

Video Game Regression Modelling Project

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Summary

The purpose of this regression model is to predict the Global Sales of Video Games by analysing the Video Game Sales dataset from Kaggle.

Outline

- Business Problem
- Cleaning the Data
- Exploratory Data Analysis
- Models
- Conclusions

Business Problem

How can we predict the Global Sales of Video Games?

In order to solve this problem, I intended to answer the below questions:

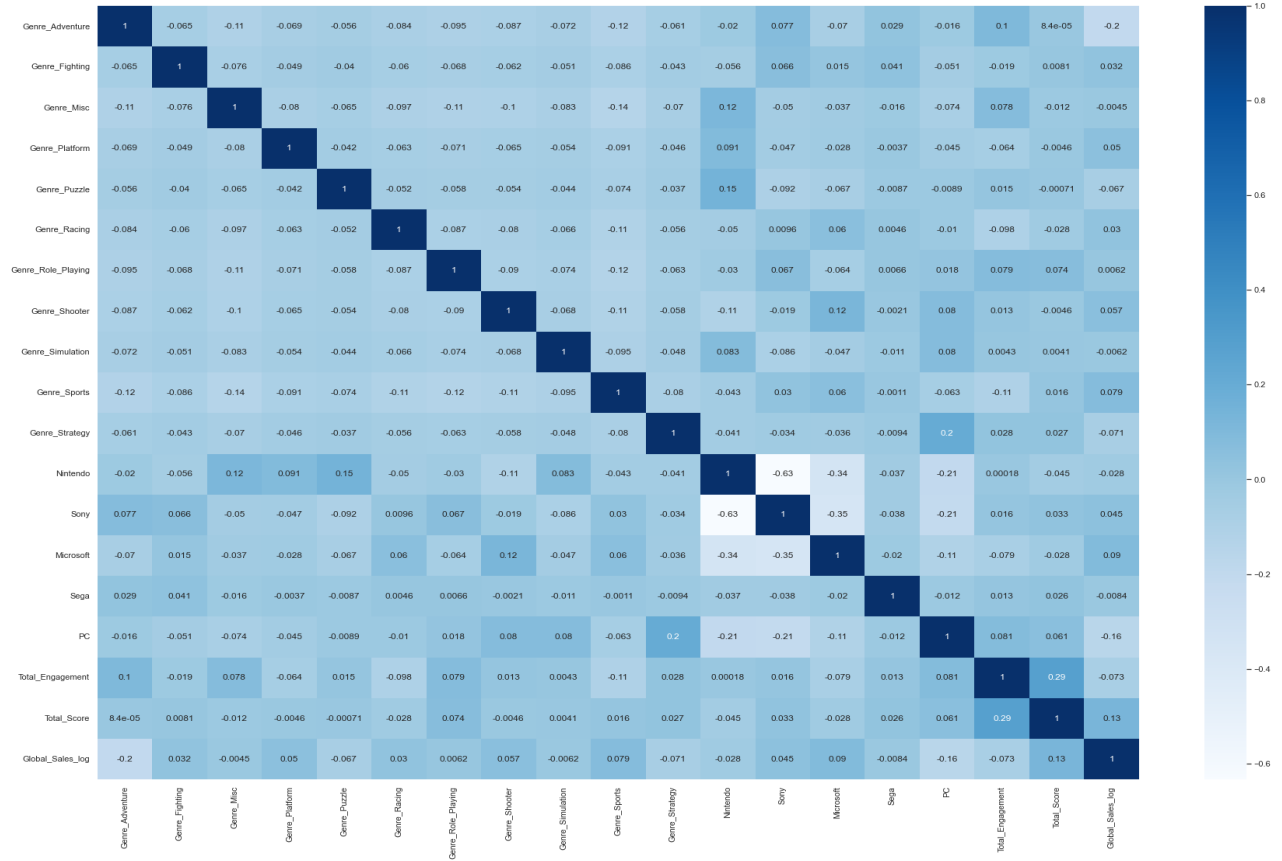
1. Does console impact global sales?
2. Does genre impact global sales?
3. Does publisher impact global sales?

Cleaning the Data

- Dropped unnecessary data
- Replaced or removed null values
- Narrowed data to only include sales between 2010-2016
- Using the empirical formula I removed outliers
- Addressed multicollinearity
- Split data set between continuous and categorical data
- Grouped Publisher data into Small, Medium and Large
- Created additional variables including total engagement and average score

Exploratory Data Analysis

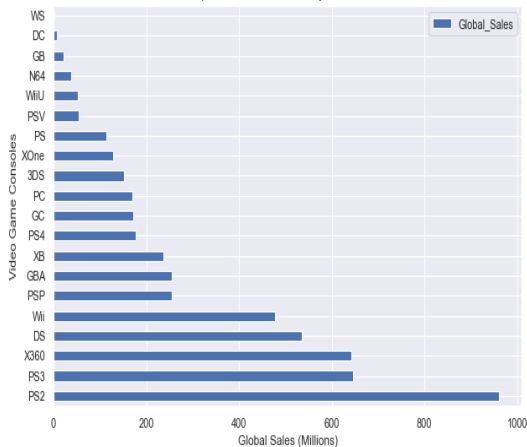
- No key features stood out that showed positive correlation with Global Sales.
- Further analysis required to identify any positive correlation with Global Sales.



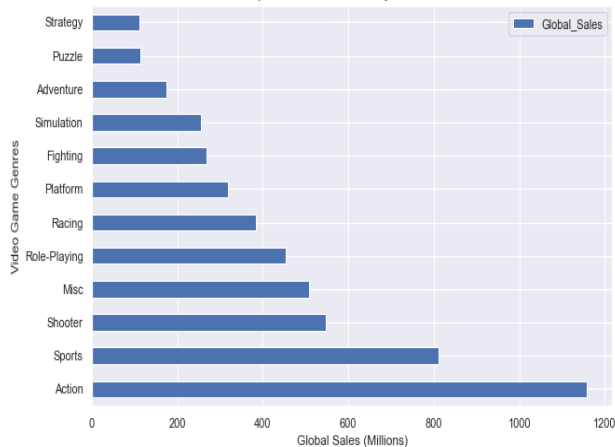
Exploratory Data Analysis

- Global Sales for Video Games are highest on the PS2 console while Action games are the highest selling following by Sports and Shooter
- Using the platform visualization I modelled two sets of data, individual platforms and then grouping platform together by maker e.g. PS, PS2 and PS3 under Sony and XOne, X360 under Microsoft
- Number of games peaked in 2008 and 2009 but had declined since

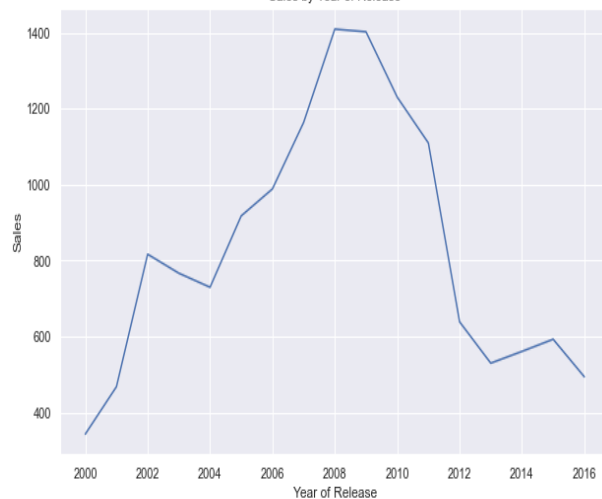
Top Video Game Consoles by Global Sales



Top Video Games Genres by Global Sales

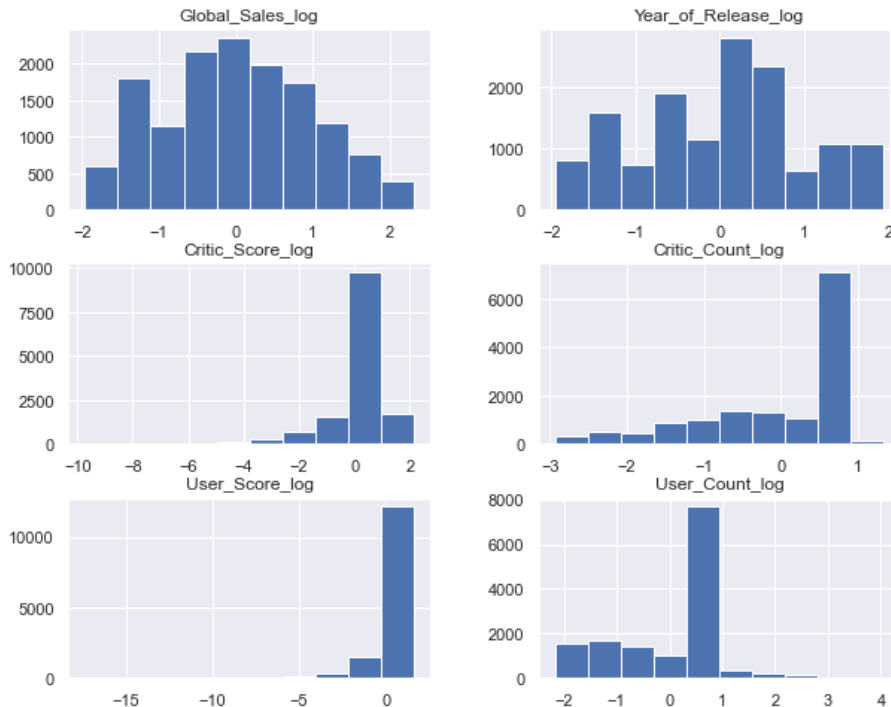


Sales by Year of Release



Exploratory Data Analysis

- Used mean normalization to standardise the data
- All features appeared ok however the critic and user variables are somewhat negatively skewed

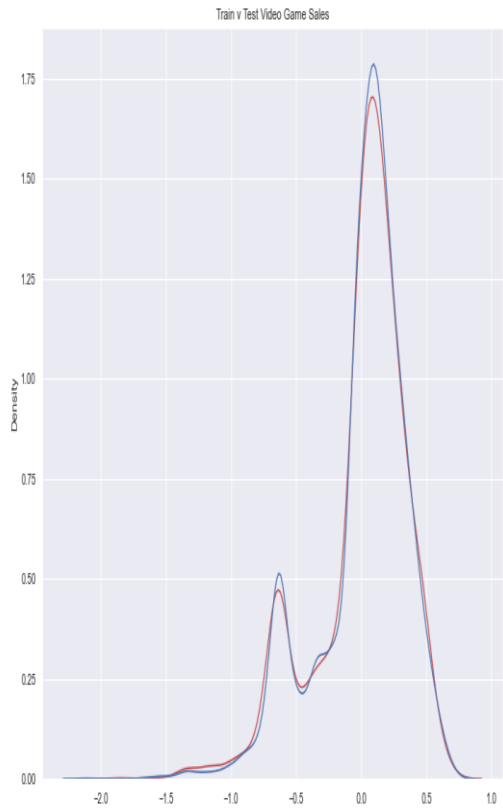
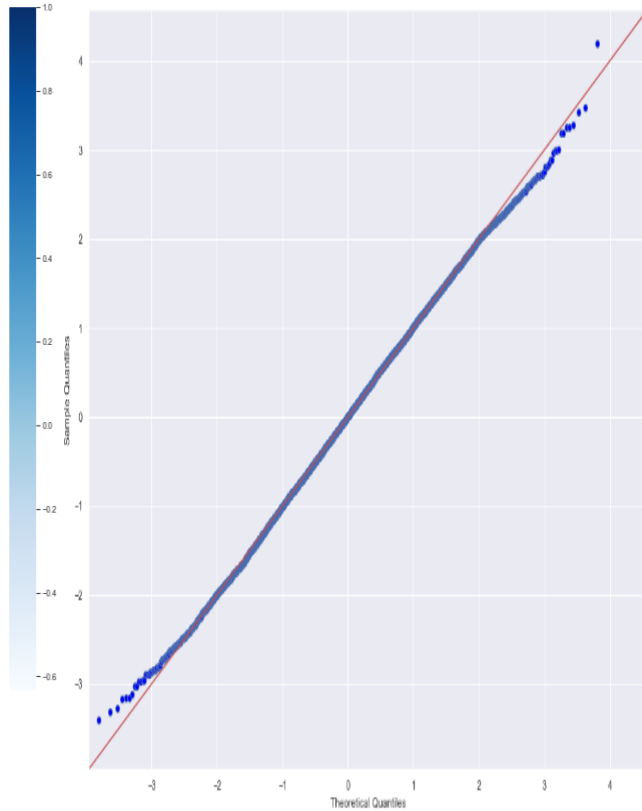
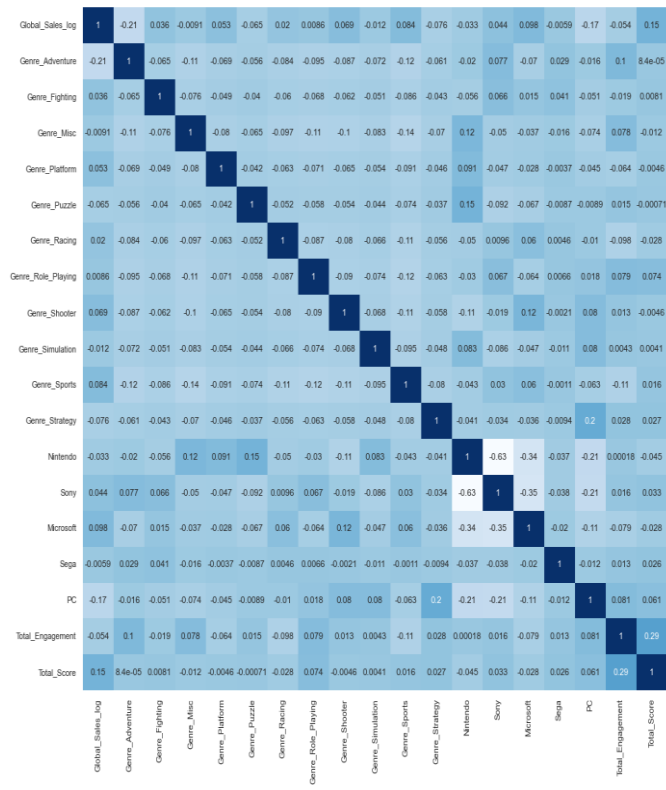


Exploratory Data Analysis

- Unfortunately no models could provide concrete recommendations

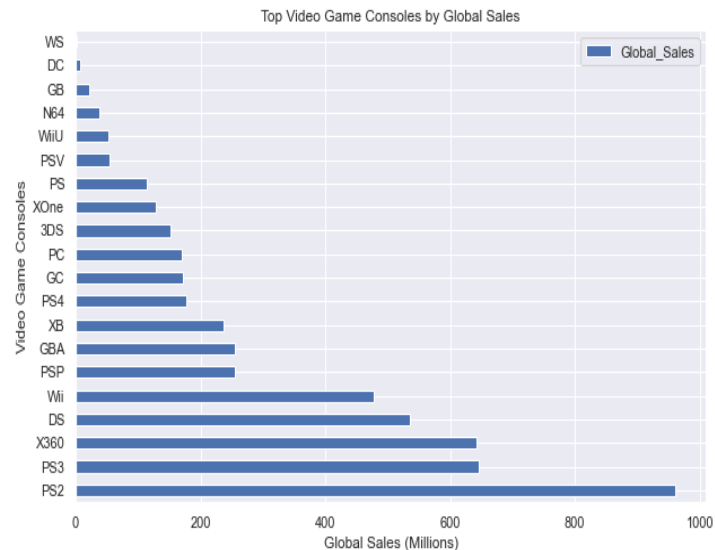
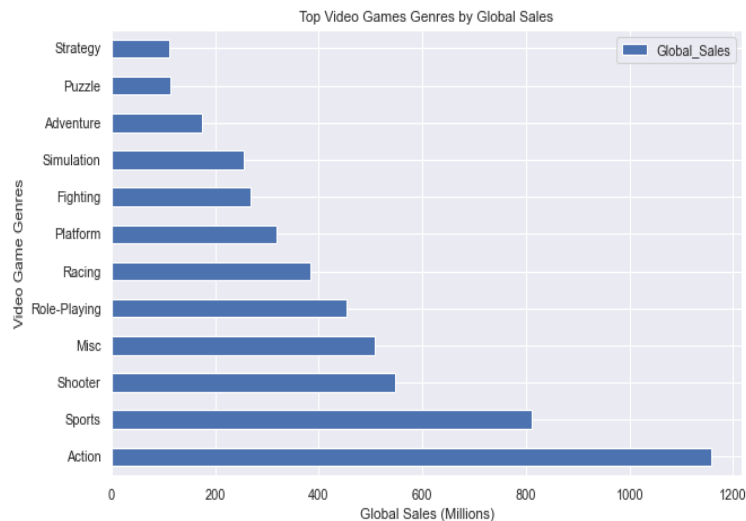
Model / Features	R^2	Train MSE	Test MSE
Model 1: All Features	0.28	0.73	0.76
Model 2: All Features minus Publisher	0.19	0.80	0.82
Model 3: Genre, Grouped Platform, Total Engagement, Total Score	0.12	0.88	0.90
Polynomial 1 st Degree: All features	0.12	-	-
Polynomial 2 nd Degree: All features	0.21	-	-
Polynomial 3 rd Degree: All features	-8.02	-	-

Model 1



Conclusions

- While there is highly performing genres, platforms and publishers the Global Sales can't be accurately predicted using OLS and Polynomial Regression modelling
- It is suggested that advanced regression models are used to drive decisions
- It is however recommended that insights are used for focus areas such as highly performing genres, engagement and consoles



Thank You!

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