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Deloitte AI Academy
Semester 1 Capstone Project

Data Dreamers

Meet The Team

Our team consist of six new-hire analysts that are graduates of the AI Academy Semester 1 intensive program.

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Presentation Flow

1 Business Problem → 2 Data Used → 3 Metric Overview

4 Statistical Findings → 5 Conclusion

AI Academy Capstone Presentation

Business Problem

Situation:

-Client and business stakeholder: Computing Vision

-Main goal: to find ways to gain a competitive advantage within a filmmaking industry

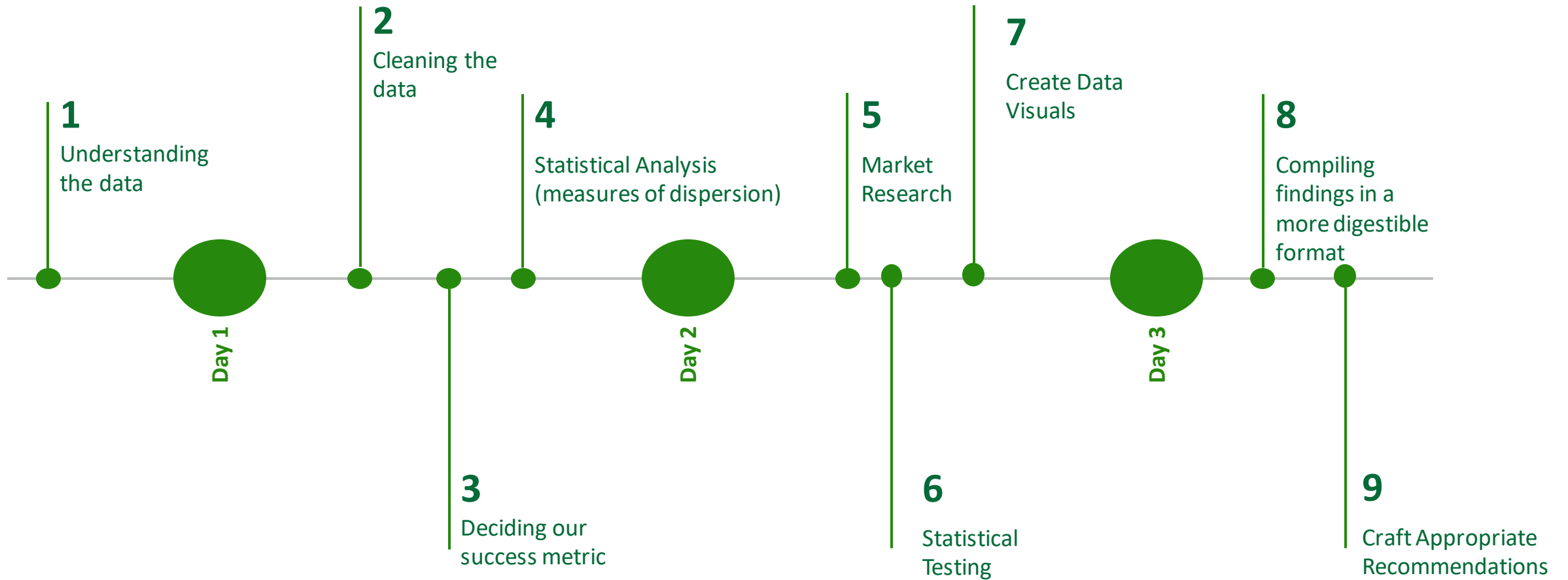   -Taking into consideration the films and metrics that lead to better performance at the box

Objective:

-To provide Computing Vision the best strategy for curating new films, supported by data driven recommendations, and using extensive analyses of various movie databases.

Presentation Flow

1
Business Problem

2
Data Used

3
Metric Overview

4
Statistical Findings

5
Conclusion

Our Approach

1

Understanding the data

2

Cleaning the data

3

Deciding our success metric

Day 1

4

Statistical Analysis (measures of dispersion)

Day 2

5

Market Research

6

Statistical Testing

7

Create Data Visuals

Day 3

8

Compiling findings in a more digestible format

9

Craft Appropriate Recommendations

The Data

Presentation Flow

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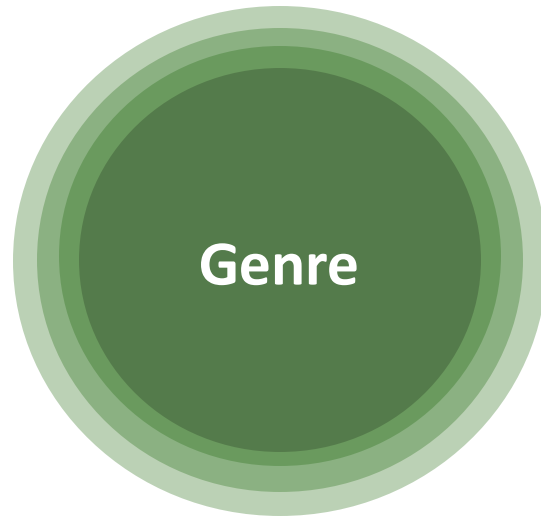
Success Metrics: Overview

Computing Vision should focus on the following metrics when developing their first movie in order to maximize profit.

Genre

Season

Runtime
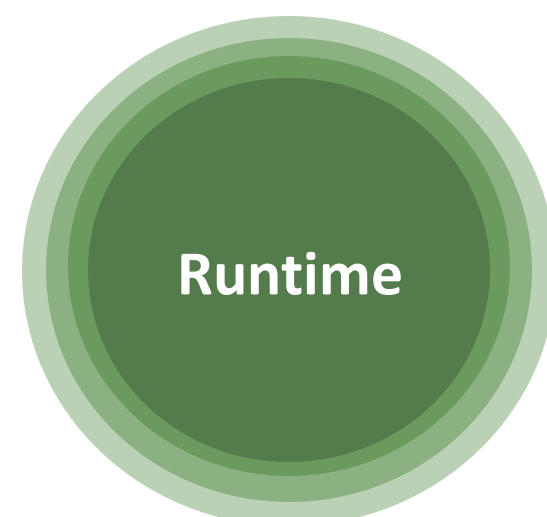
Upon implementing our strategy recommendations, Computing Vision can expect their first film to generate approximately **$443 Million**

Presentation Flow

1 Business Problem → **2** Data Used → **3** Metric Overview

4 Statistical Findings → **5** Conclusion
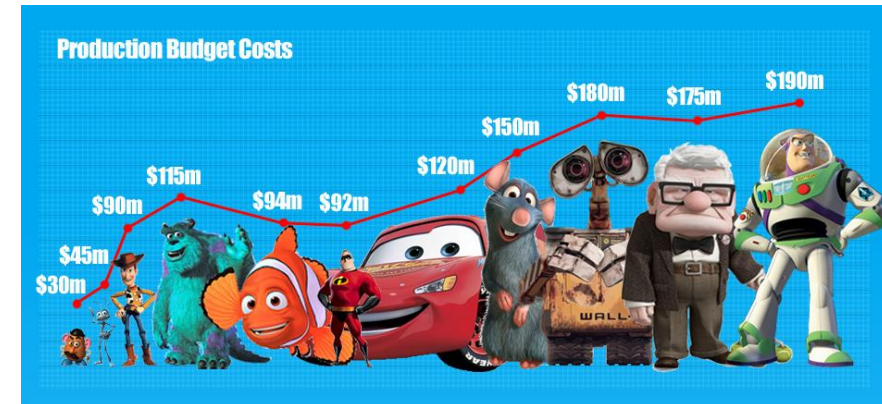
Genre Analysis – Recommendation #1

⭐ Computing Vision should introduce a **Sci-Fi film** as their introductory movie.

*"Sci-Fi has also been a big driver for movies that have spurred on **merchandise sales**, illustrating just how popular they are after they have been watched (Scified)."*

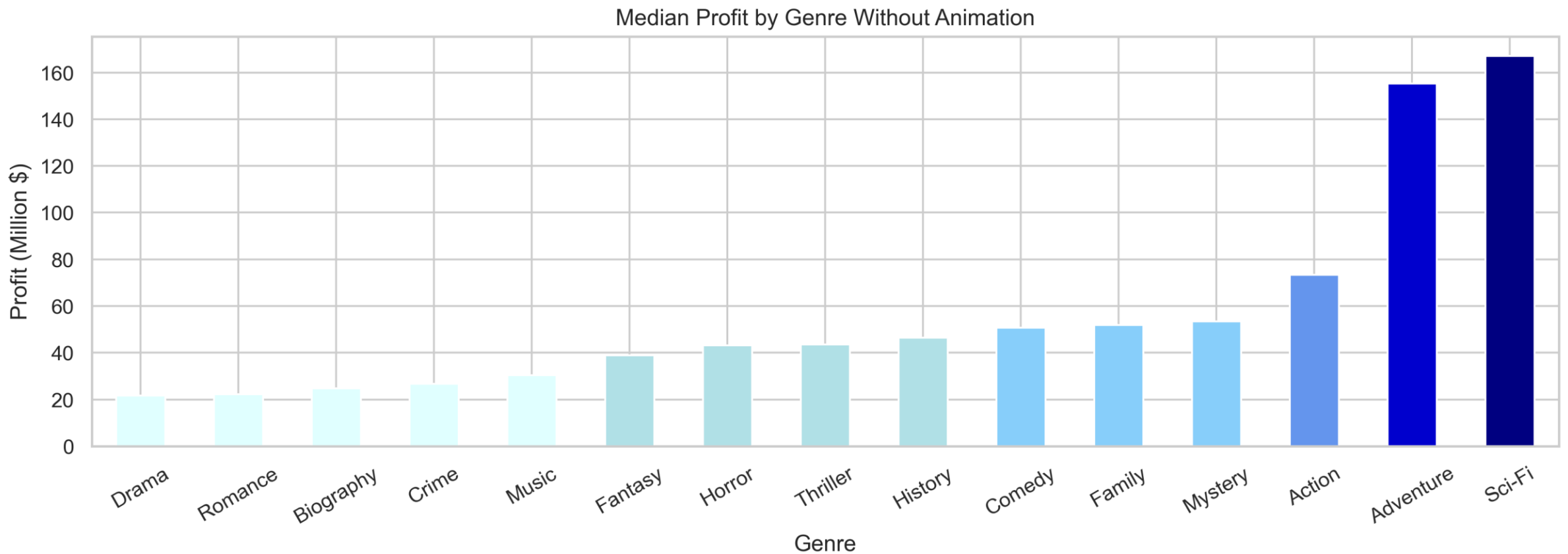Animation films are generally more difficult for new movie studios to introduce, with significantly higher budgets.

Additionally, Animation is more of a medium than a genre.

https://www.scified.com/news/what-makes-sci-fi-films-so-successful

Genre Analysis Cont.

The profit ratio for sci-fi films ranked:

4th

Median Profit Ratio by Genre
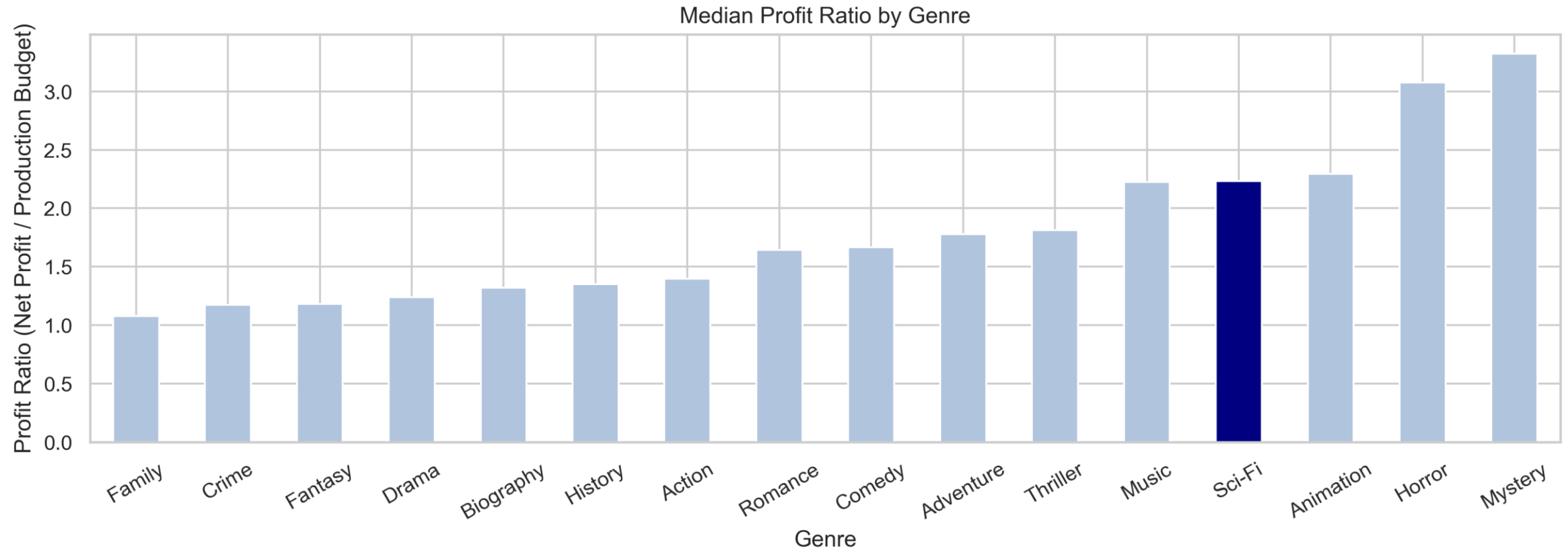
Seasonal Analysis - Recommendation #2

We recommend that more movies are released during the **warm season** (Summer and Spring)

Movie studios avoid "dump months" as tickets are often a hard sell during these months.

"In fact, the majority of movie tickets are actually sold during the summer months. People are seeking a break from the sun in a cool air-conditioned movie theatre." –Jodie Francis

Dump Months

Months	Reason
December-January	Christmas Fatigue
February-March	Too cold
September	Back to school

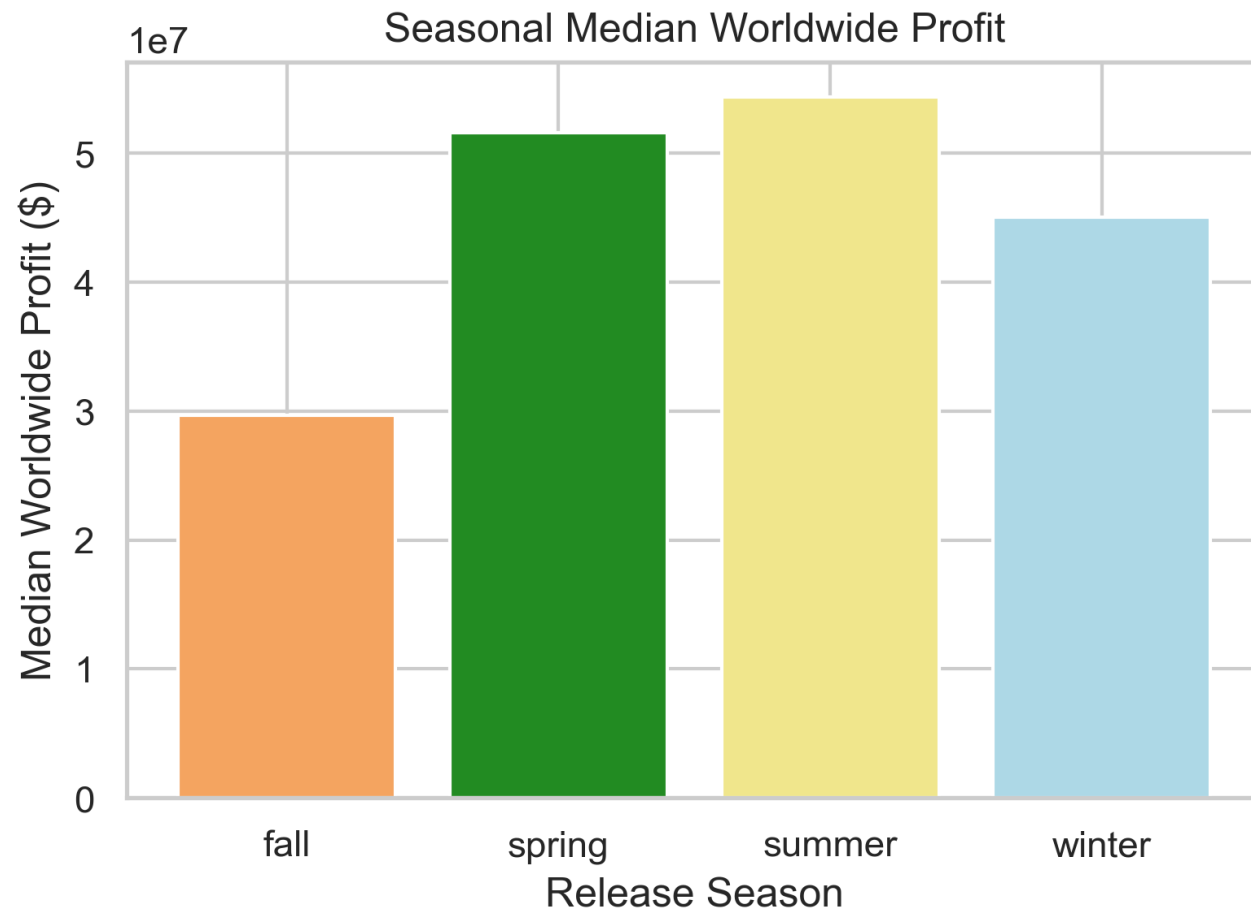1. Consumers prefer group trips to the movie theaters
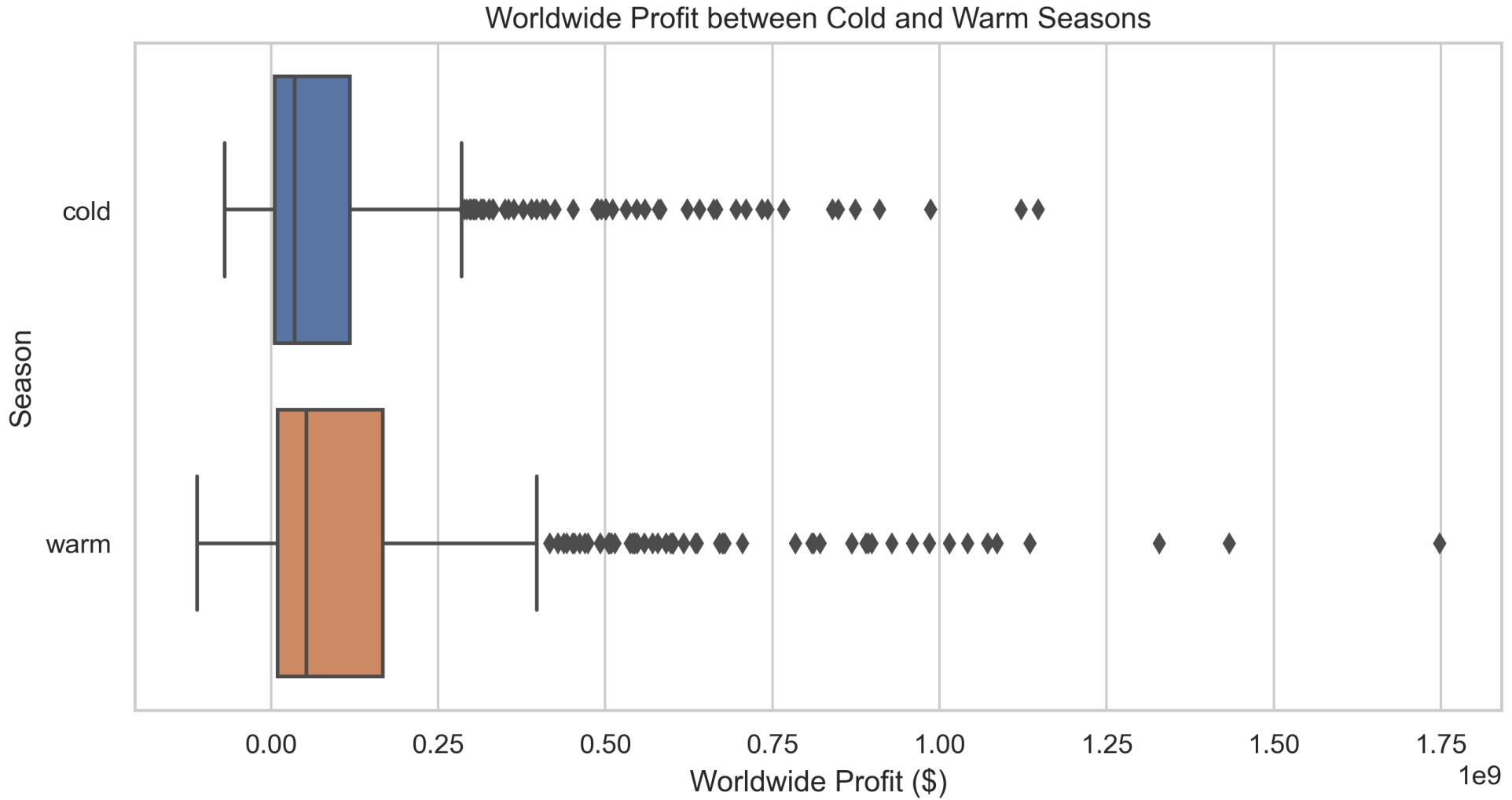
2. Box office takings are at an all time high

3. Cinema releases in the summer mean home release in the fall

https://www.cbr.com/horror-movies-release-summer-better/

Seasonal Analysis

Seasonal Median Worldwide Profit

Seasonal Analysis Cont.

Worldwide Profit between Cold and Warm Seasons

Runtime Analysis - Recommendation #3

We recommend that Computing Vision create more films that have a runtime **over 120 minutes**

Rotten Tomatoes study revealed that **71% of movies over 140 minutes** long are rated **Fresh***, as opposed to 60% for 120-140 minutes, 41% for 100-120 minutes, and only 34% for under 100 minutes.

Fresh = Highest Rating

LONGER MOVIES ARE BETTER, ACCORDING TO THE TOMATOMETER (AND *REALLY* LONG MOVIES ARE EVEN BETTER THAN THAT)
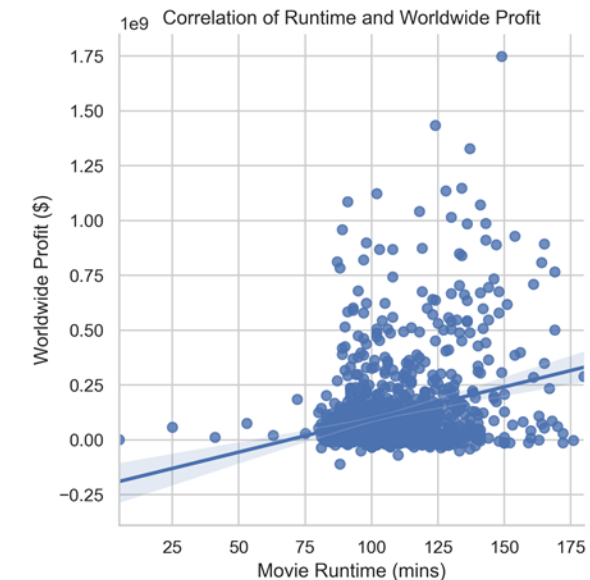
WITH THE ALMOST-THREE-HOURS-LONG *IT: CHAPTER TWO* ABOUT TO TERRORIZE THEATERS (AND BLADDERS), WE DIVE DEEP INTO THE DATA ON MOVIES FROM THE 2010S TO SEE IF BIGGER IS BETTER.

by Mark Hofmeyer | September 4, 2019 | 💬 14 Comments

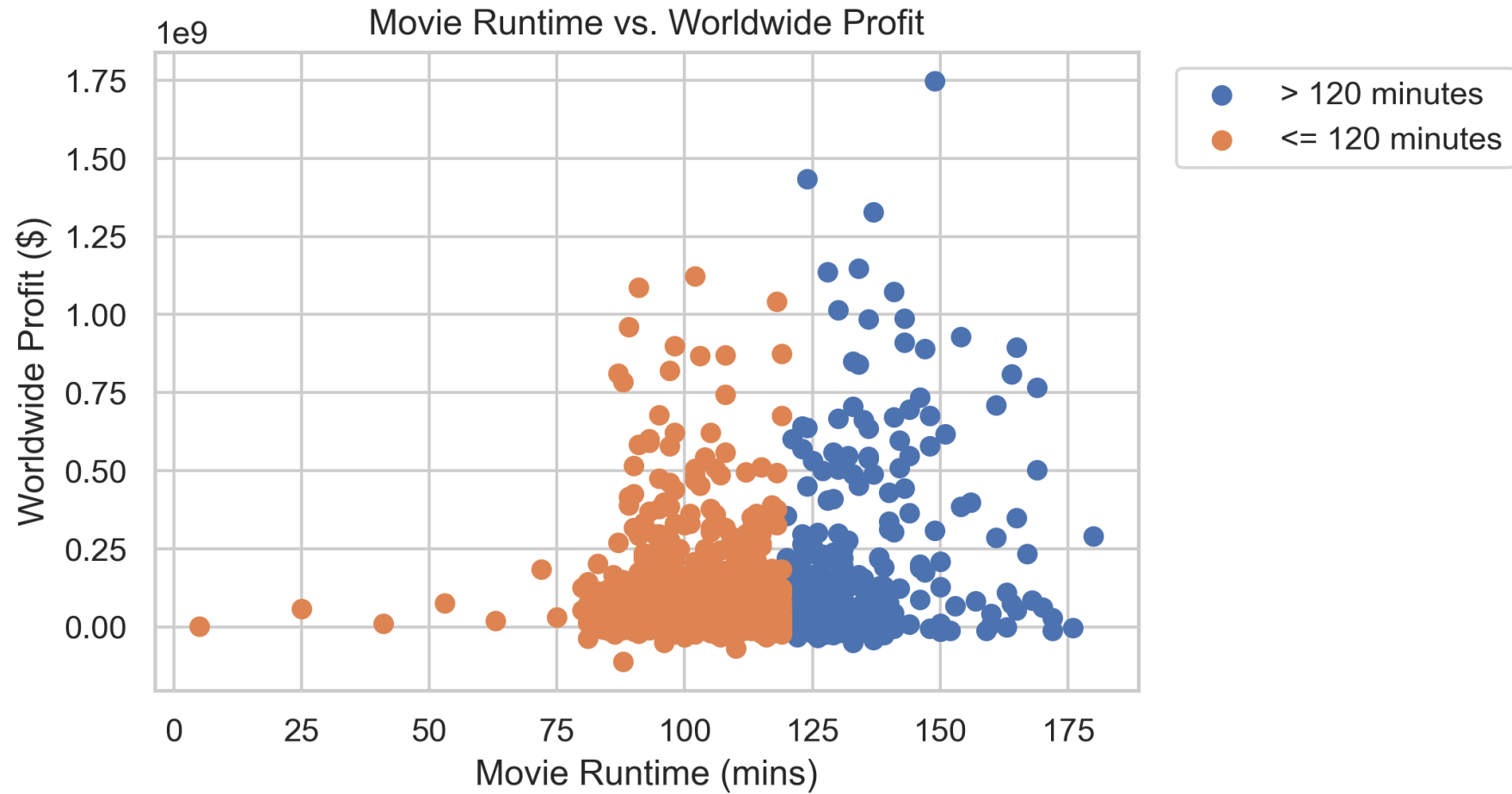## Why it feels like movies are getting longer

By **Harmeet Kaur,** CNN
🕐 Updated 8:11 AM ET, Sun February 6, 2022

Correlation of Runtime and Worldwide Profit

https://screenrant.com/longer-movies-fresh-ratings-rotten-tomatoes/
https://www.cnn.com/2022/02/06/entertainment/movie-runtimes-longer-mcu-batman-oscar-bait-cec/index.html

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Runtime Analysis Cont.

Movie Runtime vs. Worldwide Profit

Runtime Analysis

Short Movies — Median = $34M; Long Movies — Median = $93M. Histograms of Worldwide Profit ($) vs Frequency.
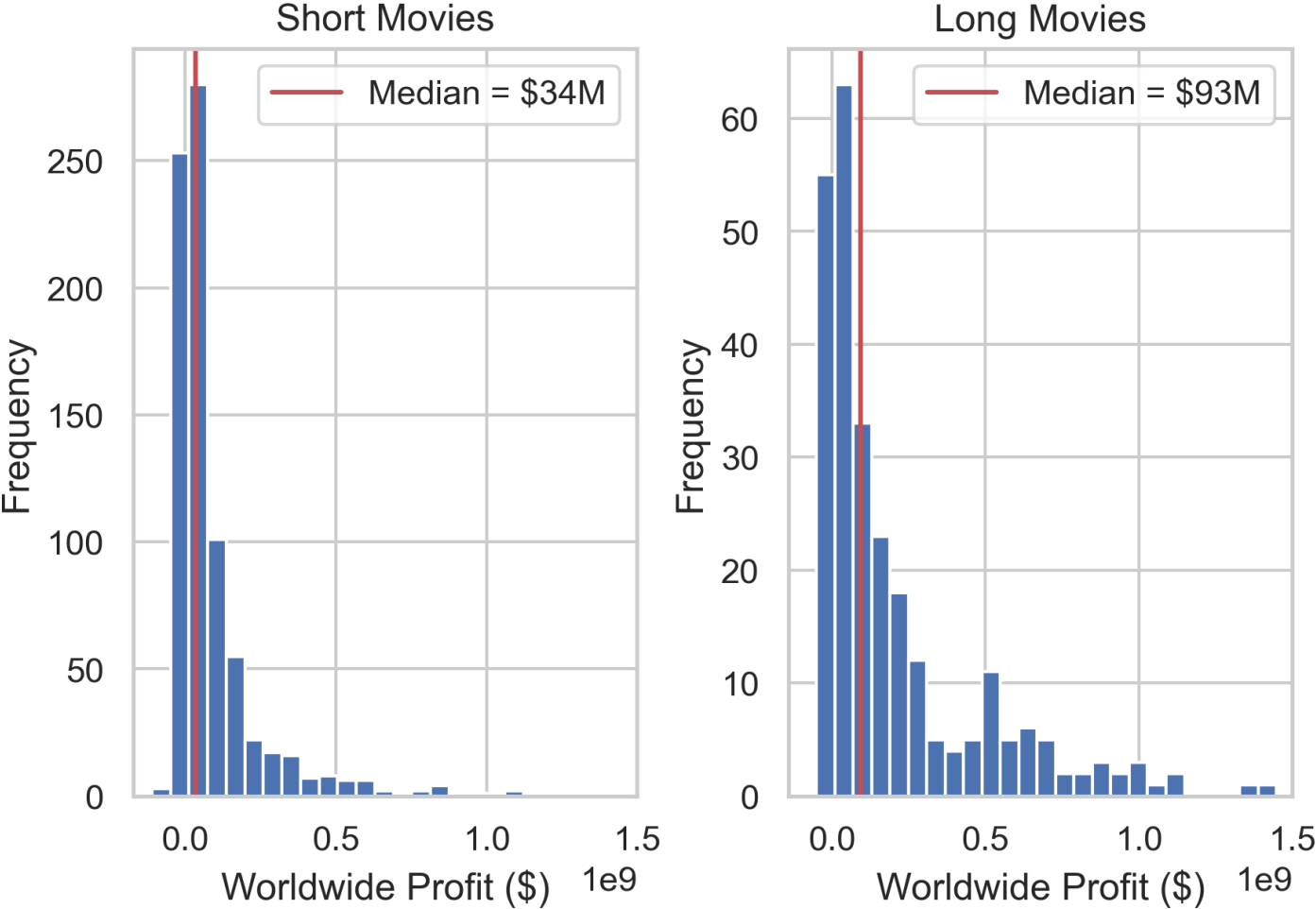
Runtime Analysis Hypothesis Testing

- H_0: Movies longer than two hours do not make more worldwide profit than those shorter than two hours.

- H_a: Movies longer than two hours do make more worldwide profit than those shorter than two hours.
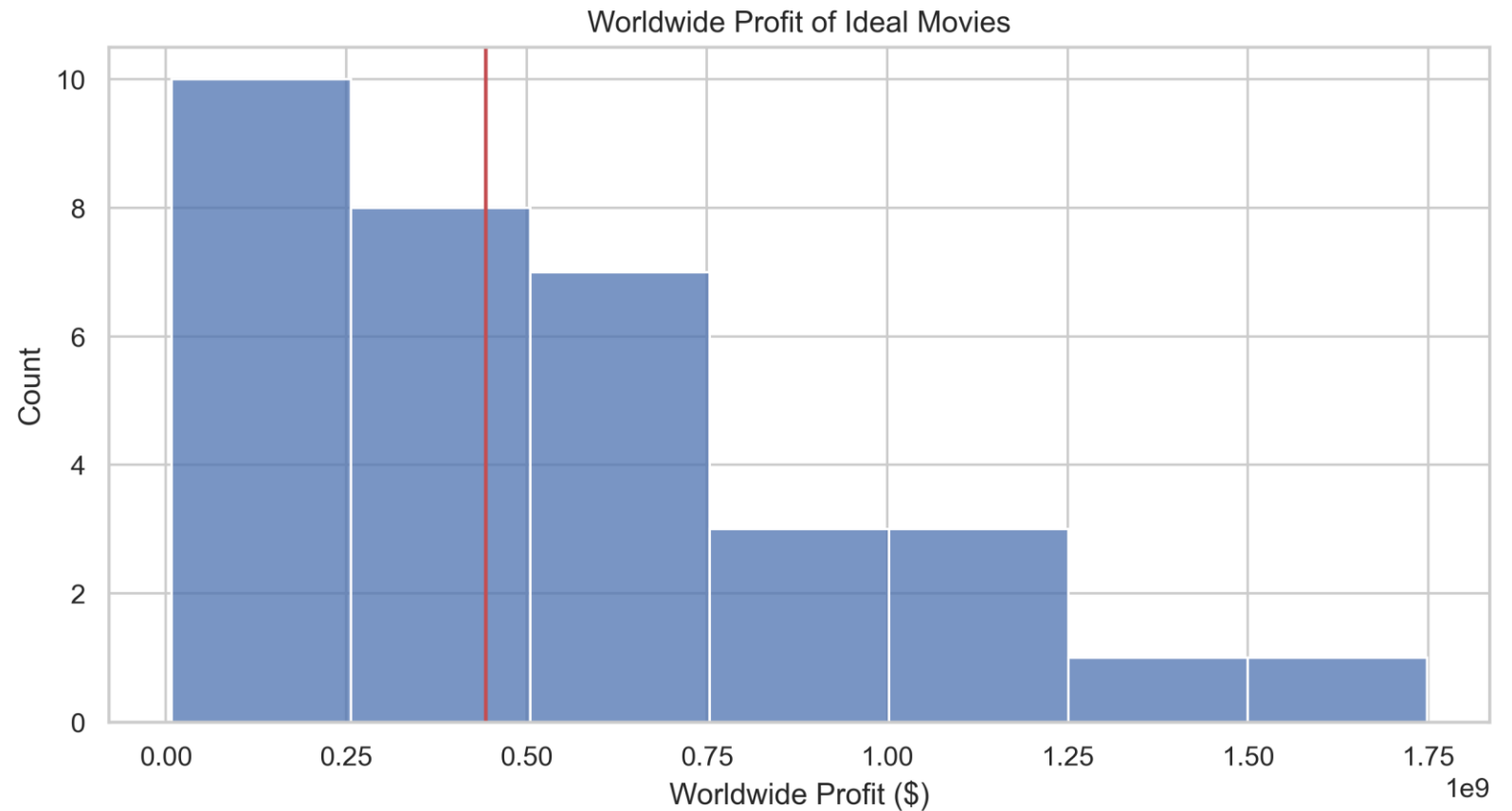
T-statistic	P-value
8.5124	2.9394 e-17

Presentation Flow

Conclusion

- Median Worldwide Profit:
  $443 Million

- IQR: **$484 Million**

Worldwide Profit of Ideal Movies

	primary_title	runtime_minutes	season_split	genres_list	adjusted_worldwide
316	The Wolverine	126.0	warm	[Action, Adventure, Sci-Fi]	301456852
331	Prometheus	124.0	warm	[Adventure, Mystery, Sci-Fi]	277448265
2	Jurassic World	124.0	warm	[Action, Adventure, Sci-Fi]	1433854864
215	X-Men: First Class	131.0	warm	[Action, Adventure, Sci-Fi]	195408305
576	The Amazing Spider-Man 2	142.0	warm	[Action, Adventure, Sci-Fi]	508996336

Limitations & Future Improvement

Limitations:

- Difficulties in isolating the effects of each move genre
- Conflated genre labels
- Inability to view relationships between variables in detail

Future Improvement:

- Factor in additional product costs and variables (i.e advertising and marketing costs)
- Bring in studio metric
- Create models to estimate relationships and find significant variables

Questions?

Appendix

Distribution of Net Profit per movie, All Genres

Correlation of Runtime and Worldwide Profit