Final Exam: Portfolio DATA1201

General Information

Full Name: Jacob Brendemuehl

DATA1201 Final Exam

Date: 11/30/23

Topic: Video game sales

Question

My question is "What are the trends in video games sales across different platforms and genres from 2010 to 2020, and is there a correlation between critical acclaim (such as ratings) and commercial success?". The scientific goal for investigating the trends in video game sales across platforms, genres, and their correlation with reviews revolves around understanding the dynamics of success within the gaming industry. My initial question was aimed at the exploration of the multifaceted relationship between ratings and commercial success over the past decade. As this exploration progressed, I realized that figuring out the evolving trends in sales and their association with various genres was important in understanding the industry.

My question evolved because trying to just focus on the critical acclaim and commercial success felt limiting in capturing the whole picture that is video game trends. By expanding my scope to explore other factors such as sales across platforms and genres, I gained a better understanding. I shifted my focus because of the realization that the success of games isn't just based on how well critics review the game but also by other factors such as market reach and reception among diverse gaming audiences and communities.

Video games have been a growing industry in the last decade. Today, video games have gone past mere entertainment. They have become a very important part of today's culture and a massive industry. The influence of video games has gone past just leisure by shaping narratives reflecting societal values, and driving technological advances. The gaming industry's economic significance, which is a multi-billion dollar market, requires understanding the key drives behind a game's success. Predicting elements that contribute to a game's popularity, be it critical acclaim or commercial performance, holds a large importance for stakeholders. This understanding not only informs game development strategies but also guides marketing approaches and aids investors in making informed decisions. With gaming's pervasive influence on culture, technology, and the economy, unraveling the dynamics of video game success factors stands as a pivotal pursuit for industry sustainability and growth. The creation of my question stemmed from recognizing the significant impact of reviews and commercial viability on a game's overall success. The idea of exploring patterns across genres and platforms would provide insights into consumer preferences, market behavior, and the influence of critical reception on sales.

My ultimate goal is to predict or estimate the factors that contribute to a video game's success the most. By analyzing data on sales figures, platforms, genres, user ratings, and critic scores, the goal is to identify correlations and patterns that can shine a light on whether critical acclaim influences commercial success and how various genres or platforms perform in the market.

This investigation intends to uncover insights for developers, publishers and stakeholders within the gaming industry. Understanding these trends can potentially inform decision-making processes, such as game development strategies, platform selection, and marketing approaches, ultimately aiming to enhance the likelihood of success for future video game releases. With this question, I aim to find if there is a significant correlation between critical acclaim and commercial success of video games across different genres and platforms or not.

Getting the Data

      The data that I need to answer this question are platforms, genres, sales figures, critic scores, user scores, and year of release. Addressing which platforms are being used, categorizing games into genres, quantitative data that show the total sales of games, ratings assigned by critics to evaluate games, ratings provided by users reflecting their opinions on games, and the year in which the game was launched. I'm pulling my data from a dataset from kaggle. This kaggle dataset pulls together 271 notebooks to which has 11,563 unique values and 6,900 complete cases with every category being filled. Some boxes within the dataset are empty, but over half are fully completed. I don't want to make the scope too broad, so I will be using games created from 2010-2020. This timeframe encompasses recent years and its gaming trends. Most data in this dataset utilizes data in this timeframe that is detailed and well-documented for those games.

Small portion of data from linux: https://imgur.com/a/6IGbQQZ

Data before and after Data Wrangling: https://imgur.com/a/ae5CUBc

Exploring the Data + Results/Data Visualization

      This dataset is based off of data from a popular video game review website called Metacritic. Metacritic is a website that aggregates reviews of video games, films, tv shows, etc. and each product has an averaged score based on reviews.

Review number meaning:

Score index[18]

|	Indication	Video games	Films/television/music
	Universal acclaim	90–100	81–100
	Generally favorable	75–89	61–80
	Mixed or average	50–74	40–60
	Generally unfavorable	20–49	20–39
	Overwhelming dislike	0–19	

There are several charts that I looked at to determine factors in my questions.

First off the main correlation I want to determine is critical acclaim vs commercial success. In terms of data this means reviews vs sales. I decided to use the global sales over to get total sales to see a trend. When it comes to reviews there are critic scores from Metacritic and there are also user scores from subscribers to that platform that review games as well.

Below you can see the critic scores vs global sales:

Critic Scores vs. Global Sales (2010-2020)
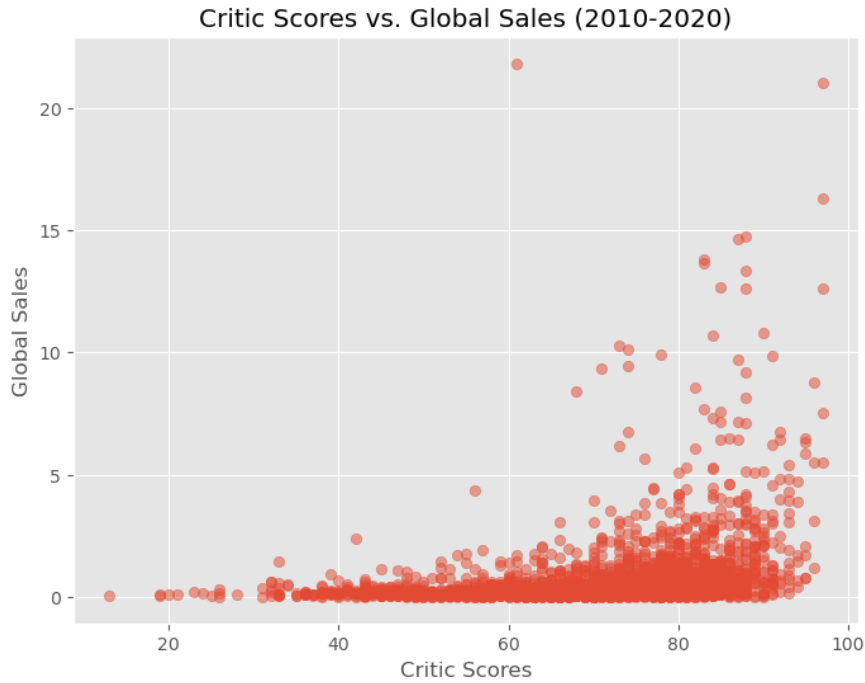
This scatterplot shows an upward trend that the higher a critic score is the more money the game has produced globally. Especially taking off around the generally favorable (75-89 range) and above.


Global Sales vs User Score (2010-2020)
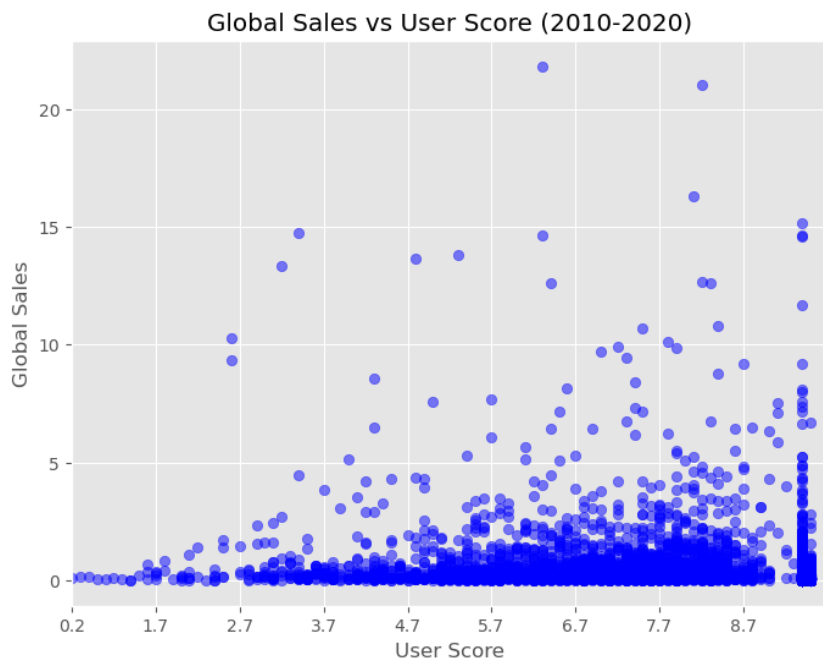
The user rating is way more spread out but this is likely due to users having a much broader opinion of games. There is still an upwards trend as a lot of scores are within the higher range but a lot more spread out nonetheless.

Critic Count vs Global Sales (2010-2020) — User Count vs Global Sales (0-1000, 2010-2020)
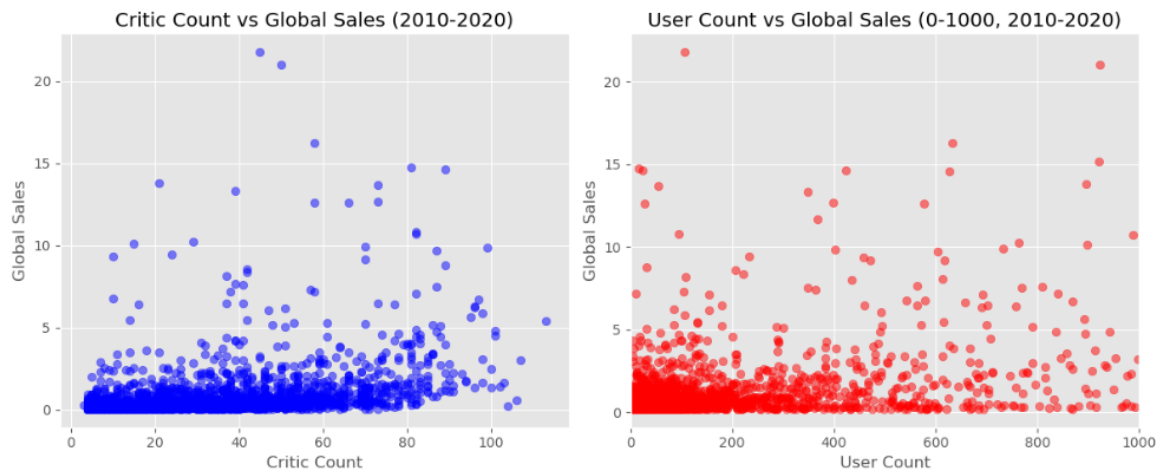
I also took into account the counts of critics and users and if the amount of people reviewing the game mattered in terms of global sales. For both, the more critics/users that reviewed generally didn't mean too much with various games' global sales. However it seems that there is a trend that the less the game is reviewed the less money it makes for users. Critics seem to be around the board no matter how many critics reviewed it, you could either have a lot of global sales or very few. I also wanted to look into other factors.


Counts by Platform (2010-2020)
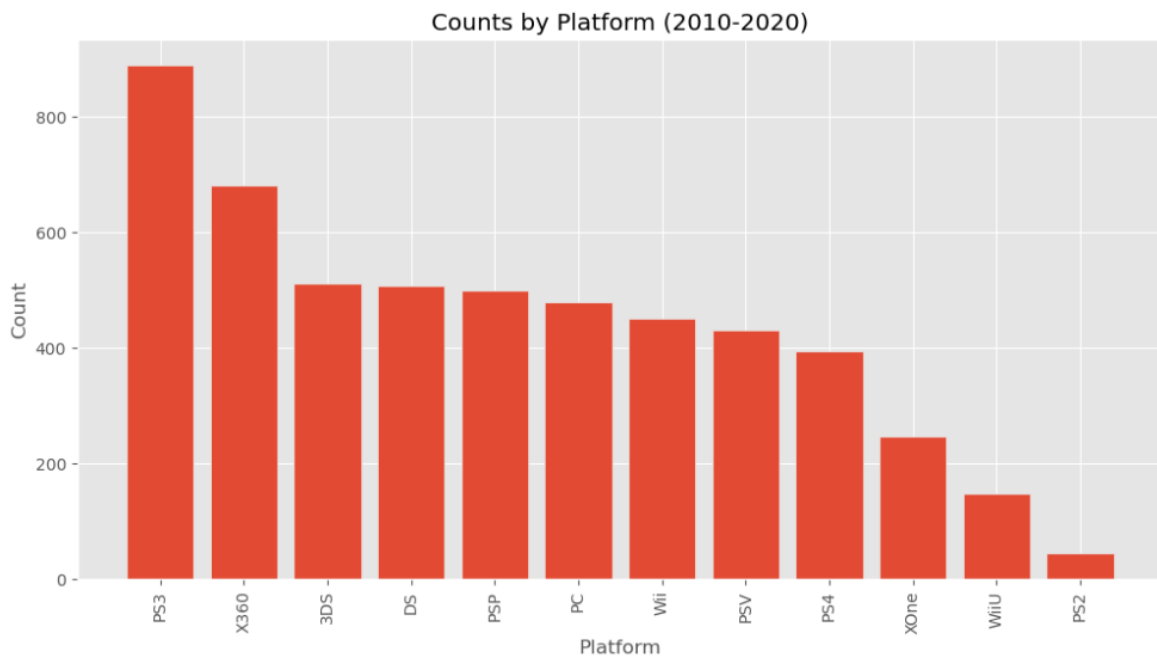
Here are counts by platform (games per platform). The higher the game count means the more games that have a chance to get reviewed which means there is a higher chance for more global sales.

Counts by Platform (2010-2020)   Global Sales by Platform (2010-2020)
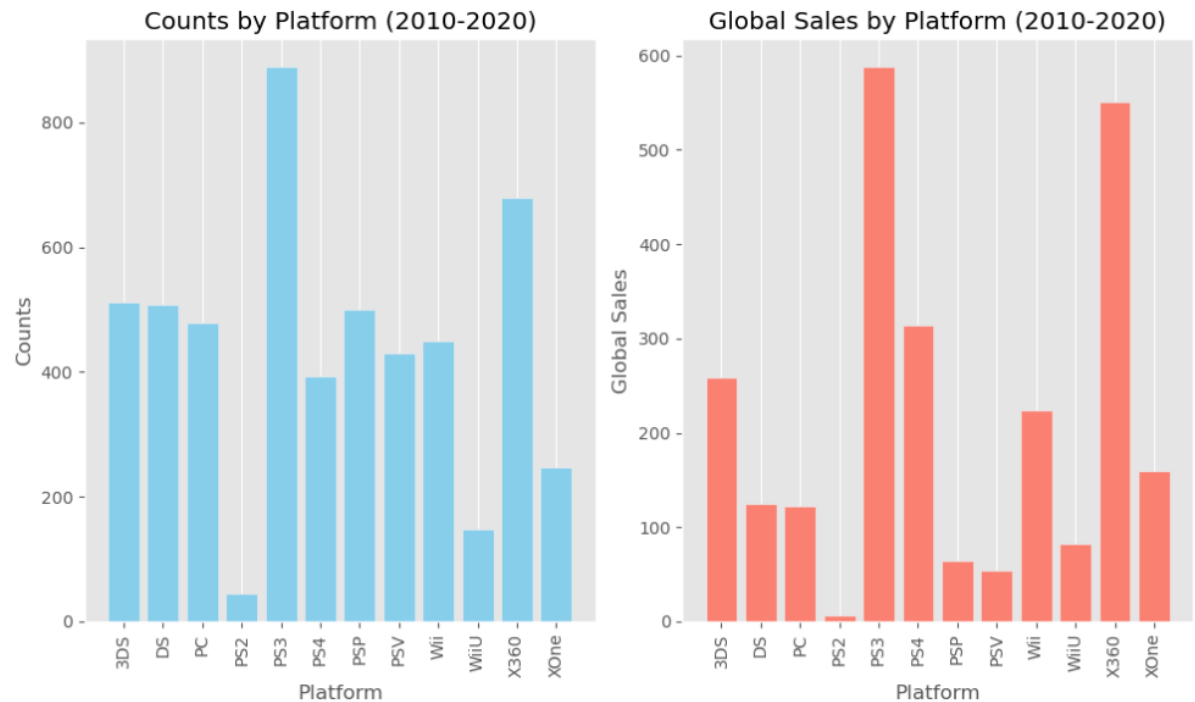
This is shown by comparing the count of the platform to global sales per each platform. As you can see, PS3 has the most games and highest global sales in the time period. By looking closer into the critic scores vs global sales of the PS3, you can see that there is a positive upward trend as critic scores go up from average (50 -74 range) to generally favorable (75-89 range) , they tend to make more money globally and then the outliers that are reaching or above 90 getting way more money than the rest. Next we can look at the total sales by genre. The table below shows the count of games per genre in the time period.

Genre	Count
Action	1496
Misc	576
Sports	575
Role-Playing	570
Adventure	563
Shooter	410
Racing	237
Simulation	218
Fighting	199
Strategy	170
Platform	153
Puzzle	114

As you can see above, the genre that is the most popular by far is action. Looking into all the genres and the total global sales in the time period we can see that same trend.

Total Sales of Game Genres (2010-2020)
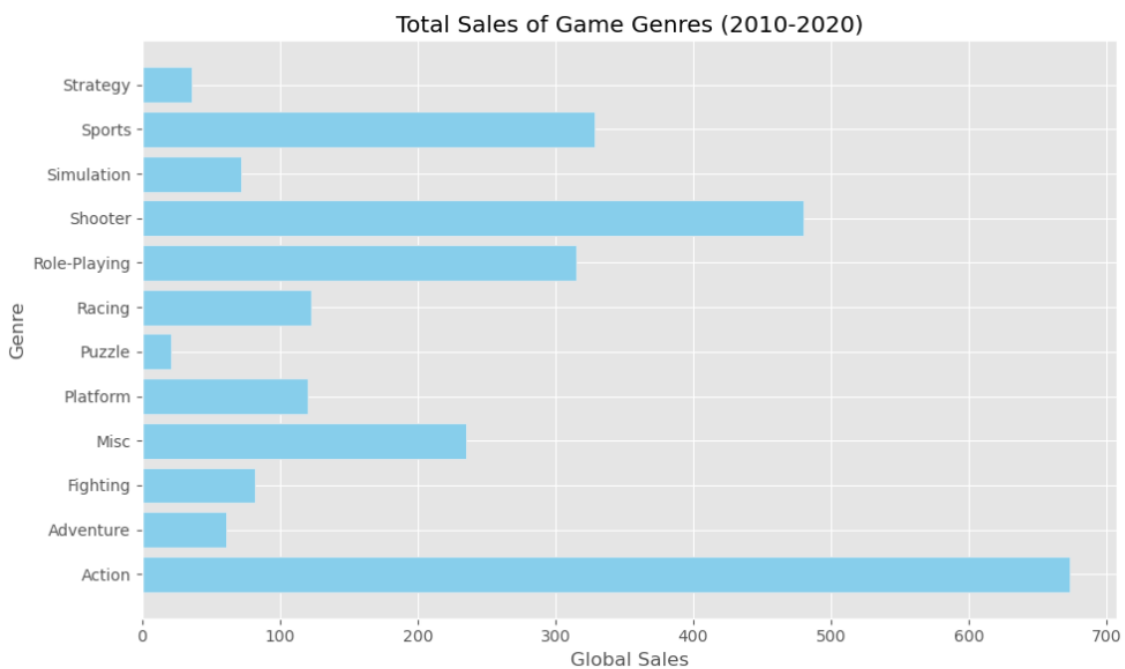
This shows that action also surpasses all other genres in global sales. However we can also see that shooter games are second highest as well in global sales. This leads into age rating. Games that are rated M for mature are leading the global sales from 2010-2020.

Total Global Sales by Rating (2010-2020)
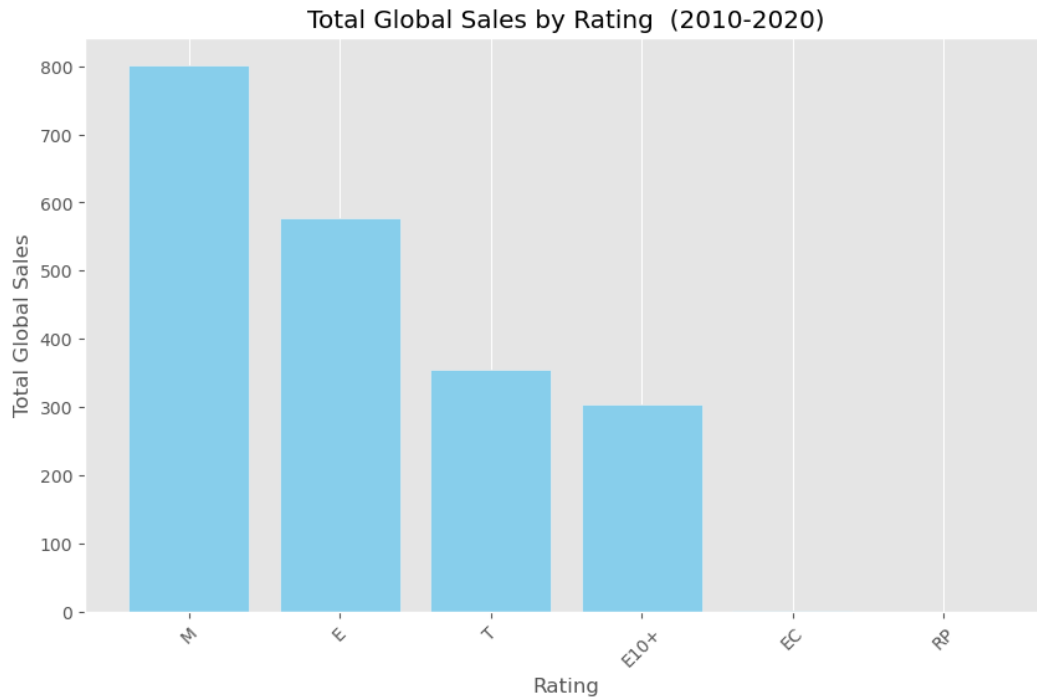
Conclusion

        Based on the data, my question can be answered. I can see that yes, my hypothesis is correct in that the higher the critical acclaim is for a video game, the higher the global sales tend to be. This highlights the importance of investing in quality, as it directly impacts the game's commercial success. There also is a smaller correlation between having higher sales globally and having more reviews for your game. This indicates that while high reviews are crucial, the visibility garnered through increased reviews also plays a role in driving sales. Recommendations would be to have your game be reviewed more. Encourage developers to actively seek reviews for their games. More reviews contribute to increased visibility and potentially higher sales, even if each individual review might not be as influential. In terms of creating a video game that will appeal to this. It seems that an action game, created on a console with a mature rating will result in a higher rating and therefore result in higher global sales. Developers should look to target mature audiences with action oriented gameplay. This dataset was also pulled from developers that have had success for many years, and would also influence global sales if developed by a large brand. This dataset is only from the years of 2010-2020, while the gaming industry continues to grow, watching market trends and evolving preferences within the data can give leverage to a brand/developer to increase sales.