
Video Game Sales Prediction

Final Report

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Overview

- **Goal:** Predict first year global sales
- **Source**
 - Kaggle(<https://www.kaggle.com/ashaheedq/video-games-sales-2019>)
- **Time Range:** 2010 - 2019
- **Data Size** (after pre-processing)
 - Around 7000 records, 4000 games
- **Features**
 - Categorical: Genre, ESRB Rating, Publisher, Platform
 - Numerical:
 - Critic Scores: missing value - new feature: if_not_scored
 - Price: missing value imputation - genre platform average

Data Analysis Exploration

- **Critic Score**

- Add a new column to show whether the critic score is missing or not
- Reason: A missing of critic score might means this game do not have enough popularity.

- **Price**

- Log transformation

- **Global Sales**

- Reset outliers that is larger than 95% percentile value to the 95% percentile value
- Log transformation

Model

- **80% training set, 20% test set**
- **Baseline Model --- Linear Regression**
 - Evaluation result: R square --- 0.46, MSE --- 1.17
- **Random Forest Regression**
 - 5-fold cross validation to tune parameters: # trees, max_depth
 - Optimized result (# trees = 200 , depth = 8)
 - Evaluation result: R square --- 0.47, MSE --- 1.16

Attempts Result

		Without Grouping	Attempt 1	Attempt 2 (Last Week)	Attempt 3
Baseline	R square	0.24	0.38	0.43	0.46
	MSE	1.62	1.6	1.5	1.17
Random Forest	R square	0.31	0.44	0.47	0.47
	MSE	1.46	1.46	1.41	1.16

- **Without Grouping:** do not group platform, ESRB rating
- **Attempt1:** Group platform by company, console type, ESRB rating by 12-, 17-, 17+, Pending/Missing
- **Attempt2:** Regroup platform only by console type
- **Attempt3:** Add data pre-processing step mentioned in previous slides.

Visualization

Video Game Sales Prediction

Choose the sealed price:



You have selected "19.99"

Choose the critic score:



You have selected "5.29"

Choose the company size of the publisher:

Show All Possible Results

Choose the genre of your game:

Action

Choose the ESRB rating of your game:

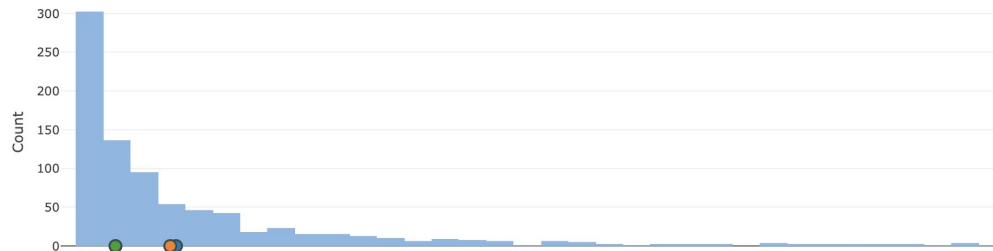
Teenager

Choose the platform type you want to release your game:

Handheld(PSV, NS)

Show Results

1st Year Global Sales of Action game



prediction_Large Company
prediction_Medium Company
prediction_Small Company
Global Sales



Q & A