Predicting IMDB Rating on Movies

Linear Regression Modeling

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Introduction

- IMDB is the largest movie database
- Goal of this project is to predict IMDB Ratings
- Visualize relationship between independent variables with dependent variable
    - Features include director, release year, metascore, MPAA, gross earnings, votes, genre
- Determine the best model to that accurately depicts IMDB ratings
- To provide film production companies an insight on what features to include in their production

Methodology

- Web scraped data off IMDB.com using BeautifulSoup
  - Data cleaned/ simple EDA
- Added on features one at a time
  - Numerical
  - Categorical
- Modeling
  - Linear Regression
  - Polynomial Regression
  - Regularization (Ridge)

Ridge Regression Model

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Ridge R-squared: 0.60955
Ridge MAE 0.38465
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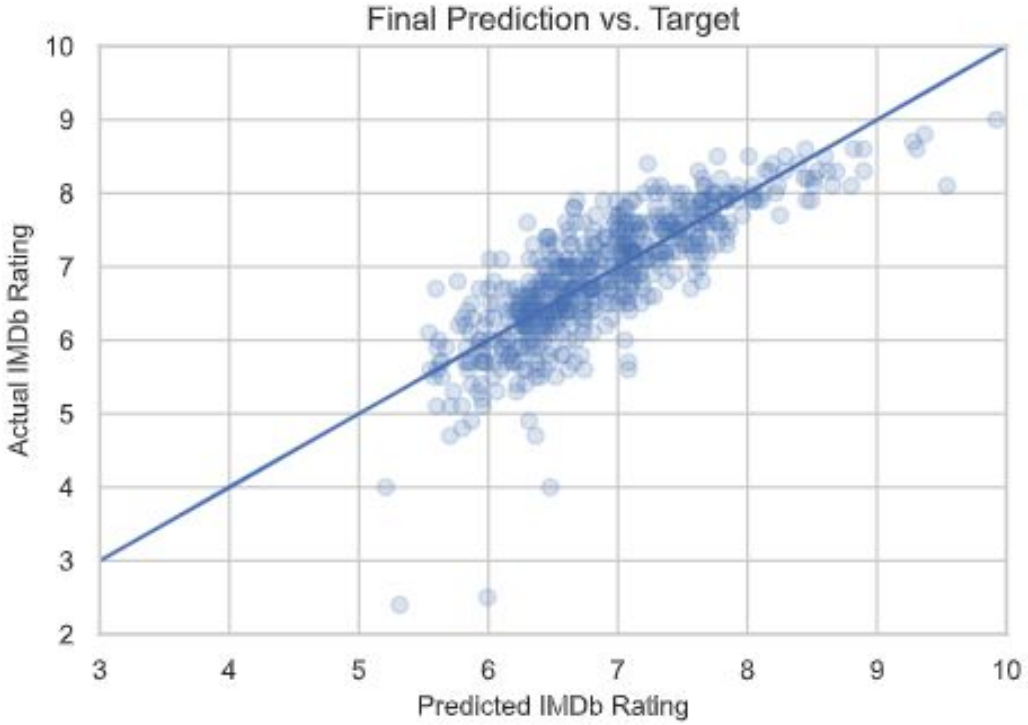


Best Features

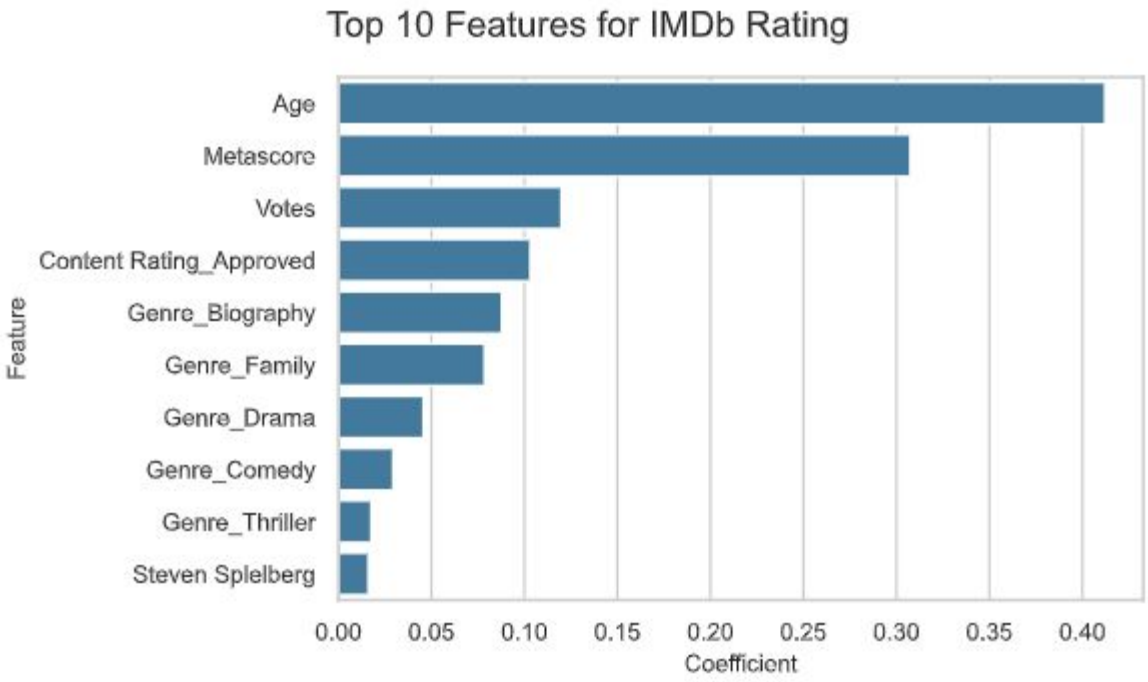
Age
Movies between the ages 10-30 tend to do better

Metascore
Different rating system for movies

Votes
More popular = better ratings?

Genres
Biography, Family, Drama

Director
Movies directed by Steven Spielberg



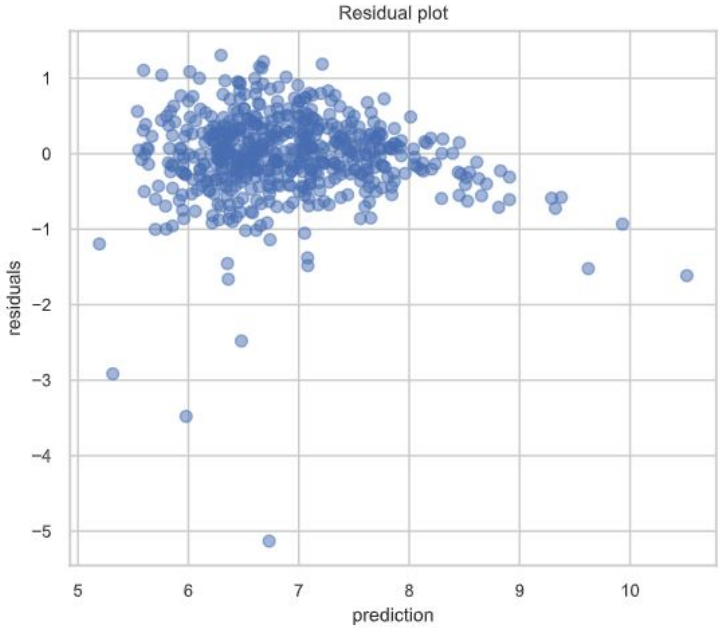
Conclusions/Results

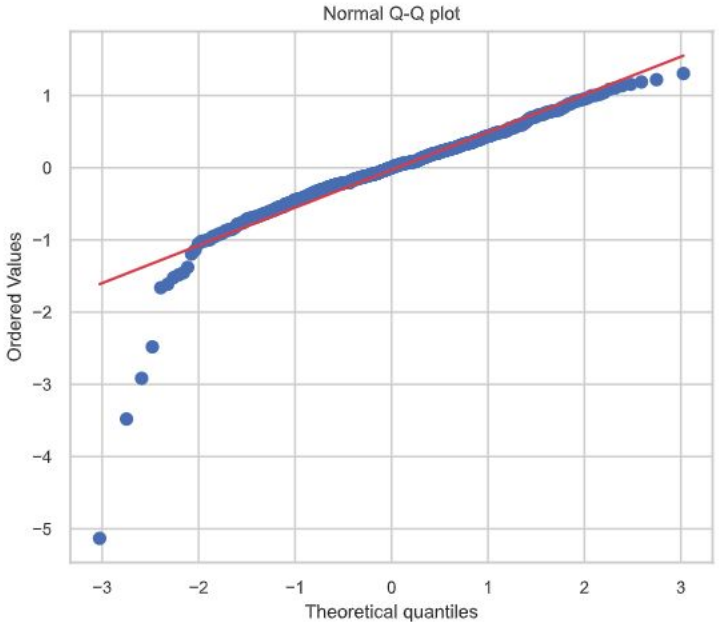
- Ridge Regression gave me the best model out of Linear and Polynomial
- Linear and Polynomial Regression made my model overfit when testing on validation set
- Residuals showed that my model tend to over predict than under predict

Future Work

- Determine if the profit made on release day can depict how well a movie's rating is
  - Do more popular films get better rating?
- Look into international films
  - Do movies produced in the US have better ratings than movies produced elsewhere?
- Extra features
  - Awards? Nominations?

Appendix


Residual plot
residuals
prediction
1
0
−1
−2
−3
−4
−5
5
6
7
8
9
10


Normal Q-Q plot
Ordered Values
Theoretical quantiles
1
0
−1
−2
−3
−4
−5
−3
−2
−1
0
1
2
3