An Analysis Of Game Popularity Based On Game’s Genres

**Abstract:**

Context: There are a lot of games in this world and multiple genres supporting them but to find out whether the popularity of the game does or does not depend on the genre we shed the light on this topic.

Question: Is there a mean difference between genres and game popularity?

Method: We analyzed the two genres and compared them with the help of the Wilcox method.

Conclusion: There is no mean difference between the game genre and the popularity of the game. The results suggest that the popularity of the game does not depend on the genre of the game.

# Introduction

A video game, also known as a computer game, is a type of electronic game that involves interaction with a user interface or input devices, such as a joystick, controller, keyboard, or motion-sensing device, to generate visual feedback. This information is displayed on a video display device, such as a television, monitor, touchscreen, or virtual reality headset. Video games are frequently enhanced with audio feedback delivered via speakers or headphones, as well as other types of feedback, such as haptic technology.

Video games are classified according to their platform, which includes arcade video games, console games, and personal computer (PC) games. Recently, the industry has expanded into mobile gaming via smartphones and tablet computers, virtual and augmented reality systems, and remote cloud gaming. Video games are classified into a variety of genres based on their gameplay and purpose. Some of the examples can be - RPG, Sports, Adventure, Strategy, and many more which makes a wide variety of choices for the user to choose from.

Because of the large number of genres, the question of whether game popularity is affected by genres arises, and if so, which genre attracts the most users and has higher engagement than the other genres. As a result, we took two popular genres as our starting point and posed the question of whether the popularity of those games is dependent on the genres.

RQ: Is there a mean difference between genres and game popularity?

Null hypothesis: There is no mean difference between genres and game popularity.

Alternate Hypothesis: There is a mean difference between genres and game popularity.

To answer this question, we used a dataset named “Steamgamedatabycraigskelly” which is the data collection of players from the popular eCommerce game website named steam and we found the data on “data.world”. In the given data we have taken two main genres which are known as Role-playing games (RPG) and strategy games and try to compare them with each other and find out if there is a mean difference between popularity. So we have taken the number of players that are playing the game as our base for calculating the mean difference between the two genres and tried to estimate the popularity of the game. And after processing the data between the two genres and comparing them with both the hypothesis it has been concluded that the genre of the games does affect the popularity of the game.

The rest of this document is organized as follows: We give a visual representation of the data in the next part, followed by statistical analysis. We wrap off with a discussion of the result's relevance.

# Visualization

This Dataset consists of information of Game players, platforms used to play a range of games, game release dates, game compatibility, and game genres are all included in this dataset. Only game players and game genres are the centers of our attention. We have done visualizations and plotted Boxplot and Histogram. As follows our data consists of information varying toward high value and plotting graphs is hard for such data. To overcome this, we have used the Logarithmic graph method, and analyzing the data comes easy and understandable.

*Chart, box and whisker chart

Description automatically generated*

Figure 1: Boxplot graph between Genre and count of players

Figure 1 depicts that the distribution of players corresponds to game RPG and game strategy and we can observe that players would like to play game RPG(Role player game) over the game Strategy.

*Chart, histogram

Description automatically generated*

Figure 2: Distribution of players

Figure 2 depicts that number of players playing games between log 10(4) and log 10(6) has a high frequency of players. We can also observe that histogram is usual normal distribution as we expected the outcome.

# Analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SteamSpyOwners | Genre | GenreIsStrategy | GenreIsRPG | Log\_steamplayer |
| Min. : 533 | Length:3088 | Mode :logical | Mode :logical | Min. :2.727 |
| 1st Qu.: 6053 | Class :character | FALSE:1315 | FALSE:1773 | 1st Qu.:3.782 |
| Median : 24482 | Mode :character | TRUE :1773 | TRUE :1315 | Median :4.389 |
| Mean : 252061 | NA | NA | NA | Mean :4.450 |
| 3rd Qu.: 129760 | NA | NA | NA | 3rd Qu.:5.113 |
| Max. :90687580 | NA | NA | NA | Max. :7.958 |

Table 1: Summary of the data.

SteamSpyOwners has a spread from 533 to 90687580 and mean value of 252061, where we can observe that the max value is far higher than the mean value and we can say that the data is skewed right and unsymmetric curve.

Genre consists of two categories - RPG (role player game) and strategy game. We have done some data preprocessing by subsetting the required data from the original data. The values which are false for gameIsStrategy and gameIsRPG have been dropped along with these values we have also dropped True Values of gameIsStrategy and gameIsRPG. While normalizing the data we have taken out all the values which were having the true condition for both the strategy and RPG.

We have used the Wilcox test in our analysis, P-values obtained from a pairwise Wilcoxon test comparing the scores of two graders. At a P-value of 0.05. We have obtained a P-value(0.1923) and by this, we can say that the test P-value is greater than 0.05.

As such, we can consider Accepting the null hypothesis only in this case. in all other comparisons.

# Conclusions

After applying the normal values as well as the logarithmic values to our data and applying the Wilcox test to it we found out that in both the scenarios the output we got are the same.

The finding of analysis (W = 1133807, p-value = 0.1923) leads to the null hypothesis being accepted. Therefore, the alternative hypothesis (h1) is rejected and there is a mean difference between genres and game popularity.

So by the result, we got to know that the genres of the game do not affect the popularity of it, and focusing on the genre would not make much of a difference for the companies.

# References

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