

Film Analysis & Examination

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Movie Genre Investigation with Python and MySQL

Exploring the industry landscape

- What is a movie idea for a prospective studio?
 - Strategies to employ
 - Constraints to be made
 - Trends to be seen

Discerning the profitability of specific movies by their genre

- How is a movie's success measured?
 - User reviews?
 - Box Office Numbers?
 - Returns based on Budget?

What was accomplished

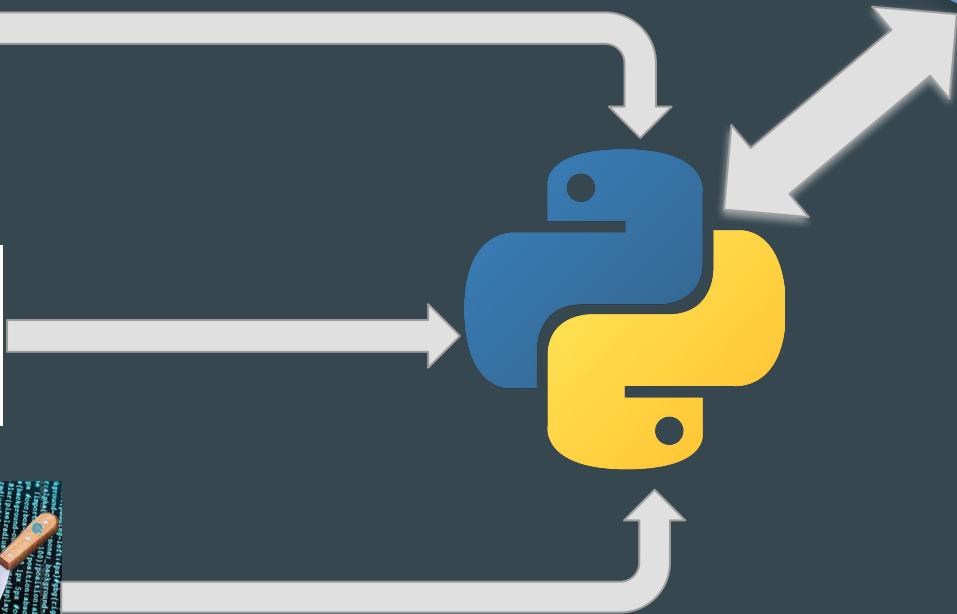
- Correlation between user reviews & box office returns.
- Profits vs. budgets between different movie genres.
- Advantages or disadvantages between each movie genre.
- Checked if a movie figure had any monetary impact.

Mainstream Genres selected:

- 3D
- Animation
- Romantic Comedy
- Horror
- Gay/Lesbian

**genre popularity based on BoxOfficeMojo*

Origin of the analyzed data (Sources Used)

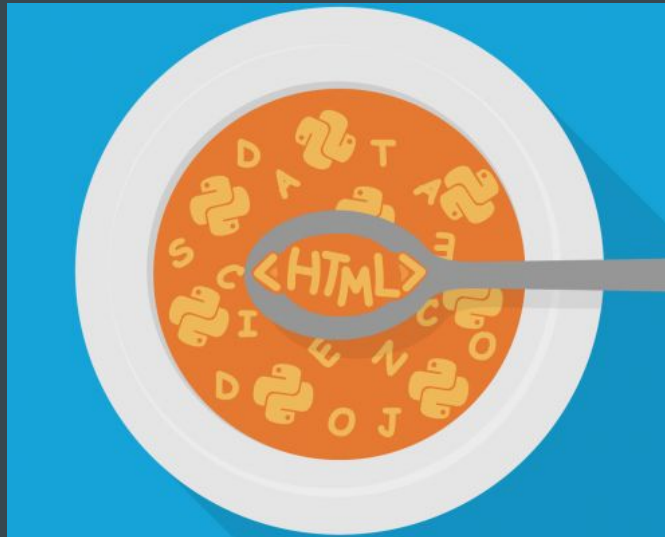


Data gathered onto the MySQL database

Film	Genre	Revenue	Budget	Rating	# of Stars	Total Bankability
Avengers: Endgame	3D	\$856,706,929	\$356,000,000	8.70	10	\$103,719,571
Jurassic World	3D	\$652,270,625	\$150,000,000	7.00	3	\$30,552,273
Star Wars: The Last Jedi	3D	\$620,181,382	\$317,000,000	7.10	0	\$0
Rogue One: A Star Wars Story	3D	\$532,177,324	\$200,000,000	7.80	1	\$15,416,491
Avengers: Age of Ultron	3D	\$459,005,868	\$250,000,000	7.30	5	\$52,008,677
Shrek 2	Animation	\$441,226,247	\$150,000,000	7.20	1	\$8,415,932
The Lion King	Animation	\$422,783,777	\$45,000,000	8.50	1	\$10,851,176
Jurassic World: Fallen Kingdom	3D	\$417,719,760	\$170,000,000	6.20	3	\$30,552,273
Toy Story 3	Animation	\$415,004,880	\$200,000,000	8.30	2	\$22,070,408
Wonder Woman	3D	\$412,563,408	\$149,000,000	7.50	1	\$8,402,849
Iron Man 3	3D	\$409,013,994	\$200,000,000	7.20	2	\$21,075,046
Captain America: Civil War	3D	\$408,084,349	\$250,000,000	7.80	3	\$33,805,198
Jumanji: Welcome to the Jungle	3D	\$404,564,861	\$90,000,000	7.00	1	\$8,679,831
Frozen	3D	\$400,738,009	\$150,000,000	7.50	1	\$9,864,583
Guardians of the Galaxy Vol. 2	3D	\$389,813,101	\$200,000,000	7.70	2	\$24,092,742
Finding Nemo	Animation	\$380,843,261	\$94,000,000	8.10	0	\$0
The Secret Life of Pets	3D	\$368,384,330	\$75,000,000	6.50	0	\$0
Despicable Me 2	3D	\$368,061,265	\$76,000,000	7.40	0	\$0

Collecting data from BoxOfficeMojo

- Involved the process of exploring the website's HTML code using the Python library: BeautifulSoup.



Collecting data from IMDb

- OMDb 3rd party API key to get USER RATINGS



Examples

By Title

Title: Year: Plot: Response:

Request:

<http://www.omdbapi.com/?t=harry+potter+and+the+prisoner+of+azkaban>

Response:

```
{"Title":"Harry Potter and the Prisoner of Azkaban","Year":"2004","Rated":"PG","Released":"04 Jun 2004","Runtime":"142 min","Genre":"Adventure, Family, Fantasy, Mystery","Director":"Alfonso Cuarón","Writer":"J.K. Rowling (novel), Steve Kloves (screenplay)","Actors":"Daniel Radcliffe, Richard Griffiths, Pam Ferris, Fiona Shaw","Plot":"It's Harry's third year at Hogwarts; not only does he have a new 'Defense Against the Dark Arts' teacher, but there is also trouble brewing. Convicted murderer Sirius Black has escaped the Wizards' Prison and is coming after Harry.","Language":"English","Country":"UK, USA","Awards":"Nominated for 2 Oscars. Another 14 wins & 45 nominations.","Poster":"https://m.media-amazon.com/images/M/MV5BMTY4NTIwODg0N15BMl5BanBnXkFtZTcwOTc0MjEzZWw@_V1_SX300.jpg","Ratings":[{"Source":"Internet Movie Database","Value":"7.9/10"},{"Source":"Rotten Tomatoes","Value":"90%"},{"Source":"Metacritic","Value":"82/100"}],"Metascore":"82","imdbRating":"7.9","imdbVotes":"491,446","imdbID":"tt0304141","Type":"movie","DVD":"22 Nov 2004","BoxOffice":"$249,358,727","Production":"Warner Bros. Pictures","Website":"http://azkaban.warnerbros.com/","Response":"True"}
```

By ID

ID: Plot: Response:

Collecting data from The-Numbers: Historical Trends



Studios



Directors



Actors



Technology



Collecting data from The-Numbers

Bankability Index Value per Movie for June, 2019

1



Tom Cruise

\$22,537,572

Best known as a **Leading Actor** based on credits in that role in 37 films, with \$8,444,547,050 worldwide aggregate box office (rank #2)

1.1 movies/year
\$24,791,329/year

Best-known acting roles: Ethan Hunt (Mission: Impossible—Fallout), Ethan Hunt (Mission: Impossible—Rogue Nation), Ethan Hunt (Mission: Impossible—Ghost Protocol), Ray Ferrier (War of the Worlds), Famous Austin Powers (Austin Powers in Goldmember)

Best-known technical roles: Mission: Impossible—Fallout (Producer), Mission: Impossible—Rogue Nation (Producer), Mission: Impossible—Ghost Protocol (Producer), Mission: Impossible 2 (Producer), Mission: Impossible III (Producer)

Most productive collaborators: Christopher McQuarrie, Alex Kurtzman, Doug Liman, David Koepp, Steven Spielberg

Born: July 3, 1962 (57 years old)

Change
Value: +\$1,791,379

[Full Information...](#)

2



Will Smith

\$20,593,743

Best known as a **Leading Actor** based on credits in that role in 27 films, with \$5,944,329,352 worldwide aggregate box office (rank #10)

1.1 movies/year
\$22,653,117/year

Best-known acting roles: Genie (Aladdin), Deadshot (Suicide Squad), Robert Neville (I am Legend), John Hancock (Hancock), Agent J (Men in Black 3)

Best-known technical roles: Hancock (Producer), Hitch (Producer), The Pursuit of Happyness (Producer), Annie (Producer), I, Robot (Executive Producer)

Most productive collaborators: James Lassiter, David Ayer, Akiva Goldsman, Jared Leto, Margot Robbie

Born: September 25, 1968 (50 years old)

Change
Value: +\$491,681

[Full Information...](#)

3



Robert Downey, Jr.

\$16,602,313

Best known as a **Leading Actor** based on credits in that role in 30 films, with \$2,460,365,900 worldwide aggregate box office (rank #82)

1.4 movies/year
\$23,243,238/year

Best-known acting roles: Tony Stark/Iron Man (Avengers: Endgame), Tony Stark/Iron Man (Avengers: Infinity War), Tony Stark/Iron Man (The Avengers), Tony

Change
Value: +\$91,901

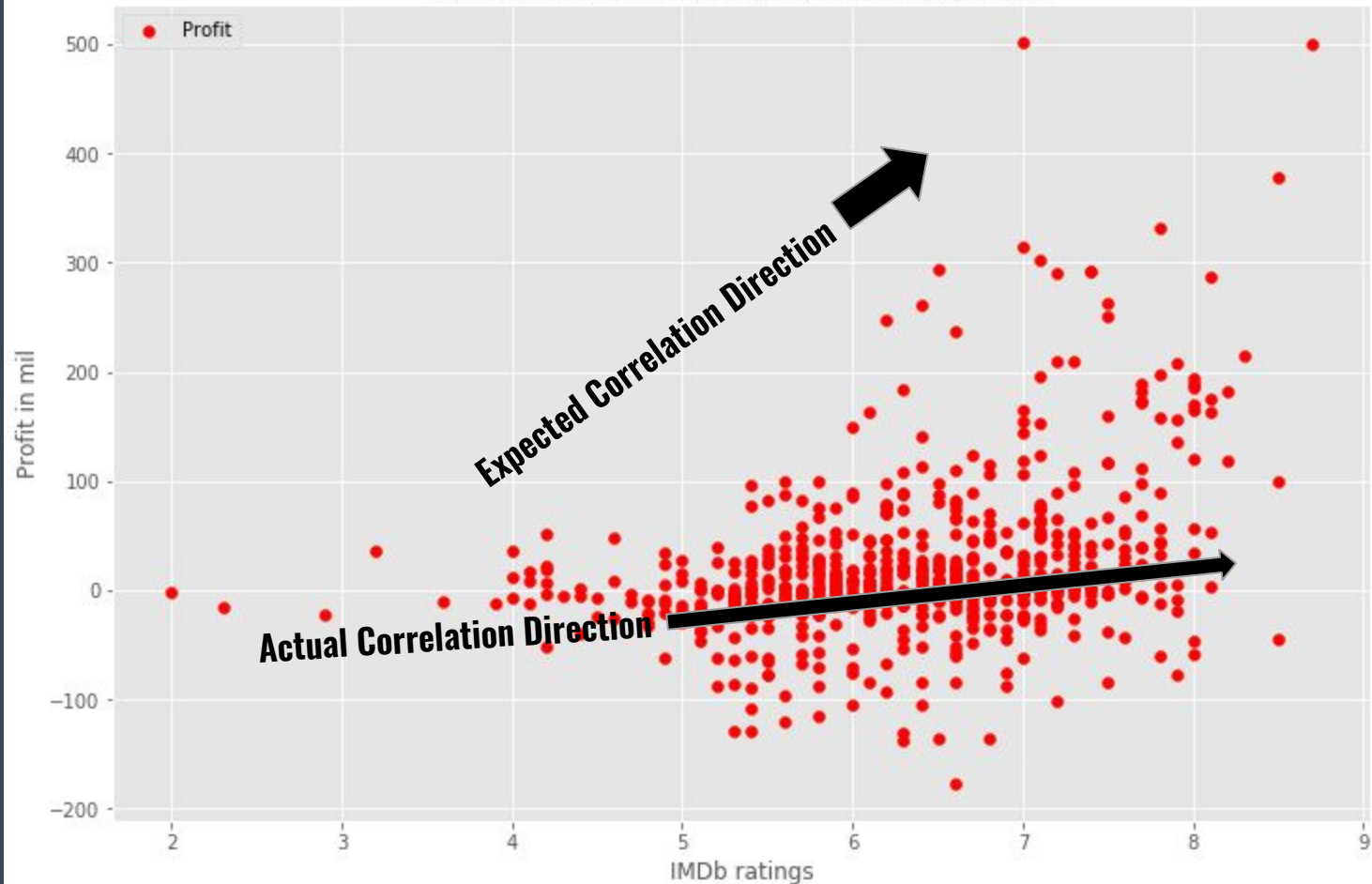
Name	Bankability Index	Recent Work	Films per Yr	# of Blockbusters
Tom Cruise	\$22,537,572	Mission: Impossible: Fallout	1.1	7
Will Smith	\$20,593,744	Aladdin	1.1	9
Robert Downey, Jr.	\$16,602,313	Avengers: Endgame	1.4	7
Sandra Bullock	\$15,694,181	Minions	1	10
Kathleen Kennedy	\$15,416,491	Star Wars Ep. VII: The Force Awakens	1.3	6
Clint Eastwood	\$14,466,692	The Mule	1.1	7
Denzel Washington	\$14,189,296	The Equalizer 2	1.2	7
Ben Affleck	\$13,770,962	Batman v Superman: Dawn of Justice	1.2	6
Vin Diesel	\$13,610,706	Avengers: Infinity War	1.2	8
Kevin Feige	\$13,144,845	Avengers: Endgame	2.2	5
Leonardo DiCaprio	\$11,501,979	Titanic	1.8	10
John Williams	\$11,486,027	Star Wars Ep. VII: The Force Awakens	1.3	6
Steven Spielberg	\$11,175,085	Jurassic World	2.9	10
Tom Hanks	\$11,091,235	Toy Story 4	2.1	10
Michael Keaton	\$10,979,173	Spider-Man: Homecoming	1.3	6
Jon Favreau	\$10,851,176	Avengers: Endgame	2	8
Kenneth Branagh	\$10,802,765	Dunkirk	1	8
Angelina Jolie Pitt	\$10,786,097	Maleficent	1.5	7
Bradley Cooper	\$10,482,036	Avengers: Endgame	2.5	6
Gwyneth Paltrow	\$10,223,870	Avengers: Endgame	1	5
David Heyman	\$10,080,186	Harry Potter and the Deathly Hallows: Part II	1.2	5
John Lasseter	\$9,864,583	Incredibles 2	2.2	6
Alan Silvestri	\$9,679,797	Avengers: Endgame	1.5	5
Scarlett Johansson	\$9,675,619	Avengers: Endgame	2.2	6
Emma Watson	\$9,467,350	Beauty and the Beast	1.2	5

Research Results:

Visualized using **matplotlib**

Correlation between profit and ratings

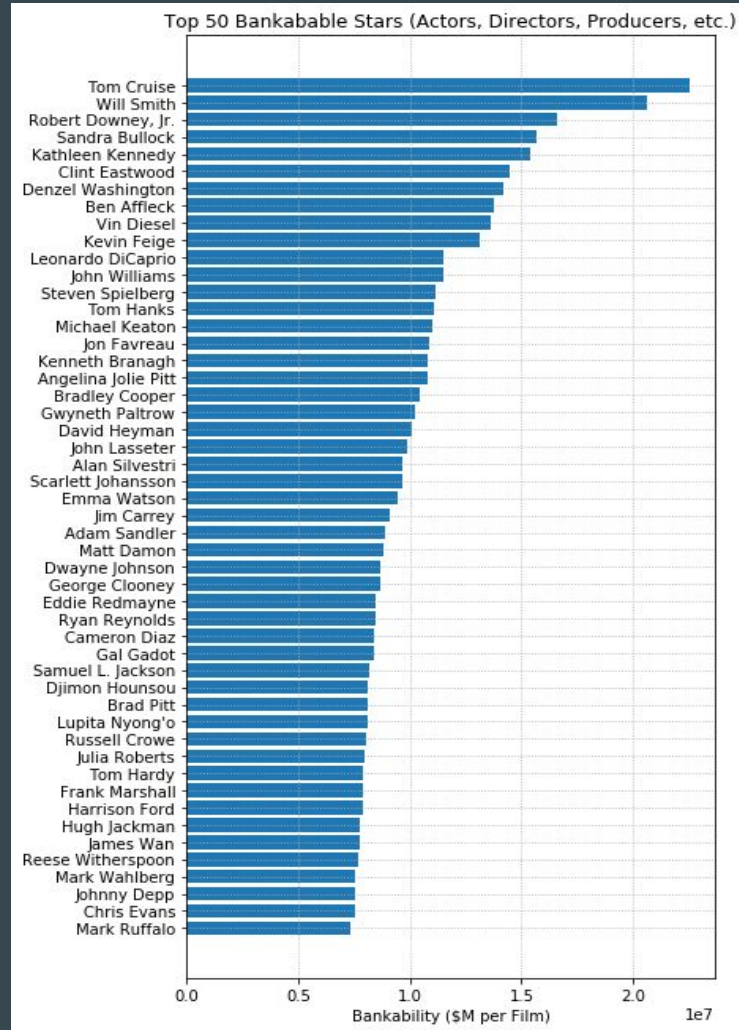
Relationship between profit and IMDb ratings



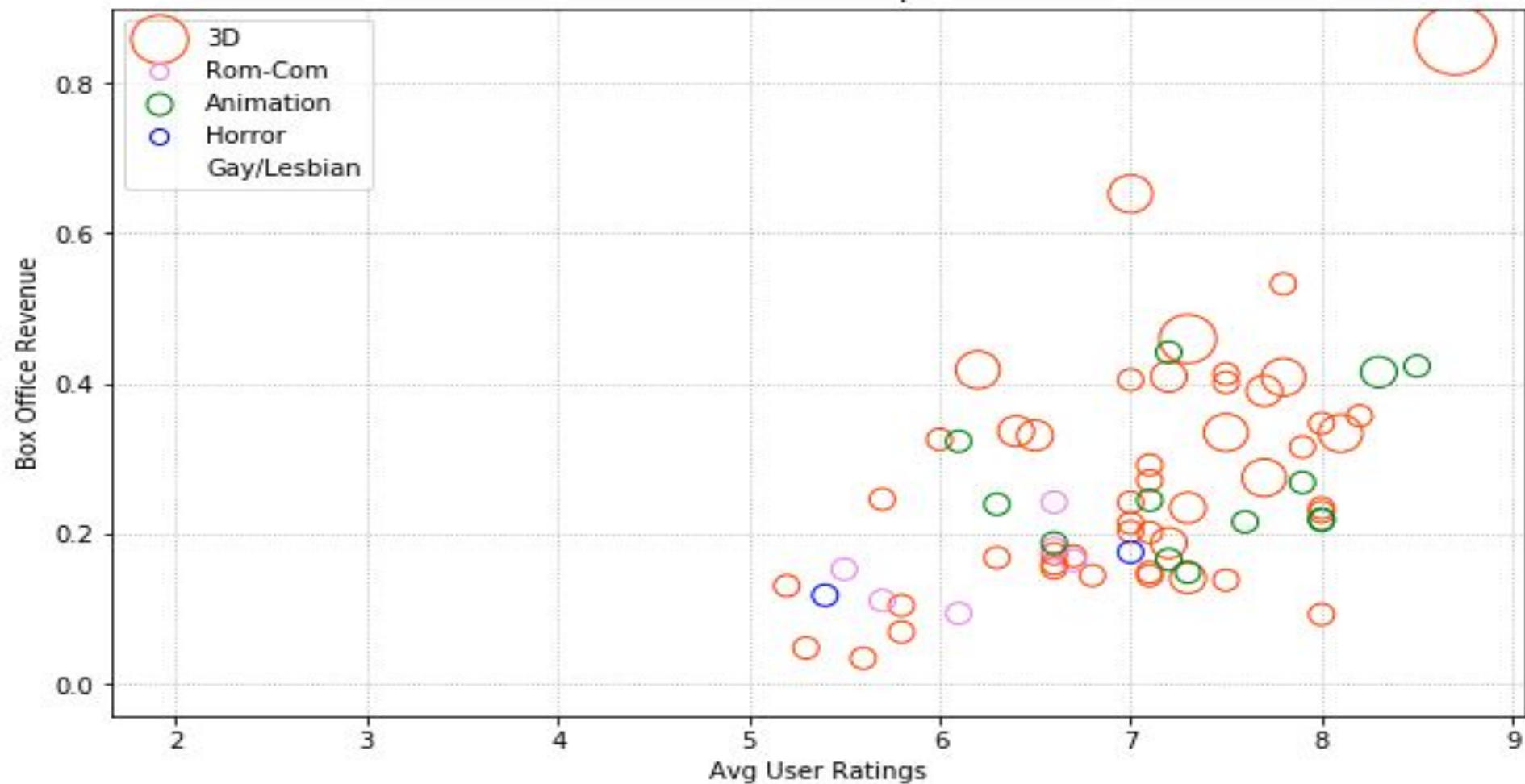
Are ratings overrated?

The-Numbers: Bankability Index

- Methodology
 - Weighted Inter-relationships
 - Annually Recalculated
- Not only Actors/Actresses
 - Growing Diversity
 - Factors into Profitability?
 - Factors into User Satisfaction?

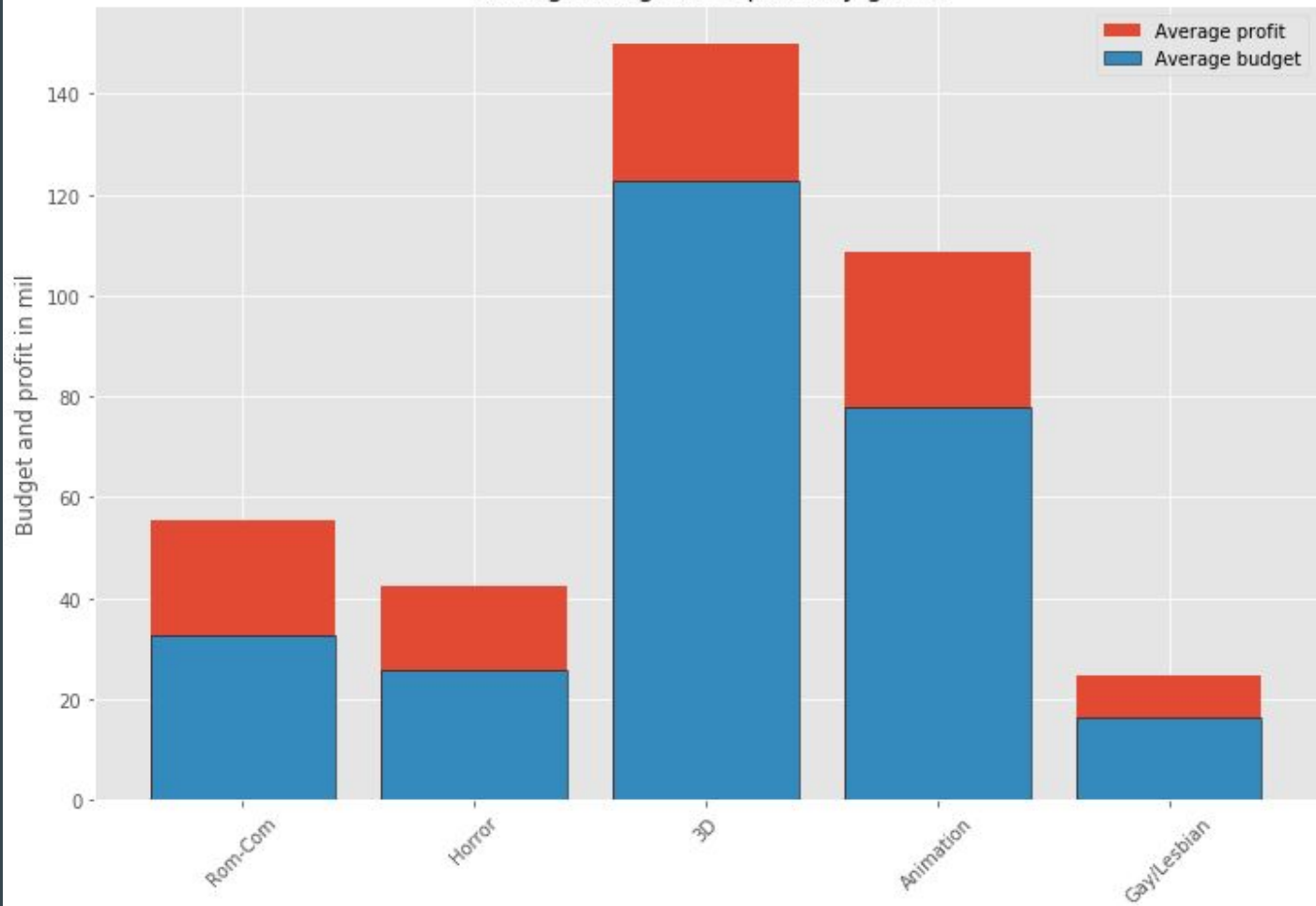


Relationship between User Ratings and Box Office Revenue
Circle Size = # of Top 50 Bankable Stars



Average budget and profit by genre

Average budget and profit by genre



Counterpoint

Two Factors to be Compared

- Average multiplier per genre
 - Calculated as $\text{Box Office Returns} / \text{Budget}$
- Average profit per genre
 - Calculated as $\text{Box Office Returns} - \text{Budget}$

Avg. Multiplier vs. Avg. Profit

in Million/Return Multiplier

Avg. Multiplier
Avg. Profit

Rom-Com

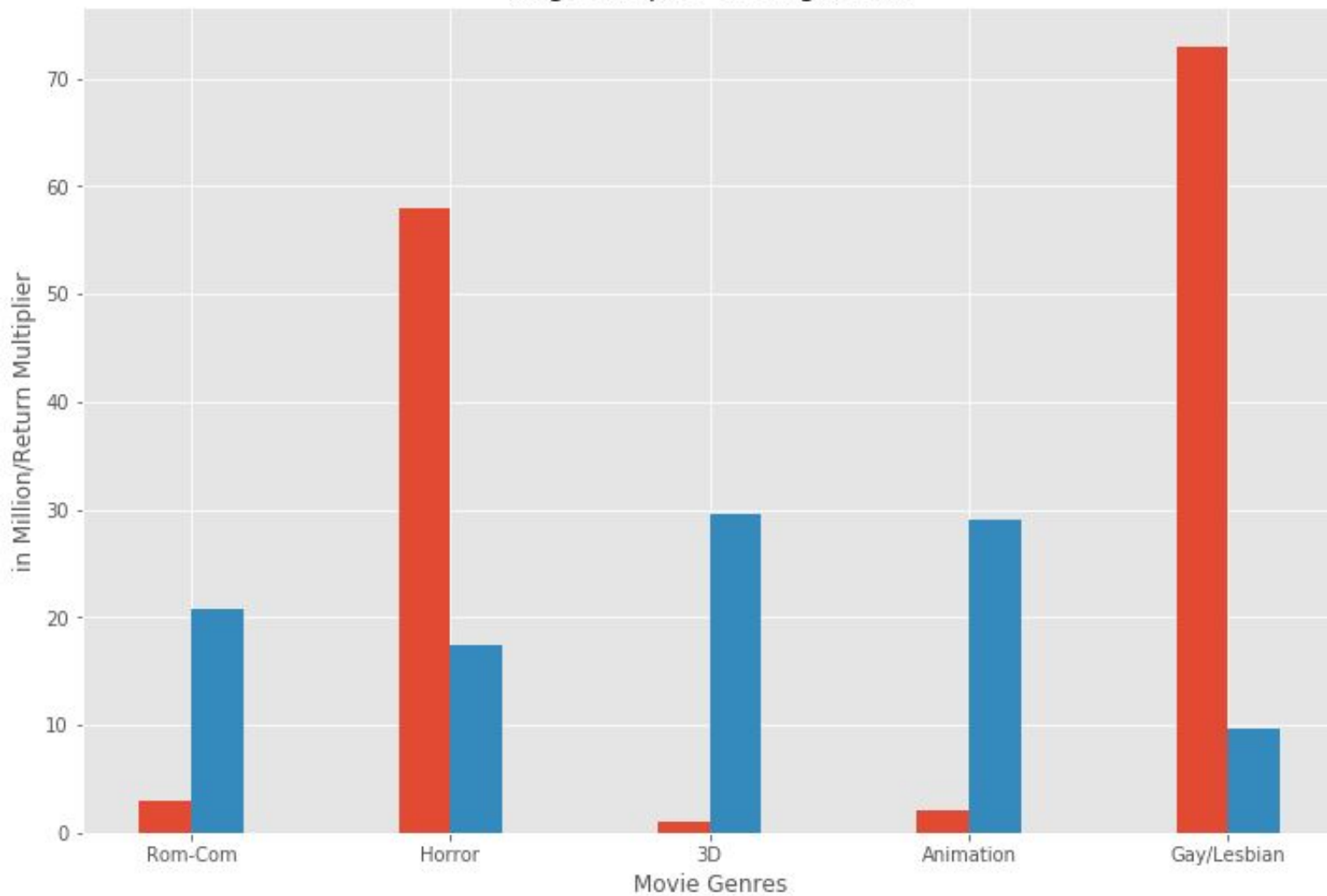
Horror

3D

Animation

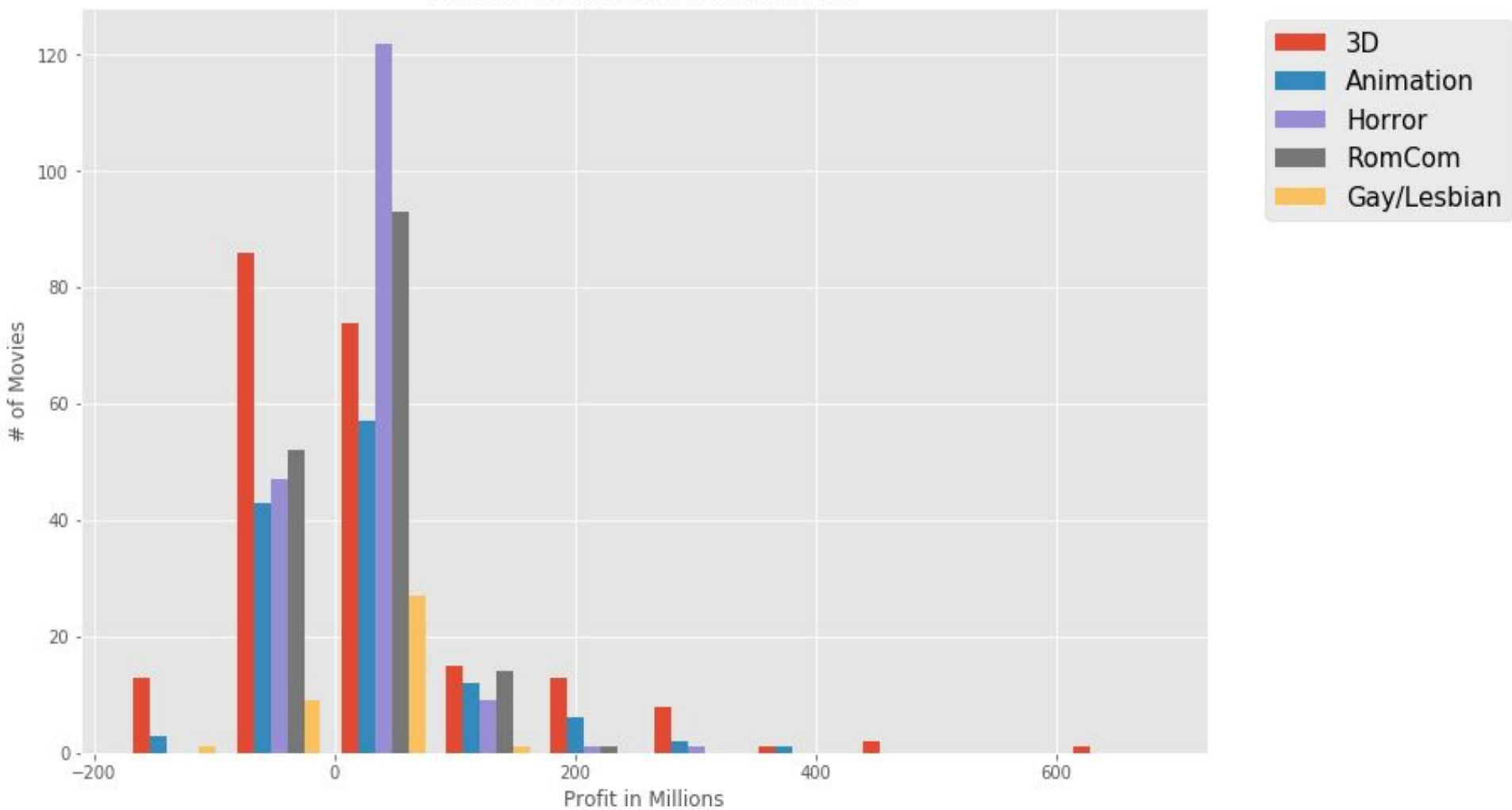
Gay/Lesbian

Movie Genres



Likelihood of profitability in the Movie Industry

Chances of Profit based on Genres



Recommendations

- Focus on Horror or Gay/Lesbian film genres
 - Least risk, great returns.
- 3D with a well-known actor/director/producer:
 - Huge impact on profits.
- Having a well-known industry professional:
 - Also big impact on profits.
- Movies are more likely to break-even or lose money.