels are preferred over super difficult levels, but easy levels are the least popular as these levels are typically designed by small children and don’t have much thought or care put into them compared to the other difficulties.

Section Two – What Do the Percentages for Level Difficulty Look Like for Each Theme:

Chart, bar chart

Description automatically generated

Figure 2.1: Distribution of level difficulty for each level theme

Like what was seen previously, there’s a clear preference for normal levels, with the normal difficulty being the majority for all level themes. Another thing that’s interesting is that there are more easy levels for some of the themes then expert and super expert. However, looking at figure 1.1, it’s clear to see that super expert and expert levels are more popular than easy levels, but they make up a good percentage of the overall levels. This is most likely related to low effort/low skill levels made by small children (after all, at the end of the day it is a kid’s game).

Section Three – What is the Engagement for Each Difficulty:

Chart, timeline, bar chart

Description automatically generated

Figure 3.1: Engagements for level themes of super expert difficulty

Chart, pie chart

Description automatically generated

Figure 3.2: Percentage of levels for super expert difficulty

Interestingly, one thing that surprised me with these findings is that while Super Mario World levels make up more of the super expert difficulty levels, from figure 3.1 it’s interesting to see that the Super Mario Bros level theme had significantly more players and total number of stars compared to the Super Mario World, even though it has the second most stars and unique players.

Chart, timeline, bar chart

Description automatically generated

Figure 3.3: Engagements for level themes of easy difficulty

Chart, pie chart

Description automatically generated

Figure 3.4: Percentage of levels for easy difficulty

Another interesting point is that for easy levels, New Super Mario Bros. U was the most dominant theme, with over half of the levels belonging to it. However, the Super Mario Bros. theme still edges out in terms of stars, while New Super Mario Bros. U has the most unique players.

Chart, timeline

Description automatically generated

Figure 3.5: Engagements for level themes of normal difficulty

Chart, pie chart

Description automatically generated

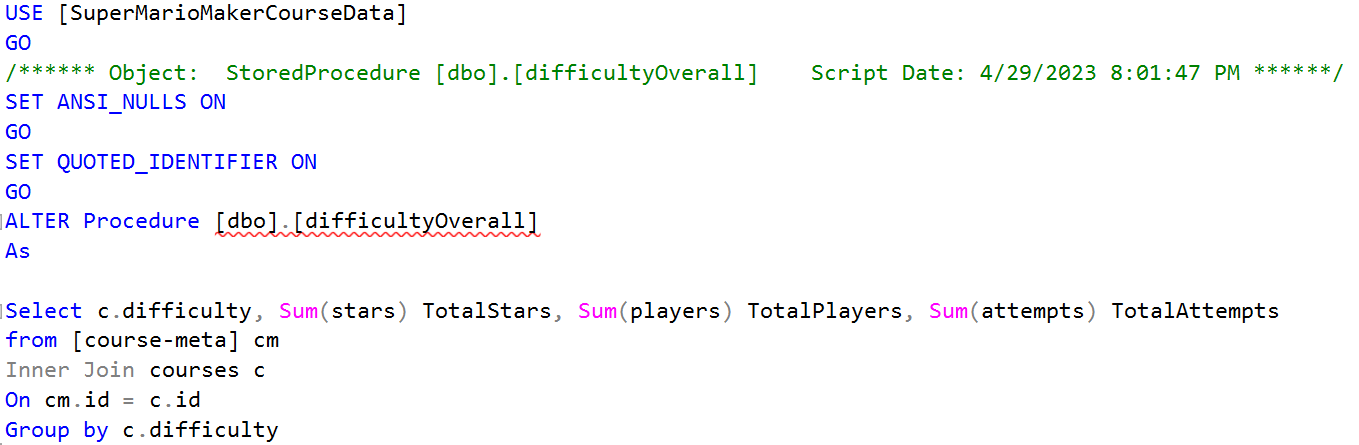
Figure 3.6: Percentage of levels for normal difficulty

Lastly, figure 3.6 shows us that there is a huge proportion of New Super Mario Bros. U levels compared to the rest of the difficulties. However, like figure 3.3 and 3.4, the Super Mario Bros. level theme has significantly more stars than the dominating level theme, but it has the most unique players.

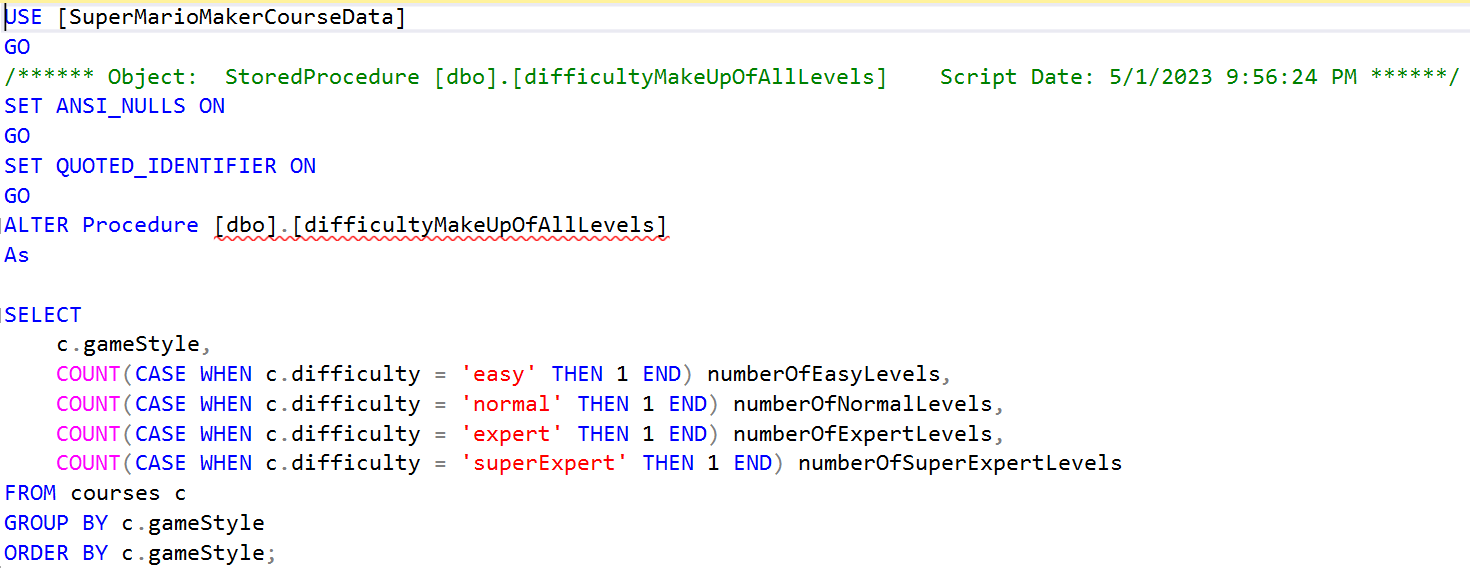
Appendix:

Stored Procedures

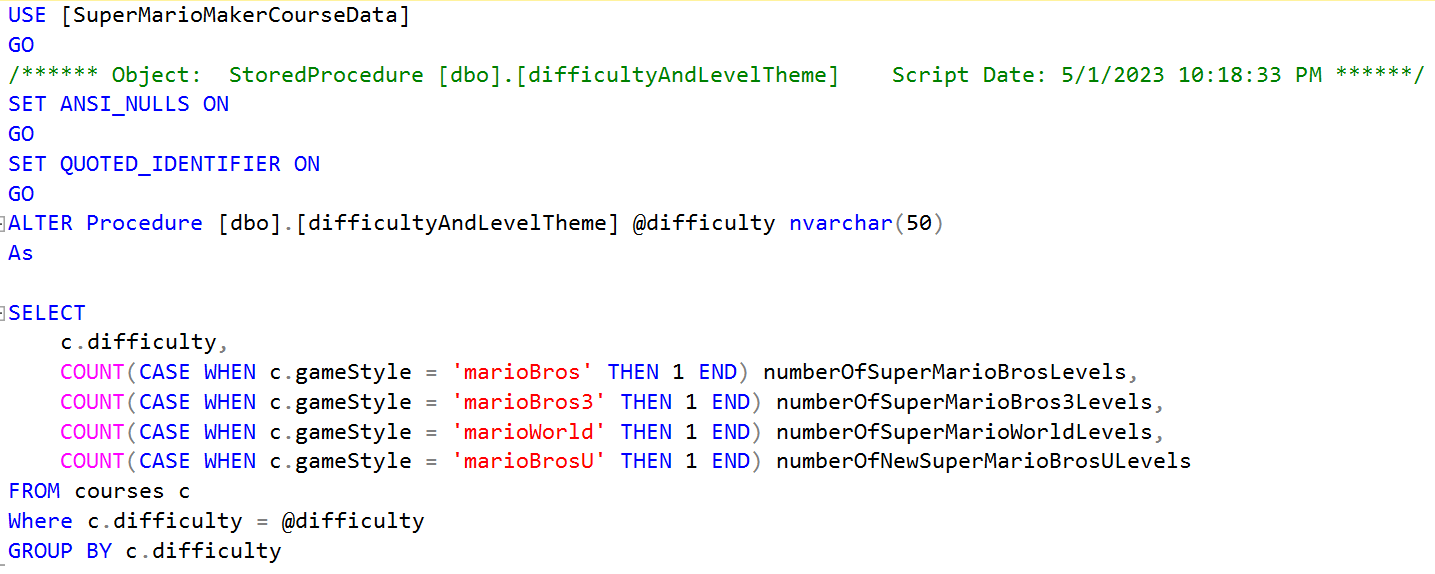
difficultyOverall: Returns the difficulty statistics for the entire dataset.

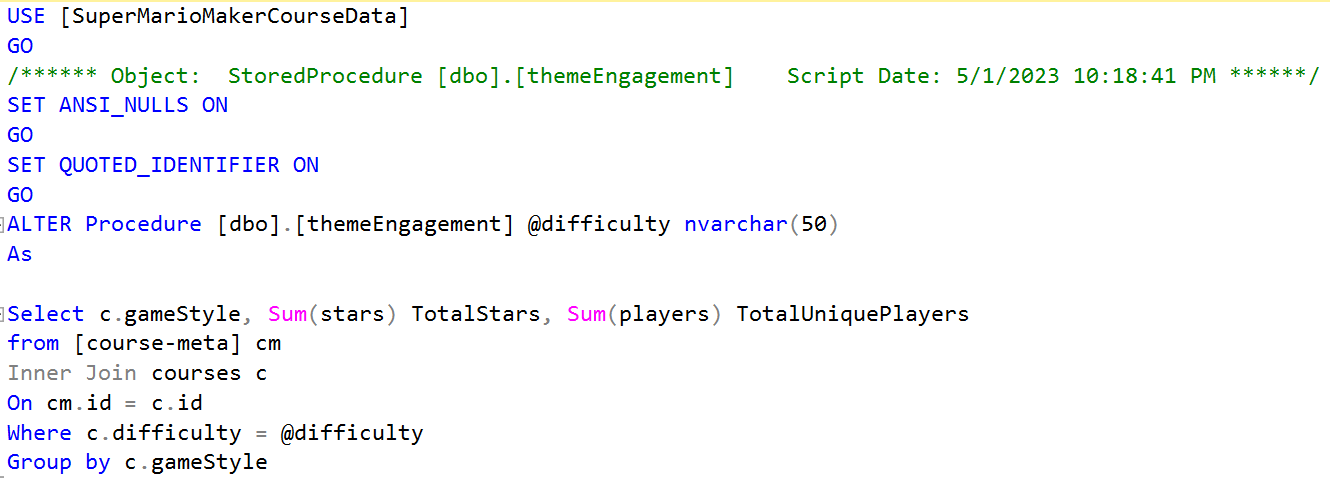


difficultyMakeUpOfAllLevels: Returns the number of levels per difficulty for every level theme.



difficultyAndLevelTheme: Takes in a parameter for the difficulty and returns the total number of levels for each level theme.



themeEngagement: Takes in a parameter for the difficulty and returns the total amount of stars and unique players per level theme for each difficulty.

User Privileges

There are a total of 3 users that have their own roles and privileges. The first user is an Admin, who can perform any action needed on the entire database. The second user is a DataAnalyst, who can view and make queries on all the data but cannot add or remove data. The last user is a DataManager, who can add and remove data to the database, but cannot perform the DROP command. All three users can execute the stored procedures.

