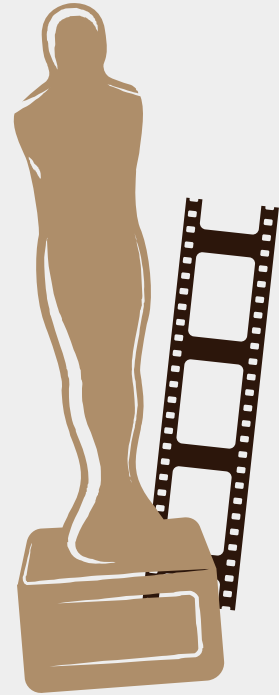


BOX OFFICE PERFORMANCE (1999-2019)

Samrawit Basazineu
James Lee
Jessica Price
Andrew Vick





★ BOX OFFICE THESIS ★



An analysis of movie box office statistics and profits, revealing the financial landscape of the film industry, identifying outliers, and assessing the efficacy of high-budget productions.



DATA SET



	title_without_year	year	main_genre	MPAA-Rating	Runtime	Distributor	Budget_\$_	Domestic_\$_	International_\$_	total_revenue_\$_
1										
2	Avengers: Endgame	2019	Action	PG-13	181	Walt Disney Studios Motion Pictures	\$356,000,000	\$858,373,000	\$1,939,128,328	\$2,797,501,328
3	Avatar	2009	Sci-Fi	PG-13	162	Twentieth Century Fox	\$237,000,000	\$749,766,139	\$1,993,811,448	\$2,743,577,587
4	Star Wars: Episode VII - The Force Awakens	2015	Sci-Fi	PG-13	138	Walt Disney Studios Motion Pictures	\$245,000,000	\$936,662,225	\$1,131,561,399	\$2,068,223,624
5	Jurassic World	2015	Adventure	PG-13	124	Universal Pictures	\$150,000,000	\$652,270,625	\$1,018,130,012	\$1,670,400,637
6	The Lion King	2019	Family	PG	118	Walt Disney Studios Motion Pictures	\$260,000,000	\$543,638,043	\$1,113,305,351	\$1,656,943,394
7	The Avengers	2012	Sci-Fi	PG-13	143	Walt Disney Studios Motion Pictures	\$220,000,000	\$623,357,910	\$895,455,078	\$1,518,812,988
8	Furious 7	2015	Adventure	PG-13	137	Universal Pictures	\$190,000,000	\$353,007,020	\$1,162,040,651	\$1,515,047,671
9	Frozen II	2019	Musical	PG	103	Walt Disney Studios Motion Pictures	\$150,000,000	\$477,373,578	\$972,653,355	\$1,450,026,933
10	Avengers: Age of Ultron	2015	Action	PG-13	141	Walt Disney Studios Motion Pictures	\$250,000,000	\$459,005,868	\$943,800,000	\$1,402,805,868



★ DATA CLEANING ★

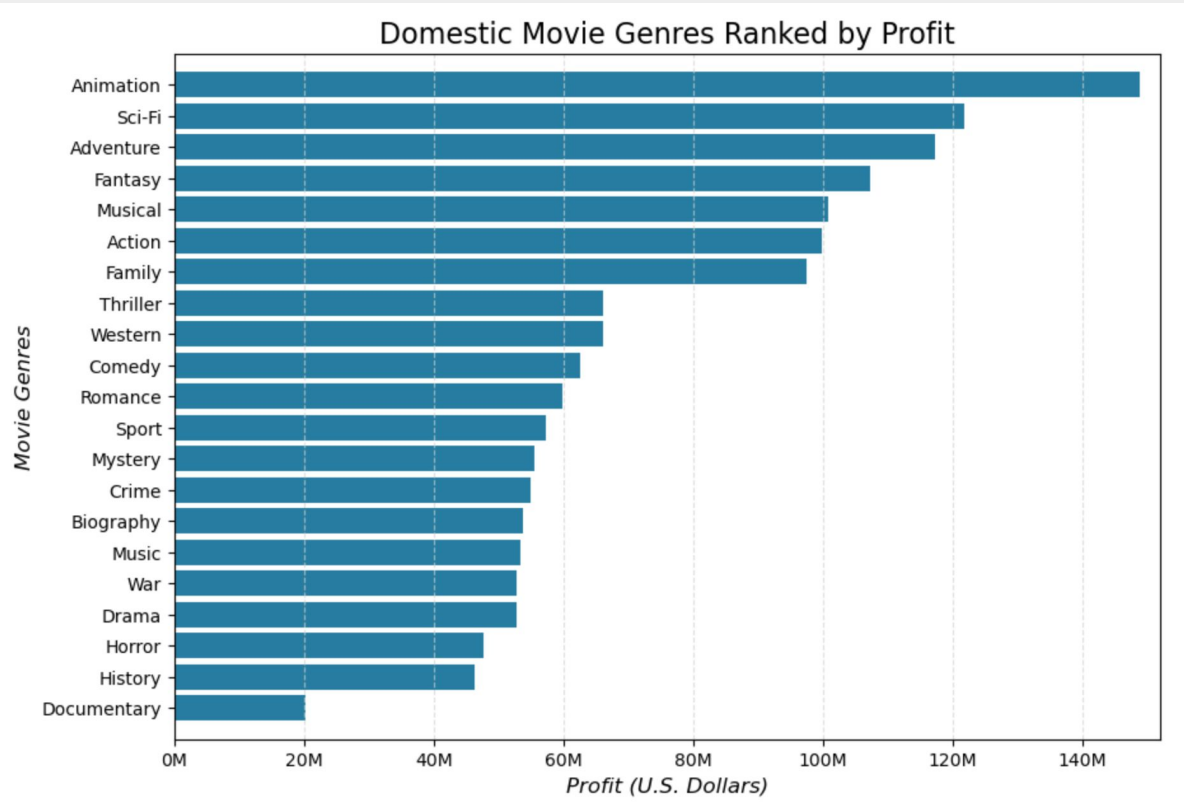
1	Title	Domestic	International	Budget	Distributor	MPAA-Rating	Runtime	Genres
2	Jurassic World (2015)	652270625	1018130012	150000000.0	Universal Pictures	PG-13	124	Action;Adventure;Sci-Fi
3	Star Wars: Episode VII - The Force Awakens (2015)	936662225	1131561399	245000000.0	Walt Disney Studios Motion Pictures	PG-13	138	Action;Adventure;Sci-Fi
4	Avengers: Age of Ultron (2015)	459005868	943800000	250000000.0	Walt Disney Studios Motion Pictures	PG-13	141	Action;Adventure;Sci-Fi
5	Inside Out (2015)	356461711	501149463	175000000.0	Walt Disney Studios Motion Pictures	PG	95	Adventure;Animation;Comedy;Drama;Family;Fantasy
6	Furious 7 (2015)	353007020	1162040651	190000000.0	Universal Pictures	PG-13	137	Action;Adventure;Thriller
7	American Sniper (2014)	350126372	197300000	58800000.0	Warner Bros.	R	133	Action;Biography;Drama;War
8	Minions (2015)	336045770	823352627	74000000.0	Universal Pictures	PG	91	Adventure;Animation;Comedy;Family;Sci-Fi
9	The Hunger Games: Mockingjay - Part 2 (2015)	281723902	376620235	160000000.0	Lionsgate	PG-13	137	Action;Adventure;Sci-Fi;Thriller
10	The Martian (2015)	228433663	401728227	108000000.0	Twentieth Century Fox	PG-13	144	Adventure;Drama;Sci-Fi

- Separated the movie title from the year
- Separated genre by semicolon
- Added a randomizer to choose one genre
- Got rid of any movies with null values in the “Budget” column
- Added domestic & international figures to create a total revenue column
- Sorted the data by the highest total revenue in descending order
- Subtracted total revenue from the budget to create a profit column

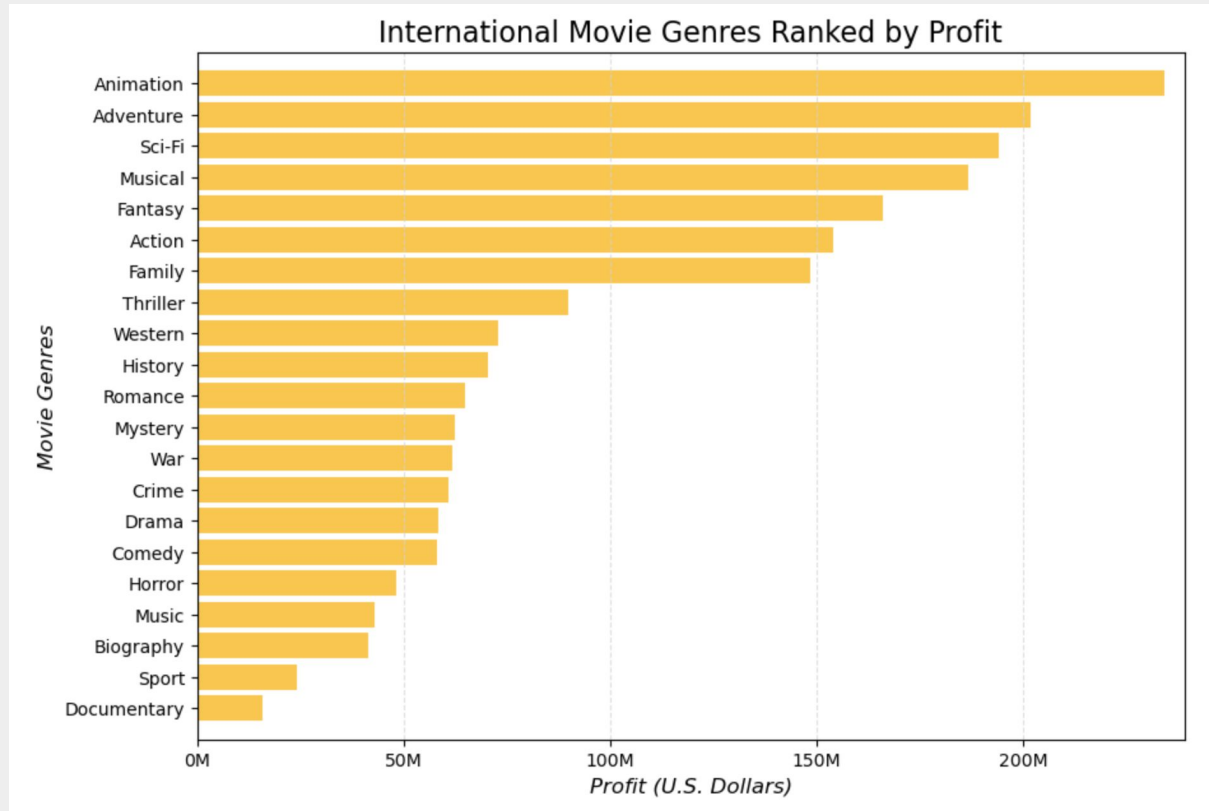
RESEARCH QUESTION #1

- Is there a difference in movie genre popularity in the U.S. versus the international market?
 - 21 different movie genres
 - Movie genres ranked by domestic and international profit margins
 - * Movie genres required randomization during data cleaning

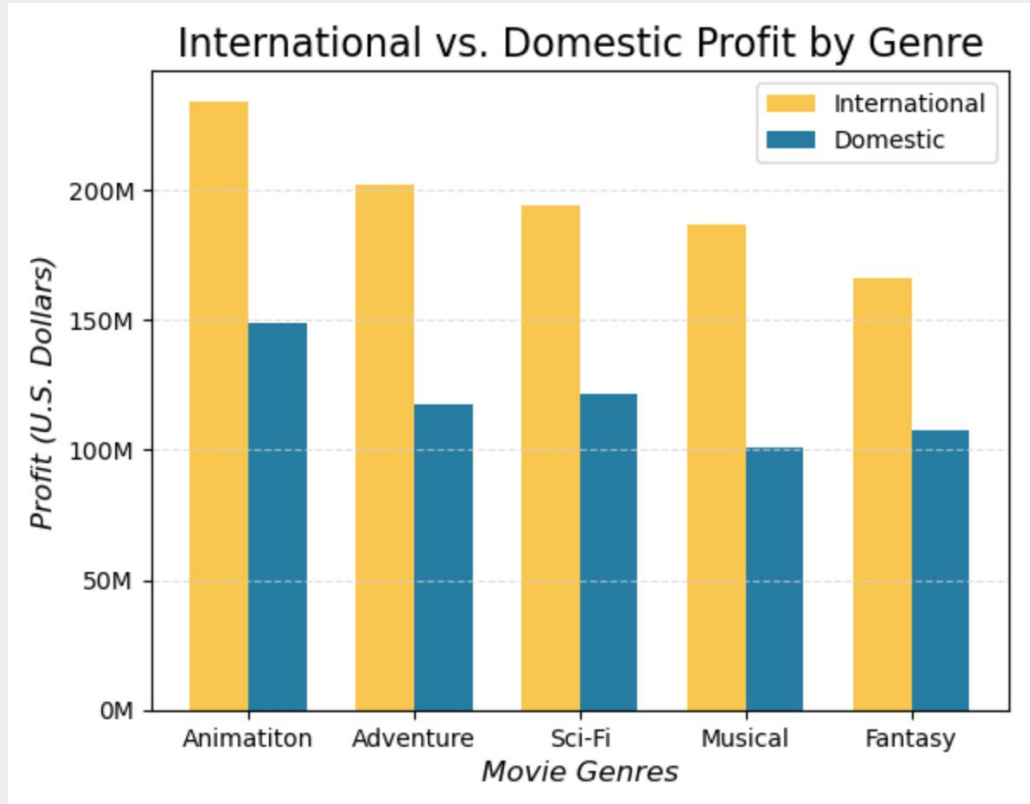
DOMESTIC MOVIE GENRES RANKED BY PROFIT



INTERNATIONAL MOVIE GENRES RANKED BY PROFIT



TOP 5 MOVIE GENRES RANKED BY PROFIT



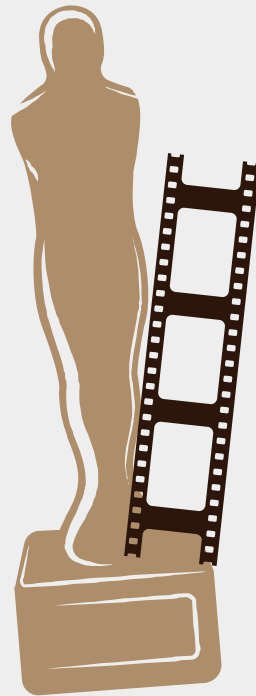


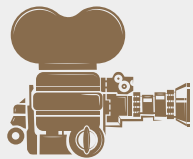
RESEARCH QUESTION #2



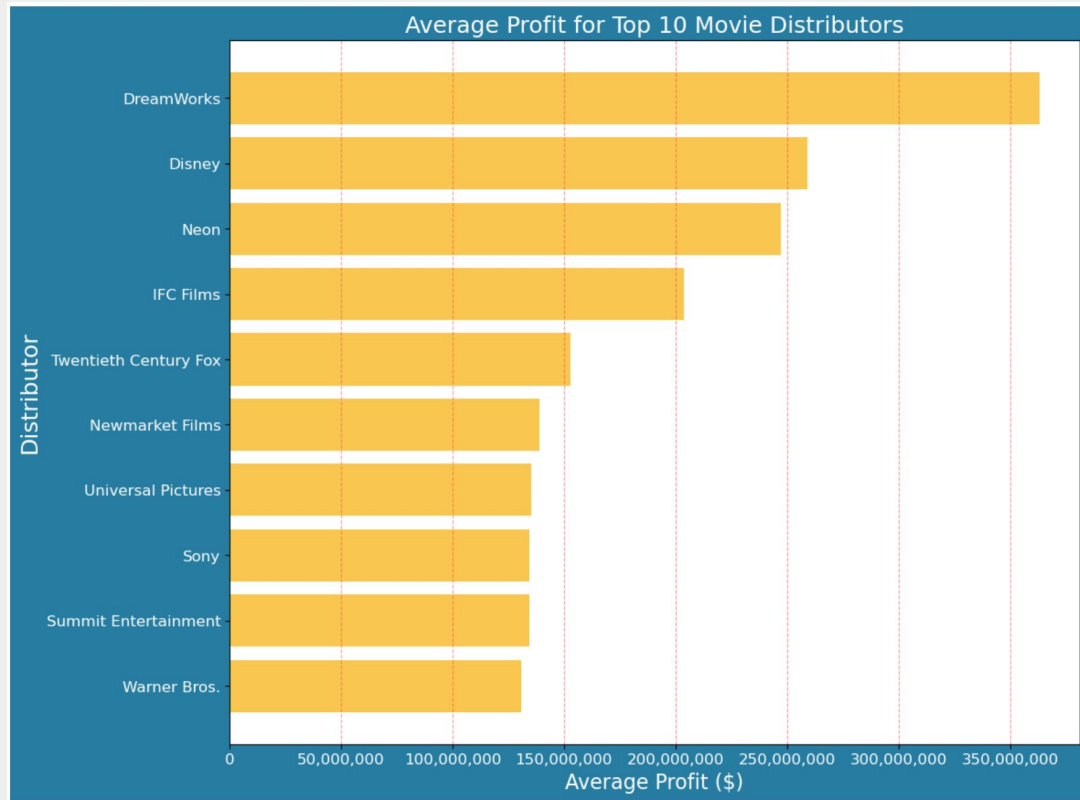
1. Movie Distributors vs Average Profit
 - Who leads the industry and by what margins?

2. Movie Distributors vs Genre Count
 - What does the distribution of genres look like?
 - What genres are most popular?





DISTRIBUTOR VS AVG PROFIT



Leaders in this industry all average over \$125,000,000 per movie

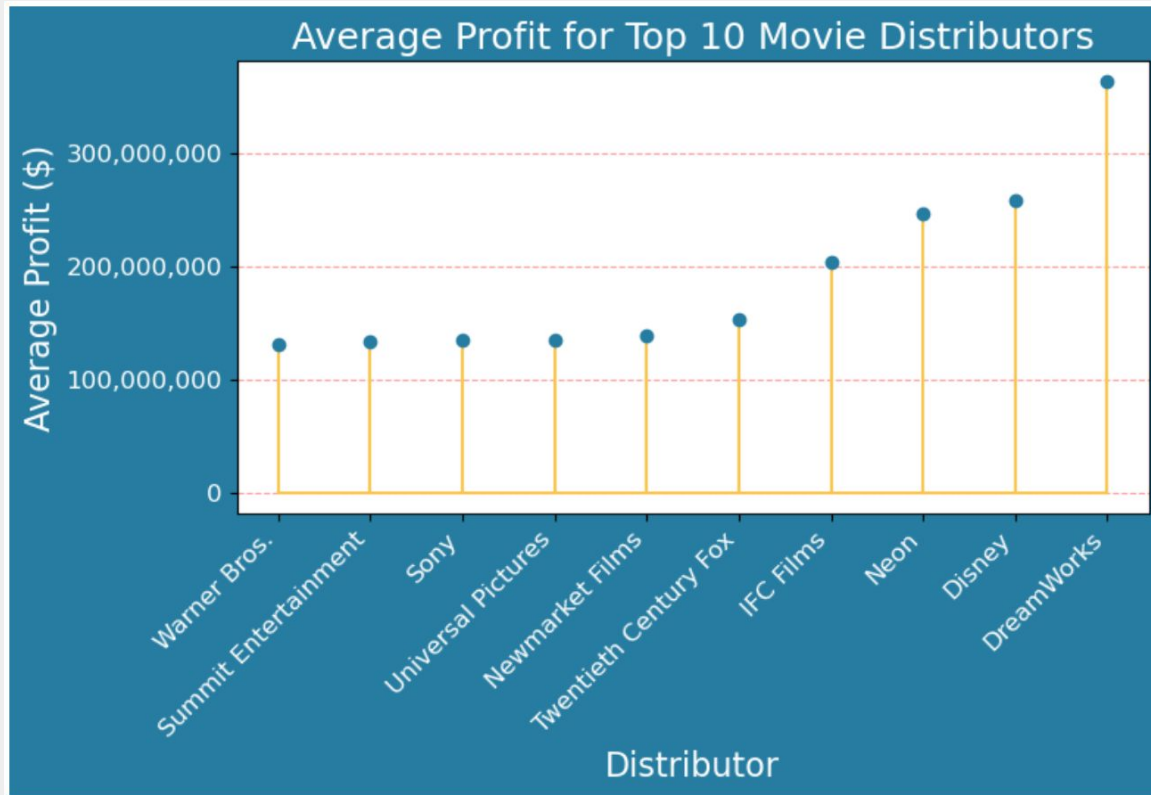
Dreamworks leads the pack by significant margin



DISTRIBUTOR VS PROFIT

Disney has since purchased 20th Century Fox

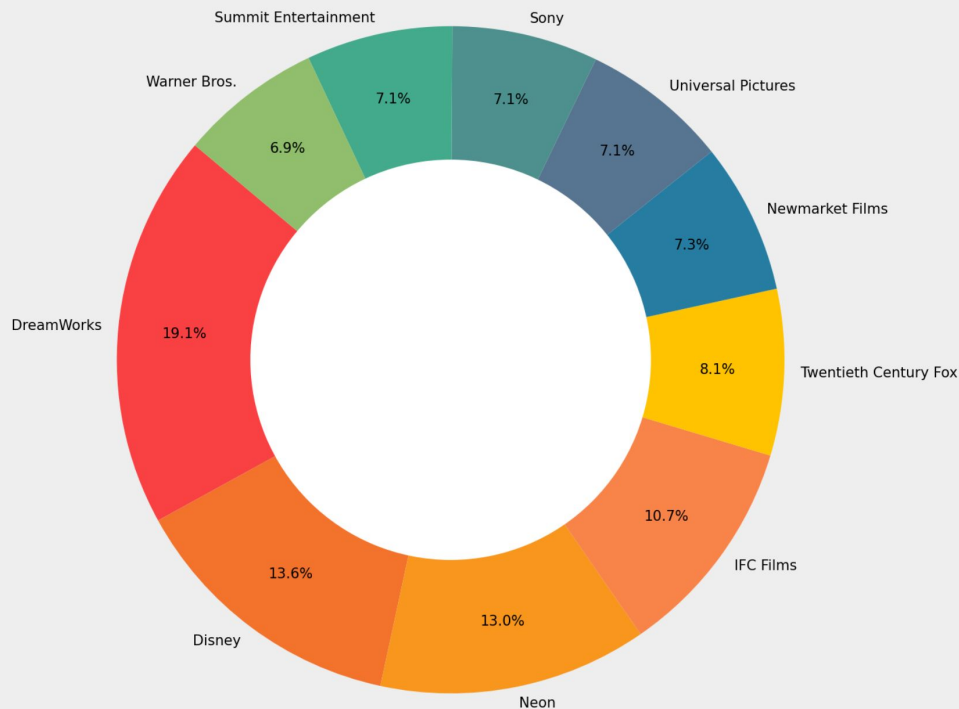
Further analysis could explore what franchises perform best for these studios





DISTRIBUTOR VS PROFIT

Share of Profit for the Top 10 Distributors



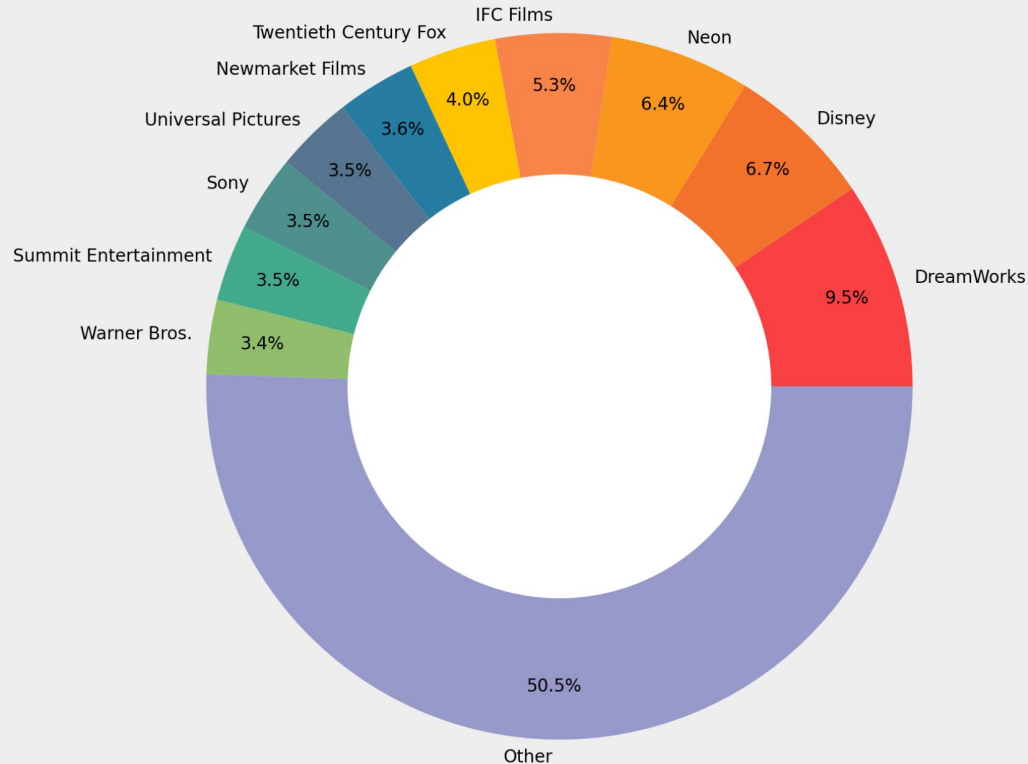
Here we have the percentage shared of the sum of our top 10 Distributors total average profit



DISTRIBUTOR VS PROFIT



Market Share by Distributor



Whereas here we can see the share of our top 10 compared to the total market

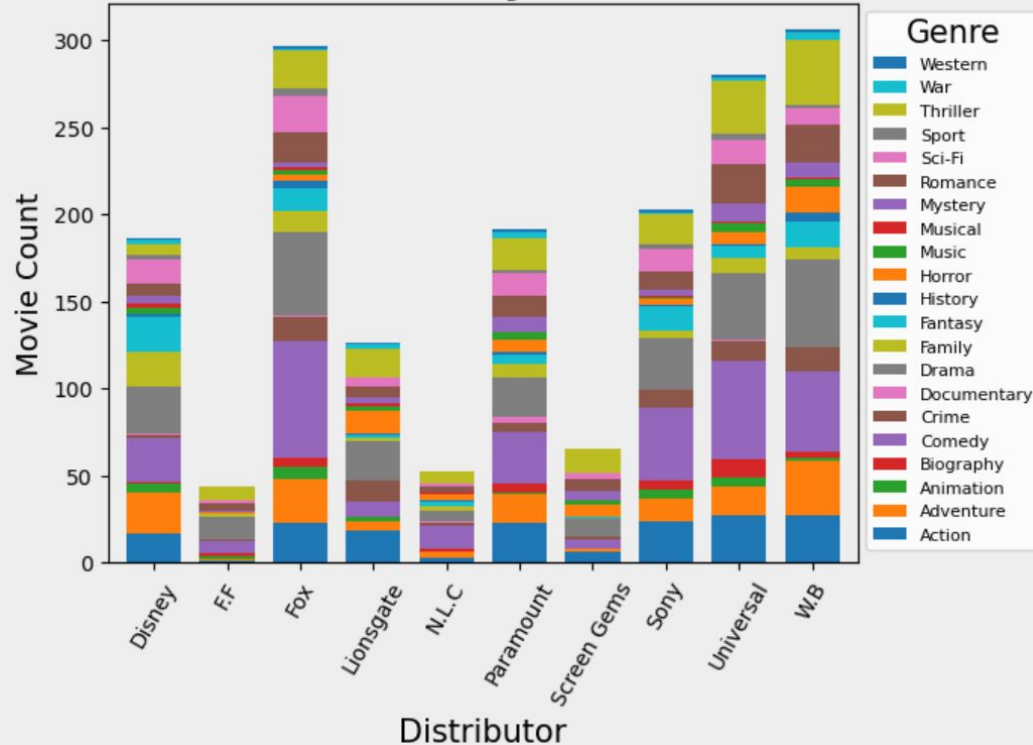
Total of 77 Distributors and our top 10 have about 50% of all profit



DISTRIBUTOR VS GENRE



Genre Count by Distributor



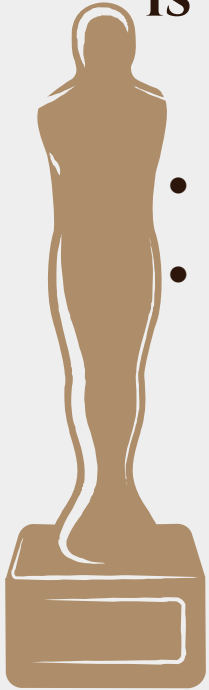
Most Popular: Thriller, Drama, Comedy, Adventure, Action

Fairly similar distribution in their portfolios.

Limited by our data cleaning that randomized genre.

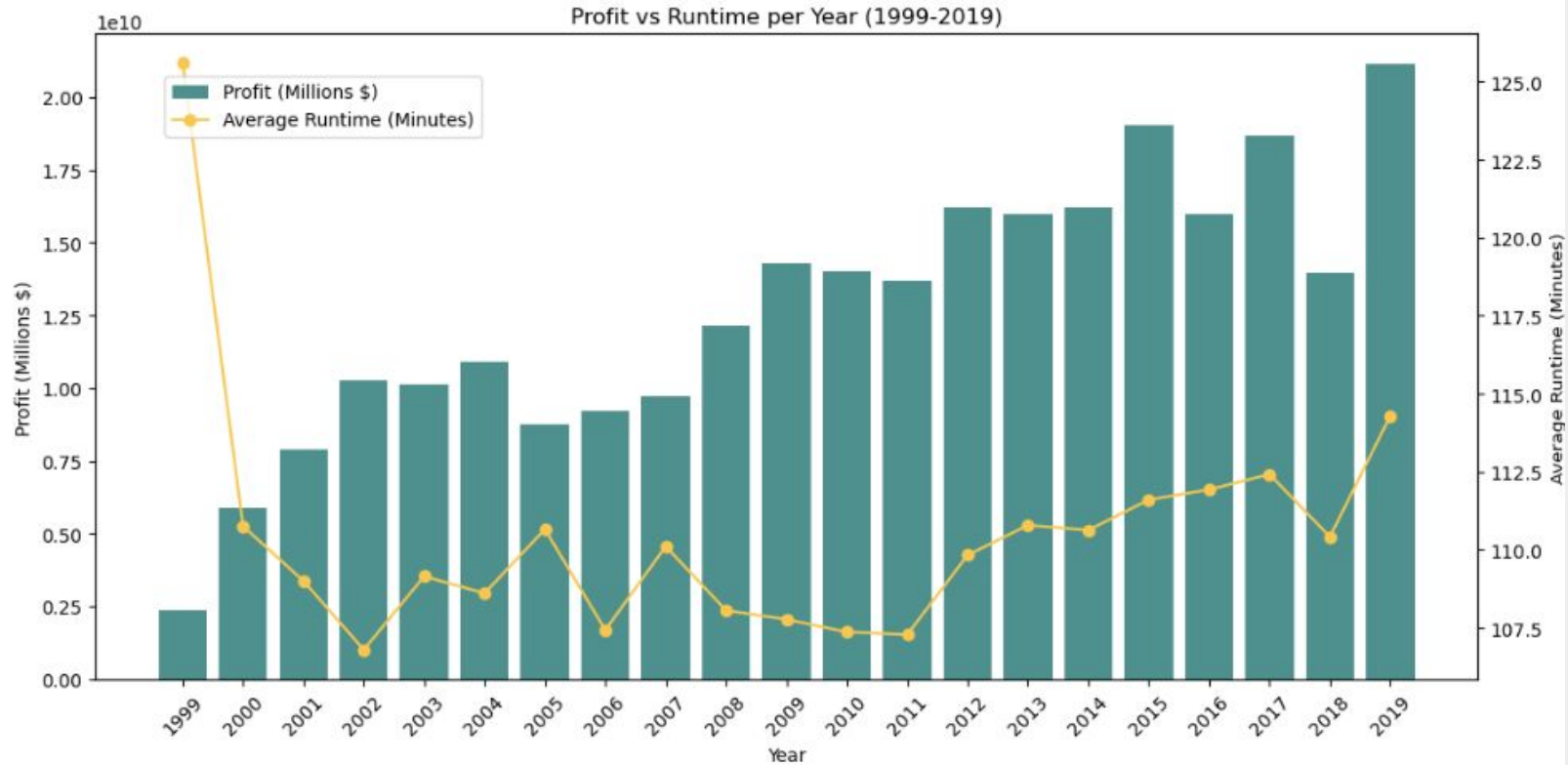
RESEARCH QUESTION #3

IS THERE A RELATIONSHIP BETWEEN THE RUNTIME OF MOVIES AND THEIR PROFITABILITY

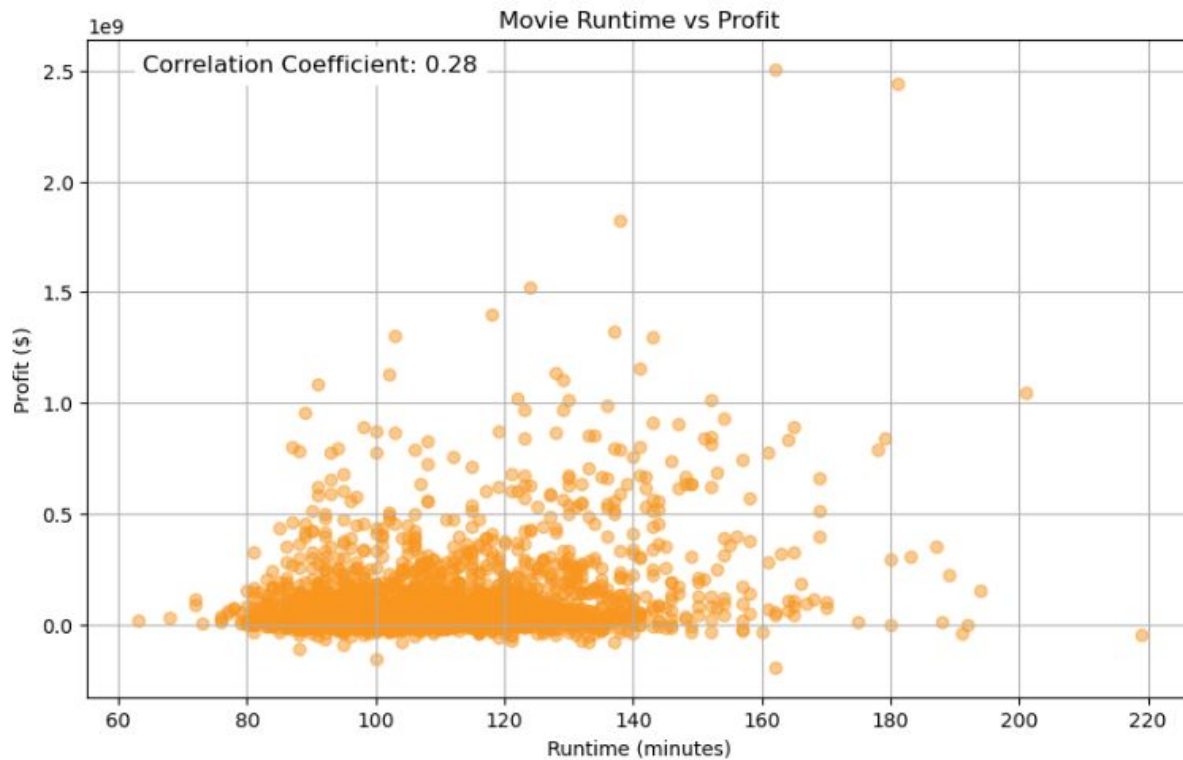


- We wanted to explore an intriguing question: *Does the runtime of a movie influence its profitability?*
- To examine the relationship, we first calculated the average runtime of movies and then analyzed the average profit for each year. This provided us with an overall picture and allowed us to ask questions such as,
 - *Do movies with longer runtime make more money?*
 - *Which year had the highest average profit, and did that year feature longer movie runtimes compared to others?*

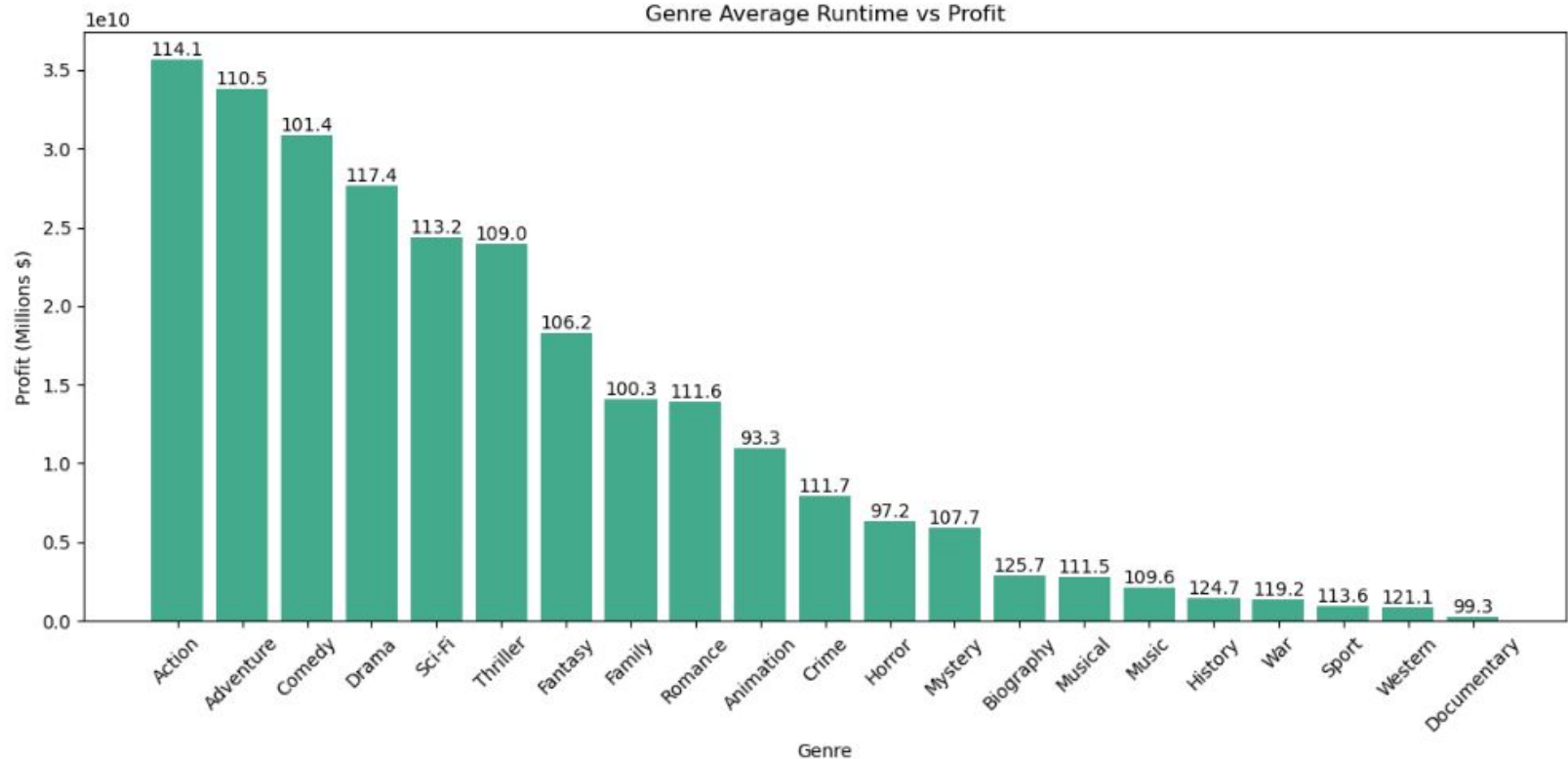
PROFIT VS RUNTIME PER YEAR (1999-2019)



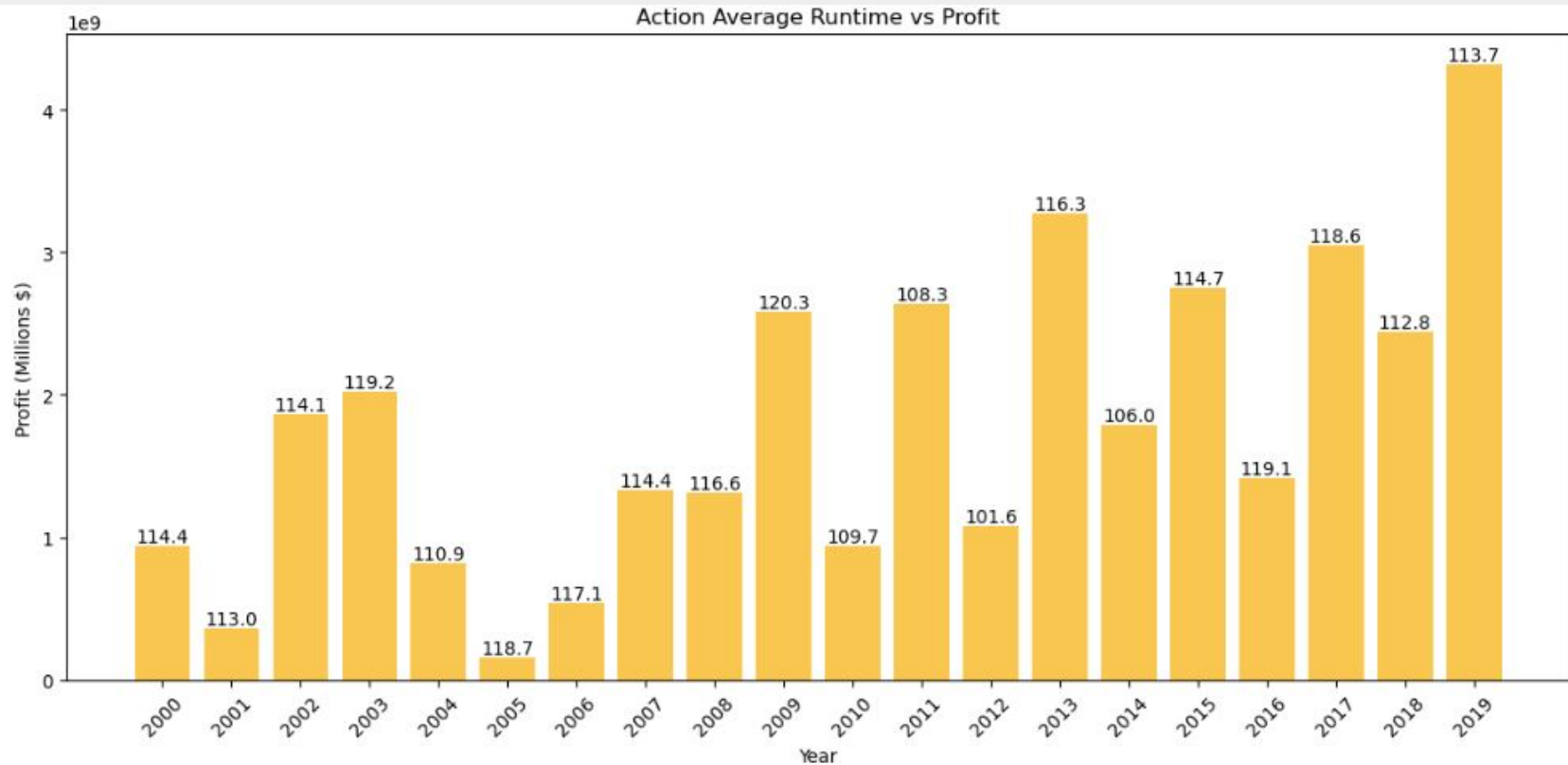
MOVIE RUNTIME VS PROFIT



GENRE AVERAGE RUNTIME VS PROFIT

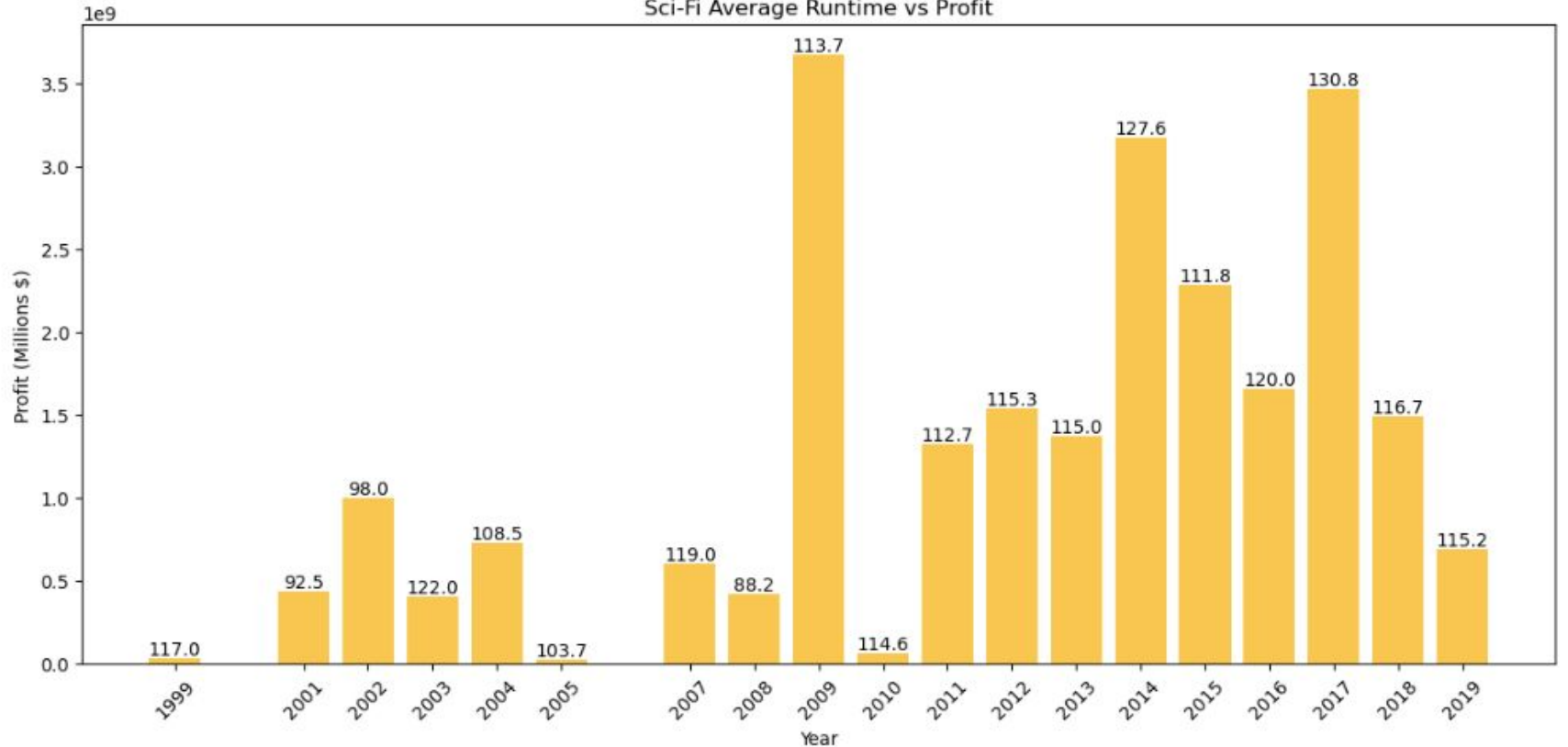


ACTION MOVIES

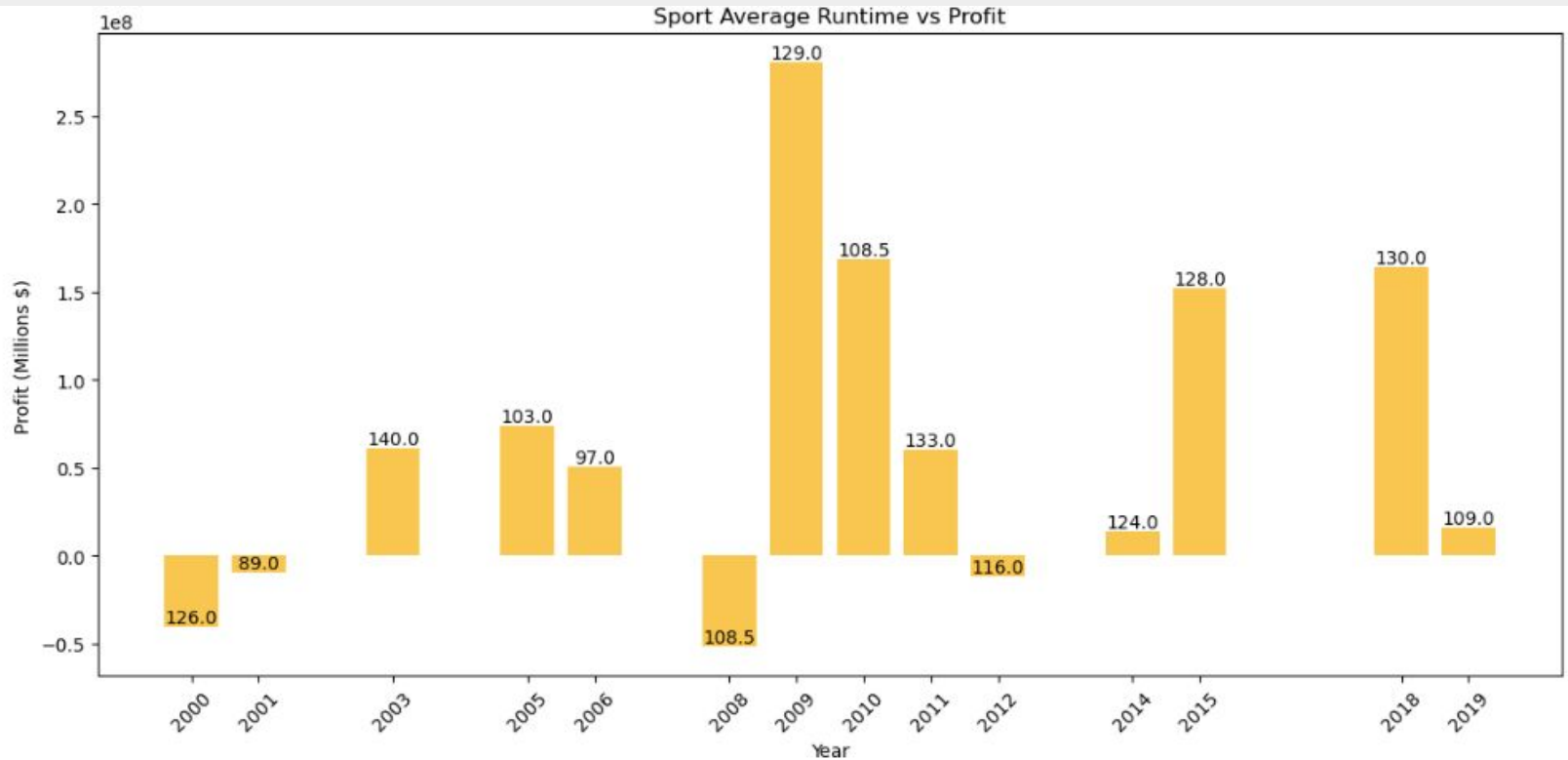


SCI-FI MOVIES

Sci-Fi Average Runtime vs Profit

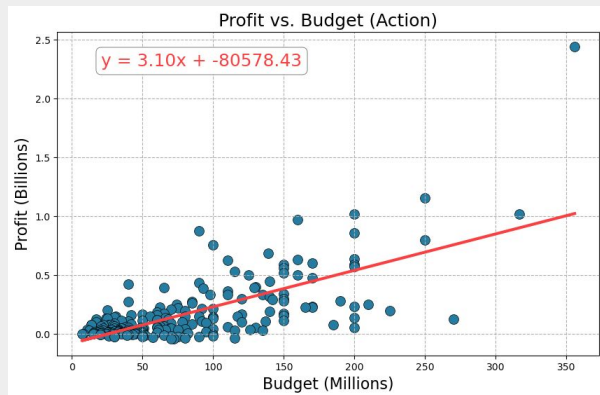


SPORT AVERAGE RUNTIME VS PROFIT





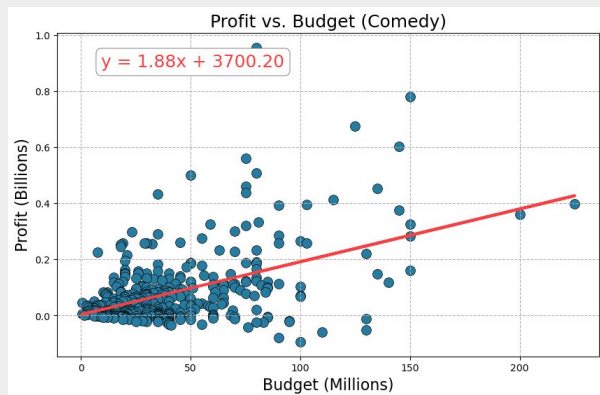
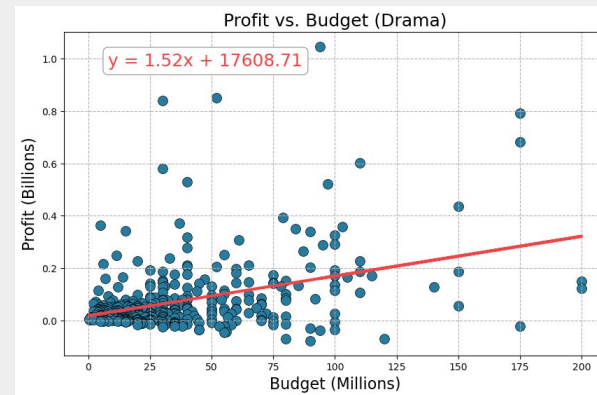
REGRESSION



R-Values

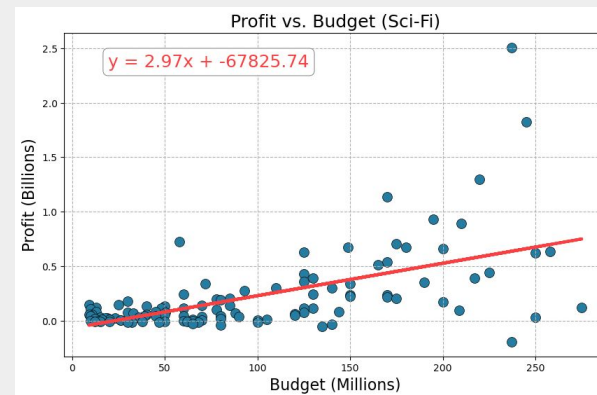
Action: 0.49

Drama: 0.15



Comedy: 0.25

Sci-Fi: 0.33

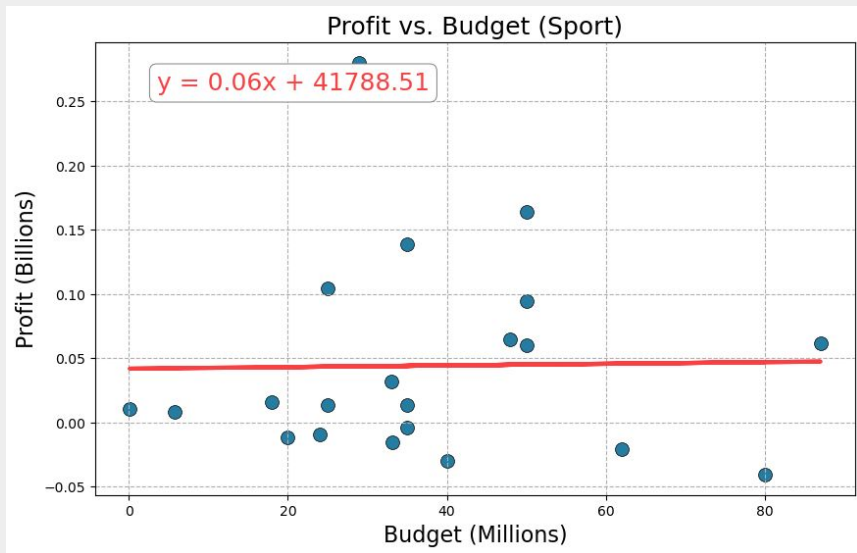




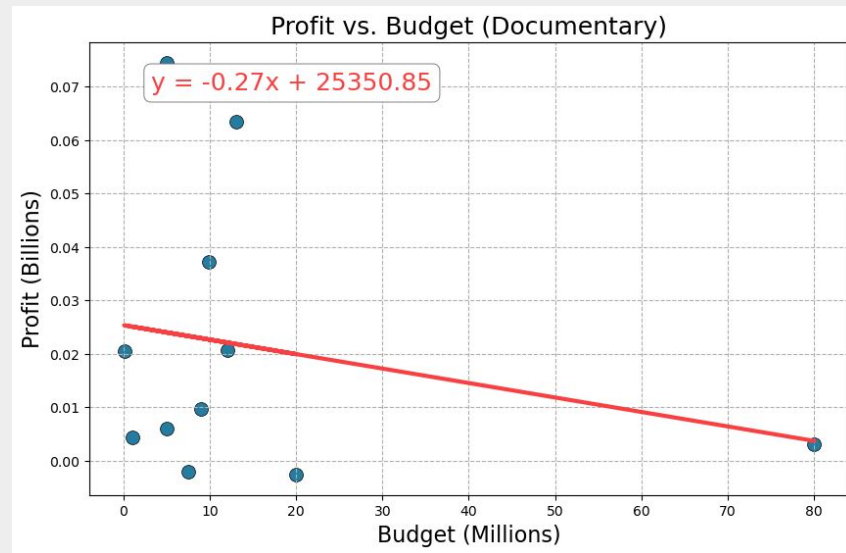
OUTLIERS



(sorry professor)



The r-value is: 0.0003058958736150328



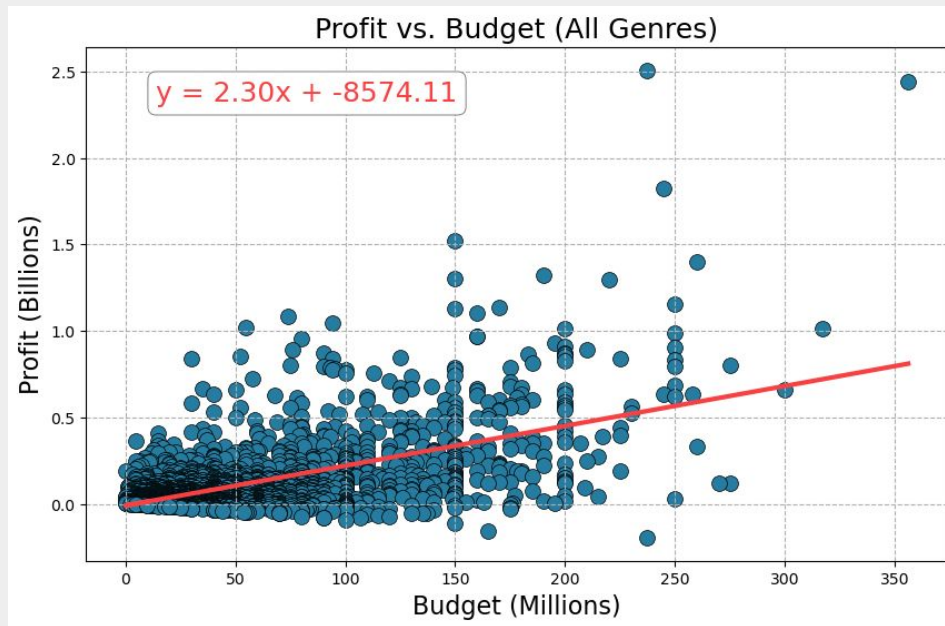
The r-value is: 0.0525869512860423

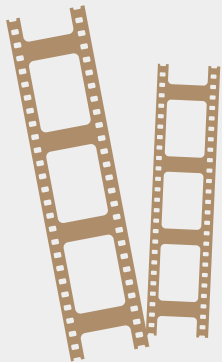


REGRESSION



- The r-value based on all genres is: 0.3448866008133383
- Budget accounts for roughly 34% of a movie's profitability
- **Conclusion:** A big budget movie will have a good chance at making a profit, but there are so many other factors that go into box office success.





CALL TO ACTION

For Filmmakers and Studios:

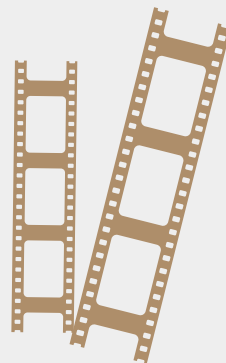
- Embrace Calculated Risks

For Investors:

- Diversify Investments

For General Audiences:

- Support Diverse Cinema



BIAS & LIMITATIONS

- We were working with outdated information
- Our data set did not have any ratings for movies
- The genre randomizer is not the best way to analyze data
- COVID-19 & Streaming have completely changed the box office landscape

FUTURE WORK

- Expand Data Collection
- Consider the Role of Streaming Platforms
- Examine the Effect of External Factors

WORKS CITED

- <https://www.kaggle.com/datasets/lukelarue/movie-attributes-for-3400-movies-from-2000-2020>
- <https://www.boxofficemojo.com/>
- <https://www.omdbapi.com/>



ANY QUESTIONS?