

# Gaming Score Forecasting Model

## Improving Video Game Development

### Visuals

**Introduction**

According to Statista, video games are the most lucrative entertainment industry.

As a video game fan, it made me wonder:

Can video game ratings be predicted before release?

**Conclusion**

Accurate prediction models can greatly benefit indie game developers in predicting their games for success. It could also help create hype for Game Companies and Streamer/Youtuber.

For this reason, I can't wait to finish the model and have a better accuracy.

**01 Metacritic scores**  
Identifying score trends and patterns in the video game industry to guide predictive strategies.

**02 Game features**  
Exploring data on previous game releases to identify which game's features to predict if the game will be well-received.

**03 Game features**  
- Developer  
- Publisher  
- Game  
- Platform brand (Windows, Sony, Microsoft, PS4)  
- Platform type (Home Console, Handheld, PC)

**Video game predictions**

Three things can be predicted:  
Who will review them first?  
Indie developer  
Genre (Action, RPG, etc.)  
Score (Based on very old reviews)

Based on what data?  
2 main categories:  
1. Reviewer review scores  
2. Game review scores  
Method: Naive Bayes  
Source: Metacritic website directly

**Monitoring**

It's a mix of all previous metrics, and here's how they're used:  
- Rating distribution  
- Rating distribution by platform  
- Rating distribution by developer  
- Rating distribution by publisher

**Modeling**

Using the model to measure:  
- Rating distribution by developer  
- Rating distribution by publisher  
- Rating distribution by platform

**Testing**

Testing the predictability measure:  
- Rating distribution by developer  
- Rating distribution by publisher  
- Rating distribution by platform

**Final output**

Showing the predicted score and why it's being predicted.

**2nd floor?**

Modeling is used to compare the new data with the old data to see if the model needs updates.

**By: Benjamin Lavoie**

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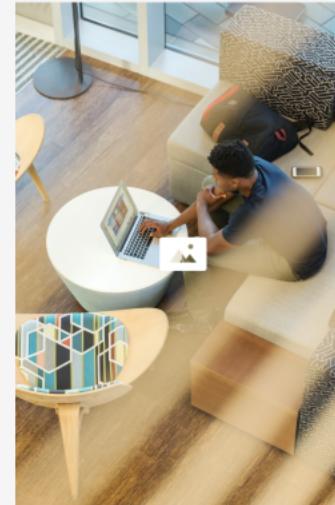


# Video game predictions

I think they can.

Who could benefit from that?

- Indie developers
- Solo developers
- Game studio of any size
- Any curious video game fan



# Based on what data?



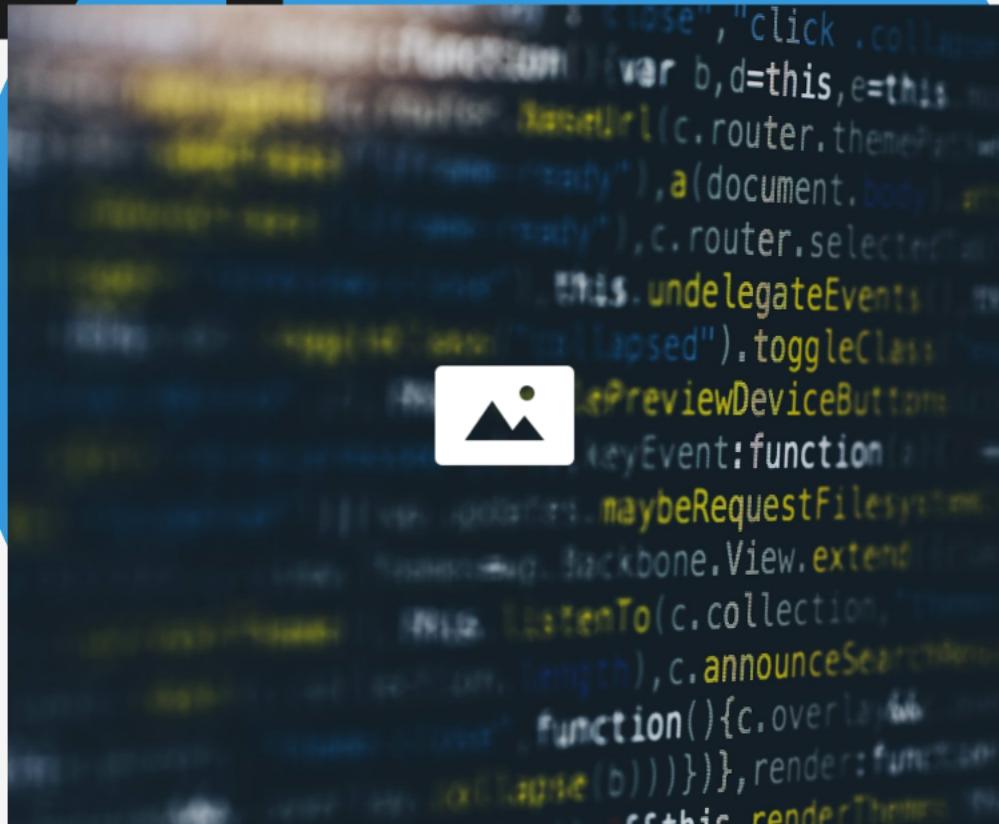
## 2 main datapoints:

1. Metacritic reviewer scores
2. Game features

Datasets: from Kaggle

Source: Metacritic website directly

# 01



## Metacritic scores

Identifying scores trends and patterns  
in the video game industry to guide  
predictive strategies

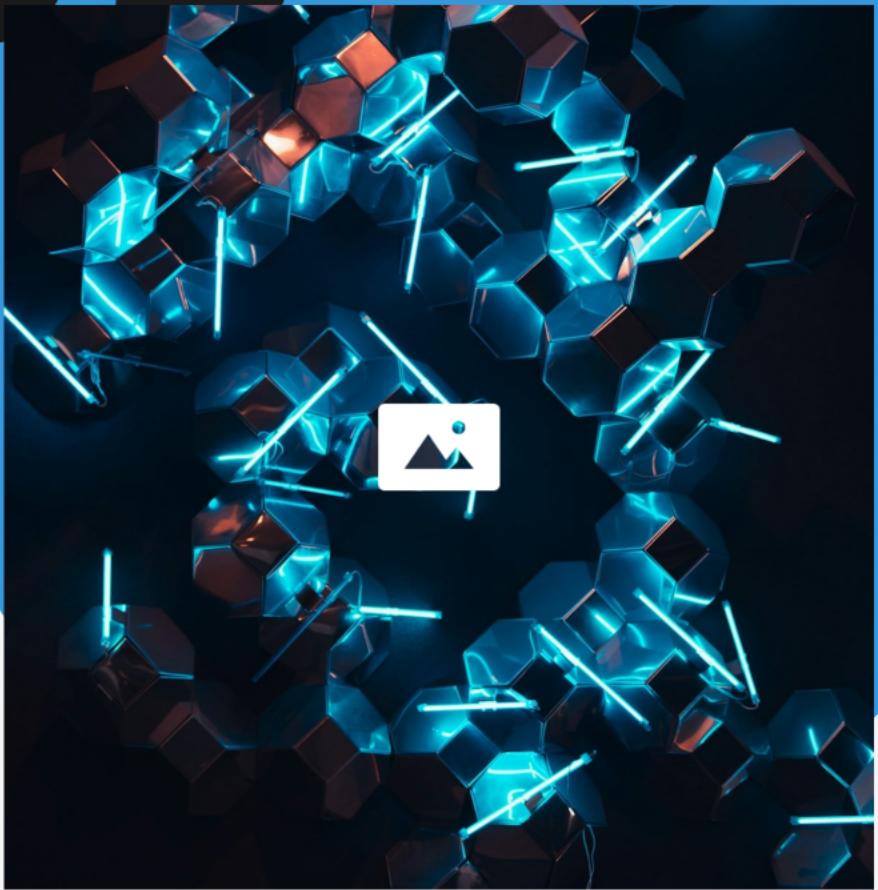
# 02



## Game features

Exploring data on previous game ratings and evaluating games with similar features to predict if the game will be well-received.

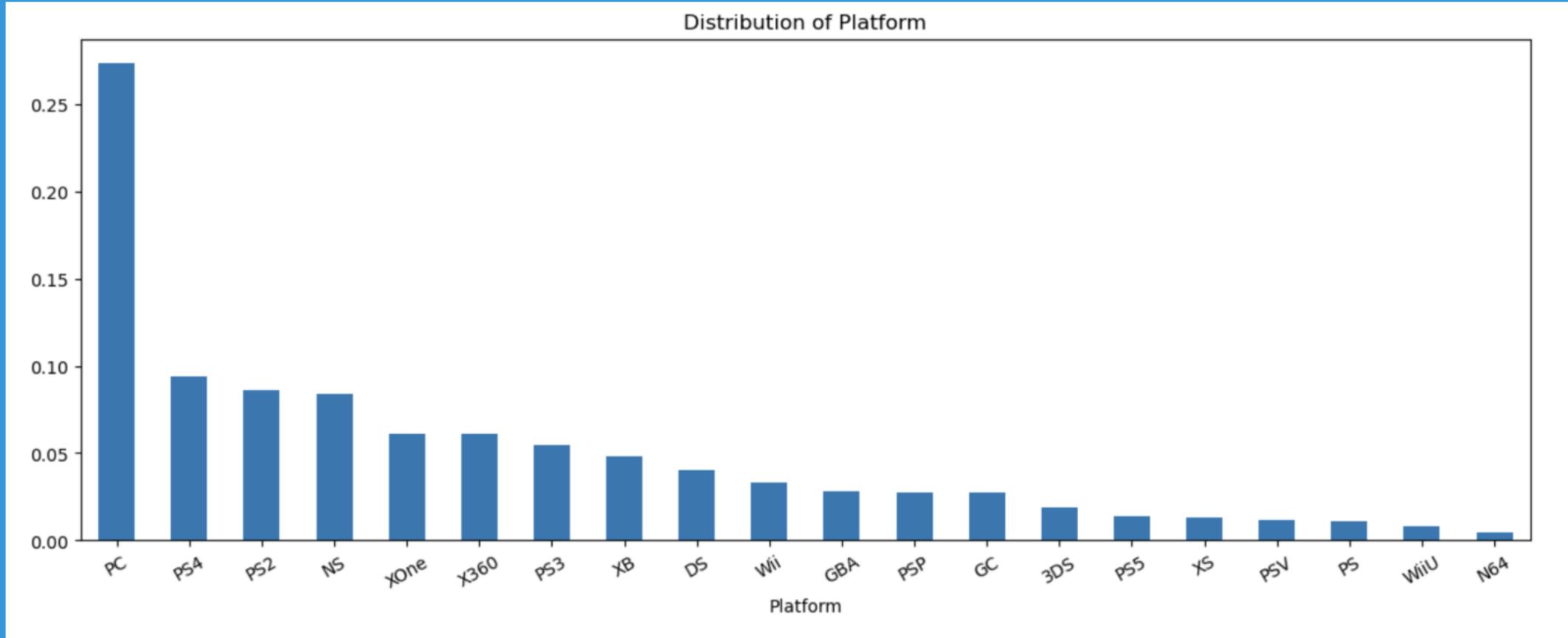
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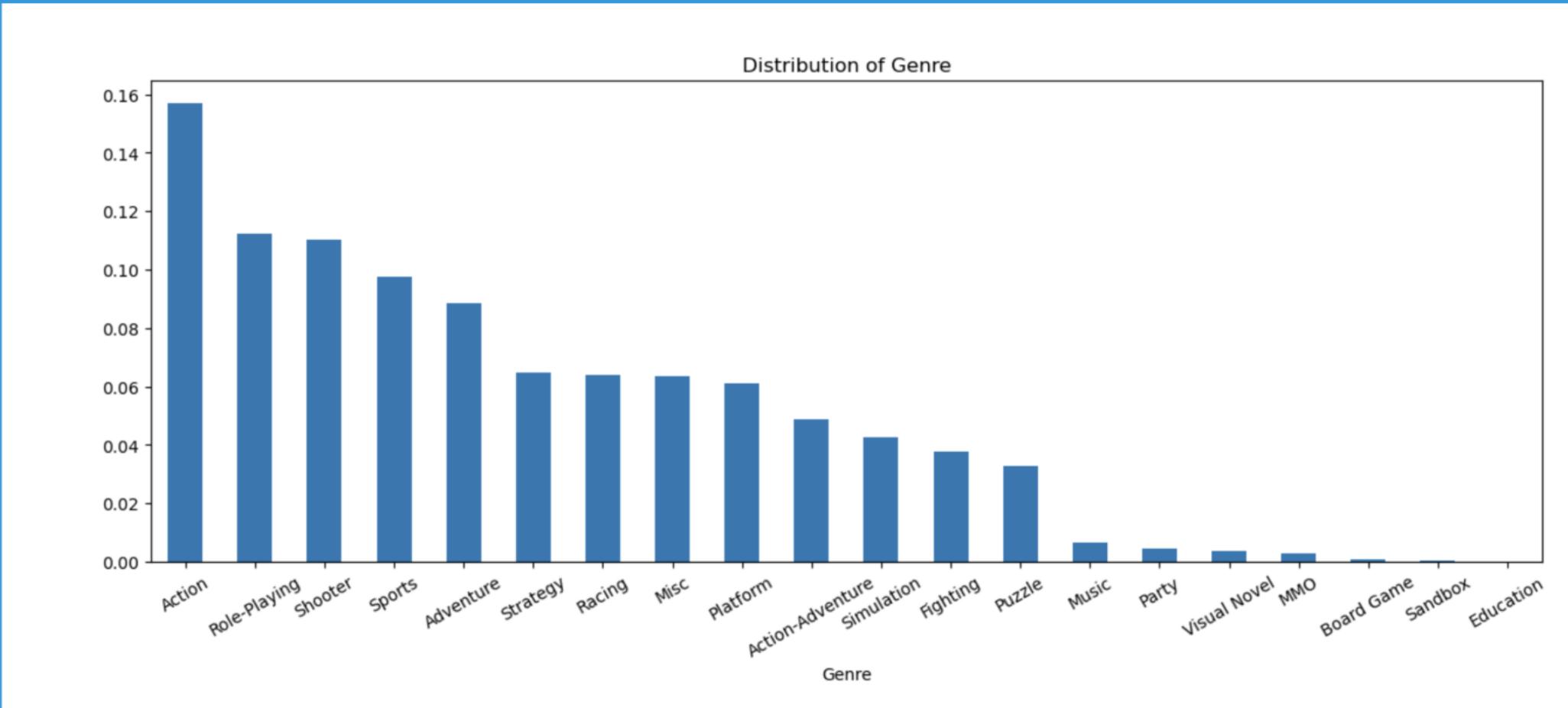
## Game features

- Developer
- Publisher
- Genre
- Platform brand (Nintendo, Sony, Microsoft, PC)
- Platform type (Home Console, Handheld, PC)

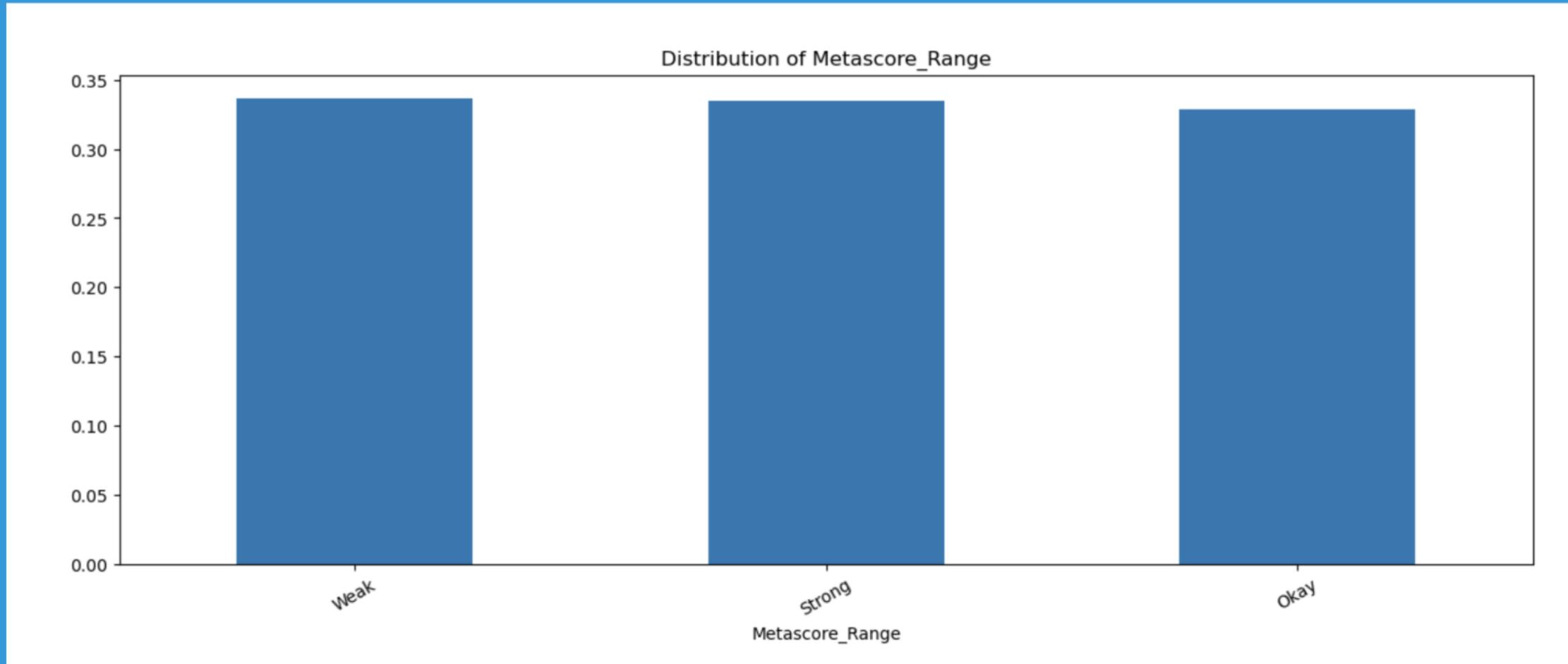
As for now, here are my findings



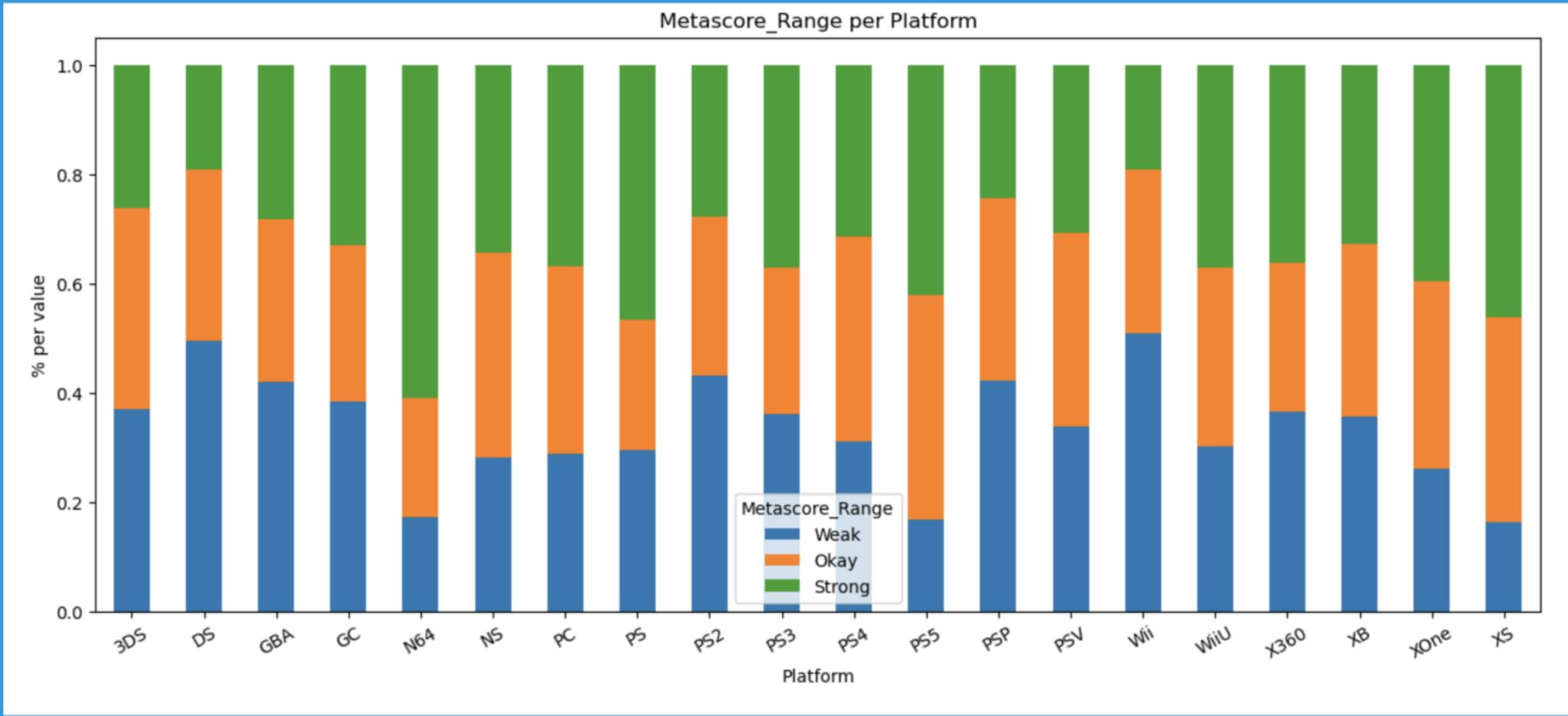
**- Mostly PC, not too many recent consoles because  
data is up to the beginning of 2023**



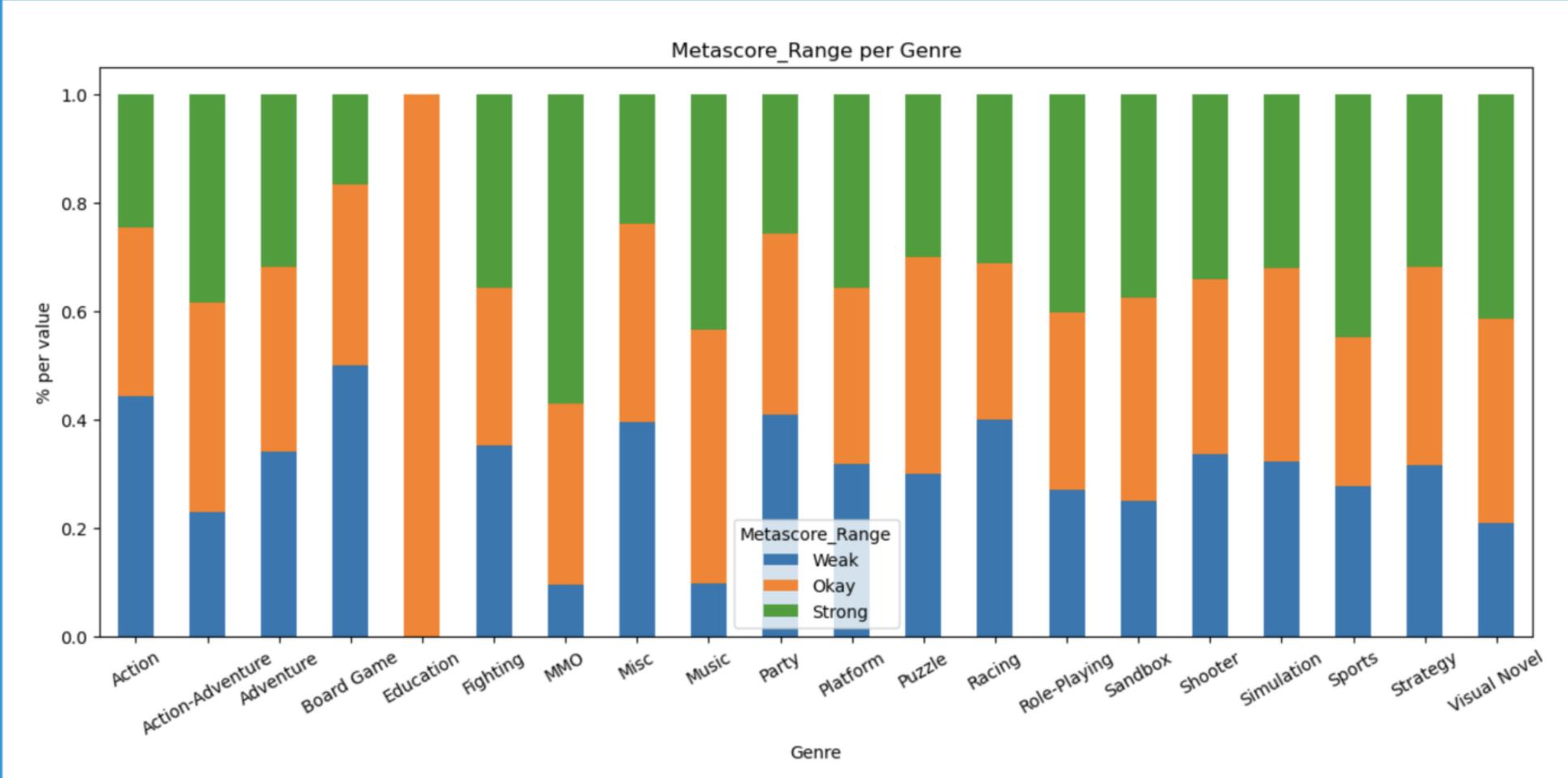
- A lot of action, role-playing and shooter games
- Only a few BoardGame, Sandbox and Education games



**Target column: Metascore\_range**  
**Weak, Okay, Strong**



**N64 had a lot of Strong-rated games.**  
**Wii had a lot of Weak-rated games.**  
**Current platforms, PS5 and Xbox Series, has very few “okay” games.**  
**For the rest, relatively similar.**



- **Education:** No weak, no strong, only Okay-rated games. But after verification, there is only 1 game in this category.
  - MMO, almost no Weak games and a lot of Strong games.
  - Board game, not a lot of strong games, a lot of okay games.

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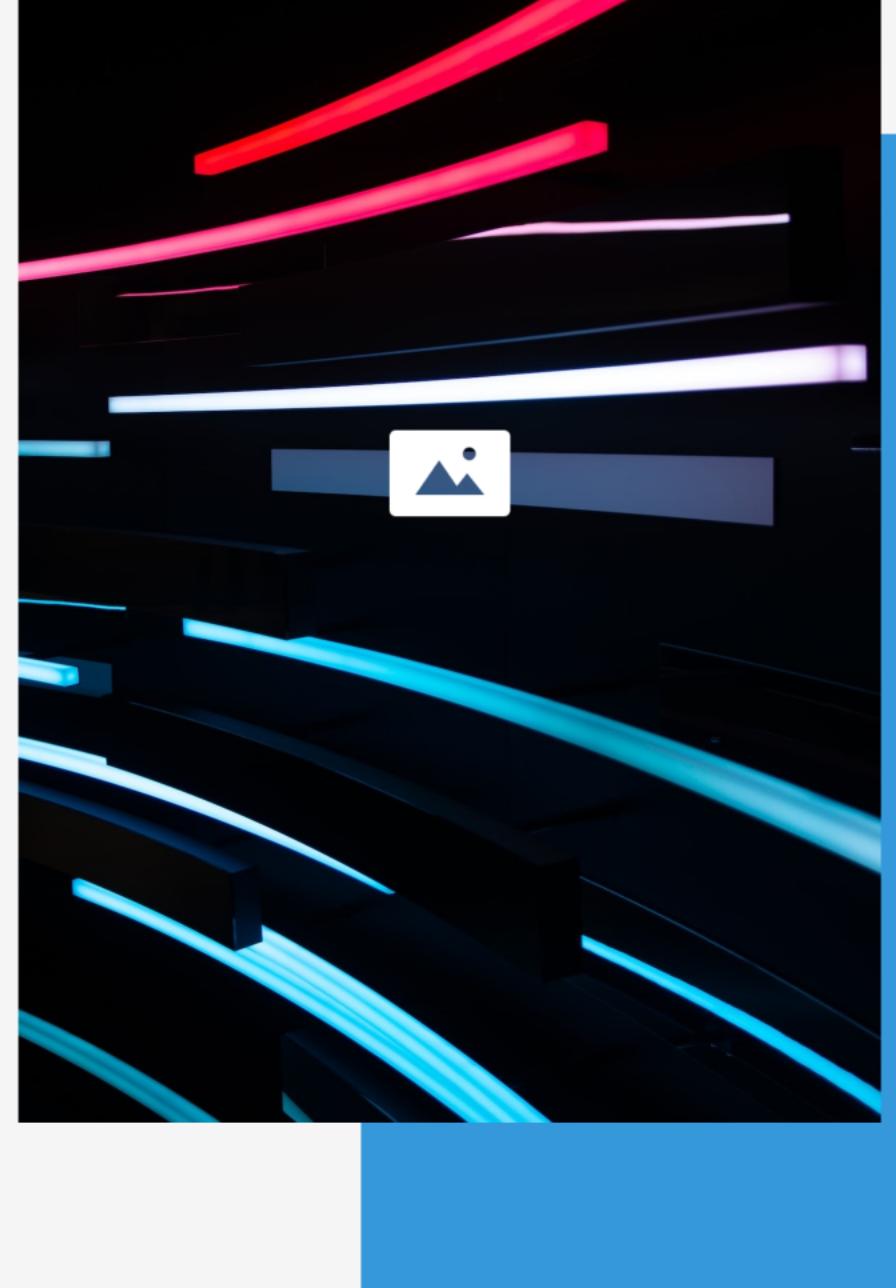
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**By: Benjamin Lavoie**

# Modeling:

I tried a lot of simples models, and here are the results:

	score
<b>Baseline log reg : C=1.0</b>	0.520
<b>pipeline_test:</b>	0.520
<b>RandomForestClassifier:</b>	0.440
<b>AdaBoost:</b>	0.454
<b>Random Forest:</b>	0.565
<b>XG Boost:</b>	0.567
<b>NN Boost:</b>	0.509
<b>DecisionTreeClassifier:</b>	0.496
<b>BaggingClassifier:</b>	0.546
<b>Best XGB Model:</b>	0.569



## **Next steps:**

- Training the model for maximum efficiency, with a pipeline to find the best scaler and the best hyperparameters.
- Hosting the project on a website for easy utilization



## And then?

Ideally, I want to scrape my own dataset from Metacritic (with Metacritic Scraper) and update the model every quarter



## Conclusion

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03

01

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Game features

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- Publisher
- Genre
- Platform (Steam, Microsoft, PC)
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