



Predicting International Movie Box Office Revenue

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Goal

Create a model to predict the international box office revenue of a movie, based on known attributes.

- Budget
- Runtime
- Rating
- Release month
- Release year
- Genres



Use cases

1

Production companies

3

Film distributors

2

Studios

4

Theaters

Web Scrapping

BoxOfficeMojo.com

Top Lifetime Grosses

Worldwide ▾

Data as of Oct 9, 2:35 PDT

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1-200 of 1,000

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Rank	Title	Worldwide Lifetime Gross	Domestic Lifetime Gross	Domestic %	Foreign Lifetime Gross	Foreign %	Year
1	Avengers: Endgame	\$2,797,800,564	\$858,373,000	30.7%	\$1,939,427,564	69.3%	2019
2	Avatar	\$2,790,439,092	\$760,507,625	27.2%	\$2,029,931,467	72.8%	2009
3	Titanic	\$2,195,169,869	\$659,363,944	30%	\$1,535,805,925	70%	1997
4	Star Wars: Episode VII - The Force Awakens	\$2,068,224,036	\$936,662,225	45.3%	\$1,131,561,811	54.7%	2015
5	Avengers: Infinity War	\$2,048,359,754	\$678,815,482	33.1%	\$1,369,544,272	66.9%	2018
6	Jurassic World	\$1,670,401,444	\$652,270,625	39%	\$1,018,130,819	61%	2015
7	The Lion King	\$1,656,963,790	\$543,638,043	32.8%	\$1,113,325,747	67.2%	2019
8	The Avengers	\$1,518,815,515	\$623,357,910	41%	\$895,457,605	59%	2012
9	Furious 7	\$1,515,048,151	\$353,007,020	23.3%	\$1,162,041,131	76.7%	2015
10	Frozen II	\$1,450,026,933	\$477,373,578	32.9%	\$972,653,355	67.1%	2019



Avengers: Endgame (2019)

After the devastating events of [Avengers: Infinity War](#), the universe is in ruins. With the help of remaining allies, the Avengers assemble once more in order to reverse Thanos' actions and restore balance to the universe.

IMDbPro

[Cast information](#)
[Crew information](#)
[Company information](#)
[News](#)
[Box office](#)
[Brand rankings ▾](#)
[Franchise rankings ▾](#)
[Genre keyword rankings ▾](#)

Title Summary

All Releases ▾

All Releases

DOMESTIC (30.7%)
\$858,373,000
INTERNATIONAL (69.3%)
\$1,939,427,564
WORLDWIDE
\$2,797,800,564

Domestic Distributor	Walt Disney Studios Motion Pictures See full company information ↗
Domestic Opening	\$357,115,007
Budget	\$356,000,000
Earliest Release Date	April 24, 2019 (21 markets)
MPAA	PG-13
Running Time	3 hr 1 min
Genres	Action Adventure Drama Sci-Fi
IMDbPro	See more details at IMDbPro ↗



Features

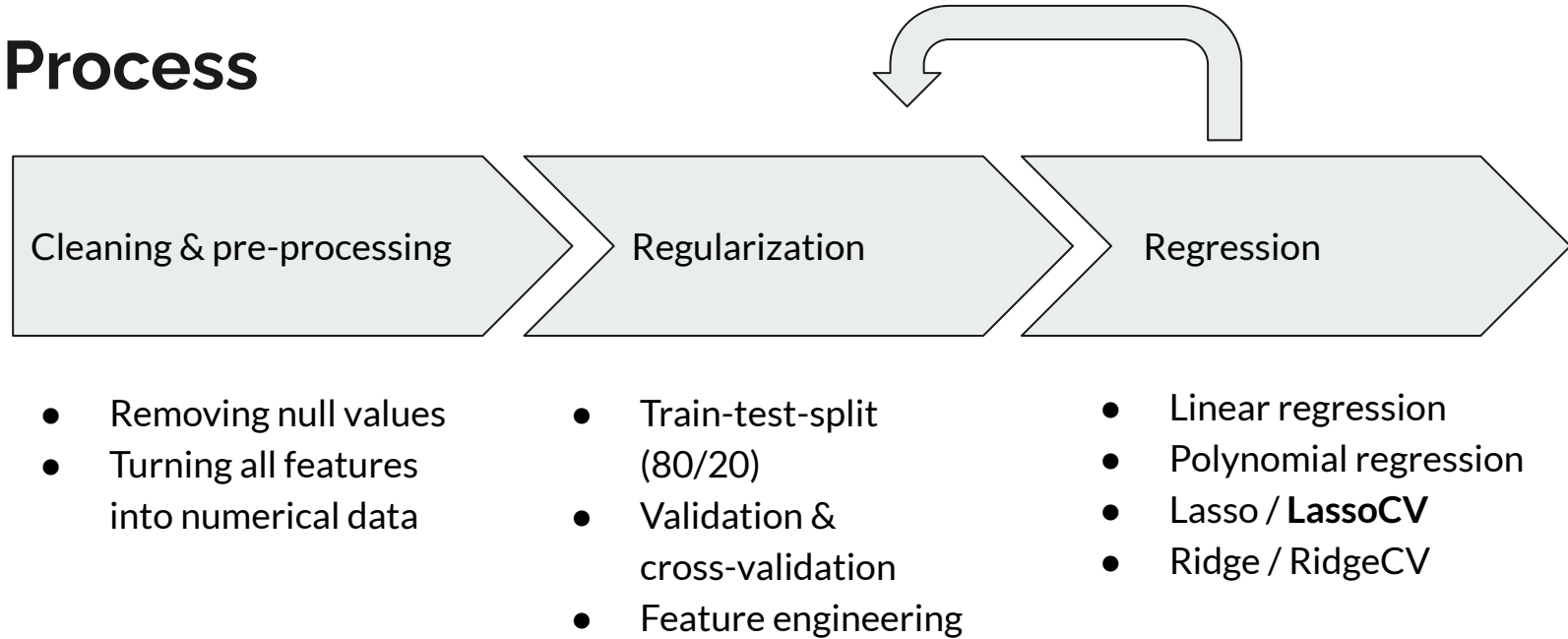
- Year
- Month
- Budget
- Rating (G, PG, PG-13, R)
- Runtime

Genres:

- | | | |
|---------------|-----------|------------|
| ○ Action | ○ Drama | ○ Mystery |
| ○ Adventure | ○ Family | ○ Romance |
| ○ Animation | ○ Fantasy | ○ Sci-Fi |
| ○ Biography | ○ History | ○ Sport |
| ○ Comedy | ○ Horror | ○ Thriller |
| ○ Crime | ○ Music | ○ War |
| ○ Documentary | ○ Musical | ○ Western |



Process





Features

- Year
- Month
- Budget
- Rating (G, ~~PG~~, ~~PG-13~~, R)
- Runtime

Genres:

- | | | |
|--------------------------|----------------------|-----------------------|
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Results

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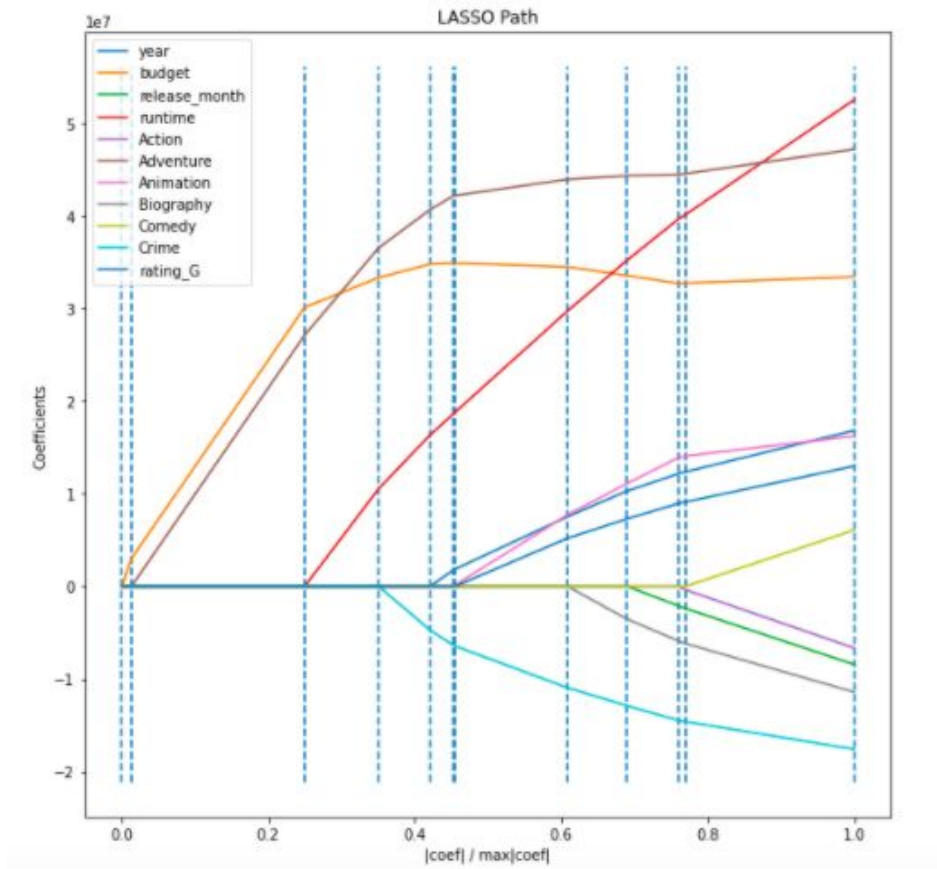
Represents the proportion of variance for international box office gross explained by the list of features in the model

	index	std	lasso_coeff	original_scale_coeff
5	Adventure	0.49662	45815925.52970	92255428.00266
10	rating_G	0.11977	10968883.73554	91584119.39651
6	Animation	0.34216	15105151.39155	44146645.87879
8	Comedy	0.48833	2913097.63636	5965467.40374
3	runtime	20.43380	46074140.09417	2254800.52417
0	year	7.59840	14499894.43816	1908282.51307
1	budget	54061604.57866	33074348.93220	0.61179
2	release_month	3.27906	-5280506.57472	-1610371.43891
4	Action	0.49870	-3376829.91776	-6771217.48724
7	Biography	0.20108	-8676323.92244	-43148593.03219
9	Crime	0.33260	-16024641.73474	-48179695.85058

Lasso Path

Most influential variables:

- Budget
- Genre: Adventure
- Runtime





Further Exploration

- Much larger dataset
- More features from other sources
- U.S. domestic box office



Thank you!

