

# Predicting Game Popularity on Twitch

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COMM 599





# Streaming is on the rise

- Twitch had 2.8 million concurrent viewers in 2021!
- Live-streaming is a good way to garner attention for a game
- Beneficial for developers to create a game that will perform well with consumers

# Goal

*Given a particular game, in a projected month and year, will the game rank within the top 200 top streamed game categories, and if yes, what is the rank?*

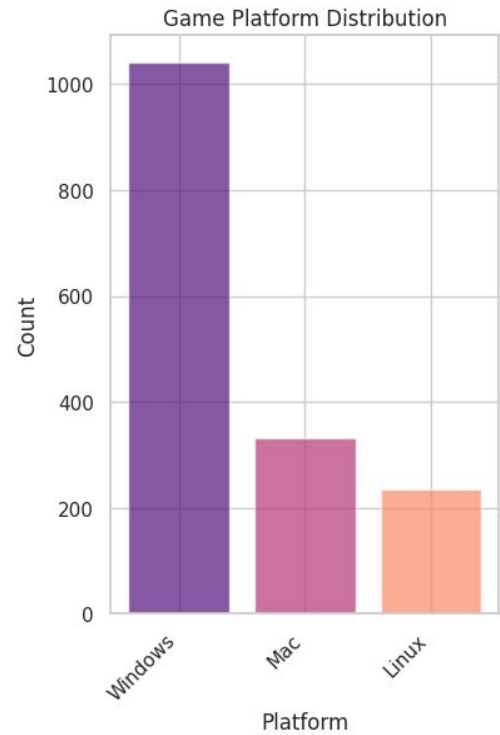
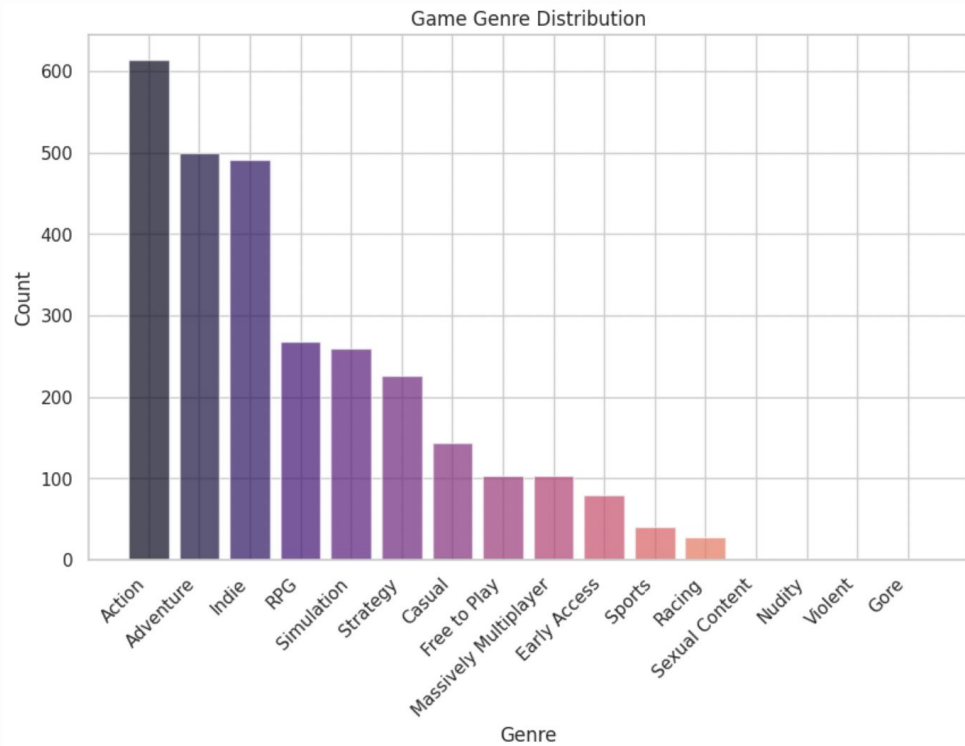
- »» Using ranking as an indicator of popularity
- »» Identify key factors of popular games on Twitch

# **Twitch dataset**

- Top 200 games for each month from 2016-01 to 2023-09
- 93 months of data
- Most streamed games: 7 Days to Die, Dota 2, Path of Exile, etc.
- Size: 8071 x 12

# **Steam dataset**

- Scraped from Steam API
- Size: 1040 x 12



# Preparation

- Merging Twitch and Steam datasets. For each game, there's data for every month between 2016-01 and 2023-09
- Features: age requirement, developers, price, genres, platforms, release month, release year

Size: 52498 × 49

id	color
1	red
2	blue
3	green
4	blue



id	color_red	color_blue	color_green
1	1	0	0
2	0	1	0
3	0	0	1
4	0	1	0

# Model 1: Classifier

Predict whether a game will be in the top 200 streamed Twitch categories for a given month

*Evaluation Metric: AUC-ROC*

Good for binary classification where the distribution of each class are imbalanced

*HistGradientBoostingClassifier*

Ensemble methods, good for large datasets  
Best AUC-ROC: 0.9587

## Model 2: Regressor

For games that the previous classifier model said would be in the top 200, predict their specific ranking in the top 200

*Evaluation Metric: RMSE*

Easily comparable because it's in the same units as the target variable

*HistGradientBoostingRegressor vs XGBoost*

Tested both models, both are ensemble methods  
Best RMSE: 35.74



# Let's look at some hypothetical data....

## Game A



Required Age: 0

Price: \$11.99

Platforms: Windows

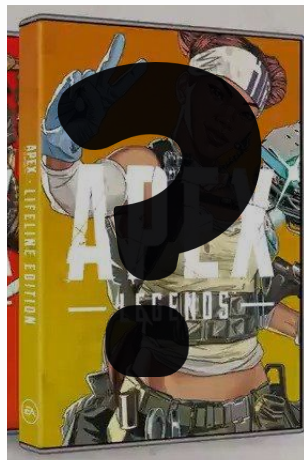
Genres: Adventure,  
Indie, RPG

Release Month: 2024-02

Target Month: 2025-03

**Won't rank!**

## Game B



Required Age: 0

Price: \$0.00

Platforms: Windows, Mac

Genres: Free-to-Play,  
Action, Adventure, MMO

Release Month: 2024-09

Target Month: 2025-09

**Will rank!**

**Ranked at 47**



# Challenges & Limitations

- Not an overly complex model
- Meant to be a supplementary tool



# Next Steps

- Interactive site
- Tableau dashboard (maybe)



**Thank you!**