

# APPLE TV+

## Movie Recommendations!



kevin gross

# THE STAGE HAS BEEN SET

## agenda

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Business  
Problem

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Business  
Understanding

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Data & Modeling

**4**

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Results &  
Recommendations

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Next Steps



# BUSINESS PROBLEM

Stakeholder: Apple TV+

**Business Problem:** Increase market share in streaming industry by attracting more subscribers

## **Increase movies**

Add additional movies to library

## **Recommend movies**

Target the right user with the right movie

## **Strategic and organized using data**



# BUSINESS UNDERSTANDING

Apple TV+ has significantly less movies than its competitors

44

Total movies available

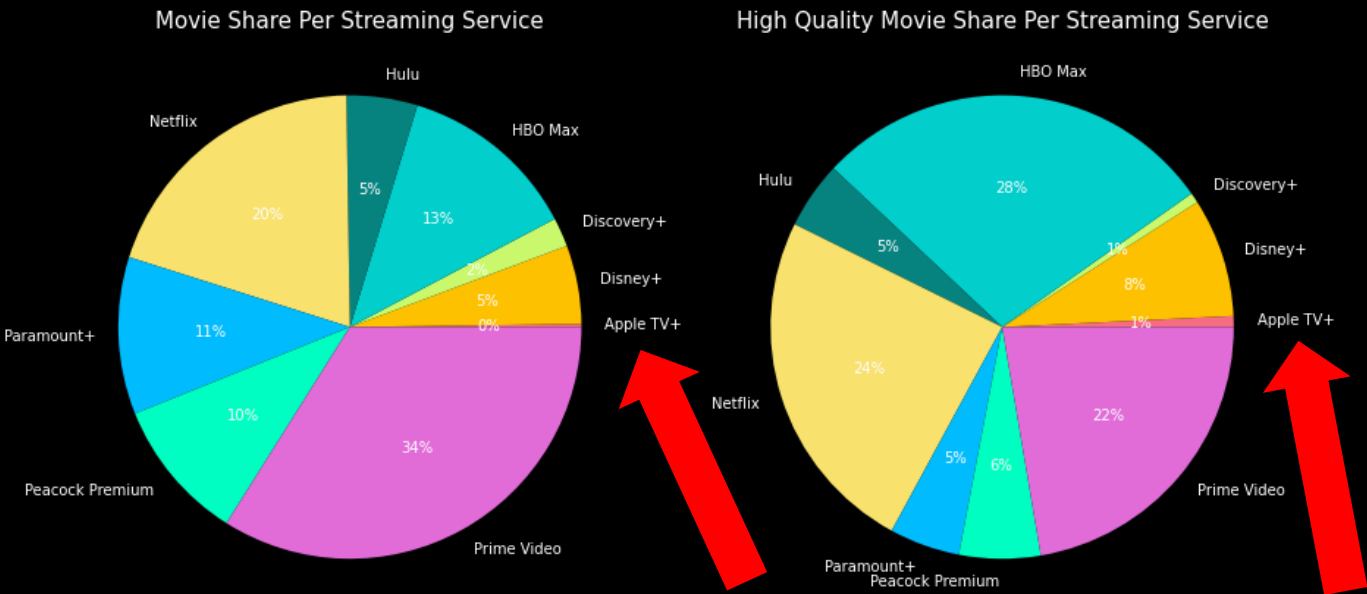
Various genres

14

“High quality” movies

Rated 7.5+ on IMDb with 300+ votes

Streaming Service Movie Share





“Consumers want access to a broad content mix, including original series, and a **SUBSTANTIAL LIBRARY OF MOVIES** and popular TV series.”

—MICHELLE WROAN, KPMG SURVEY



# Data

## Wikipedia Movie Plots (Kaggle)

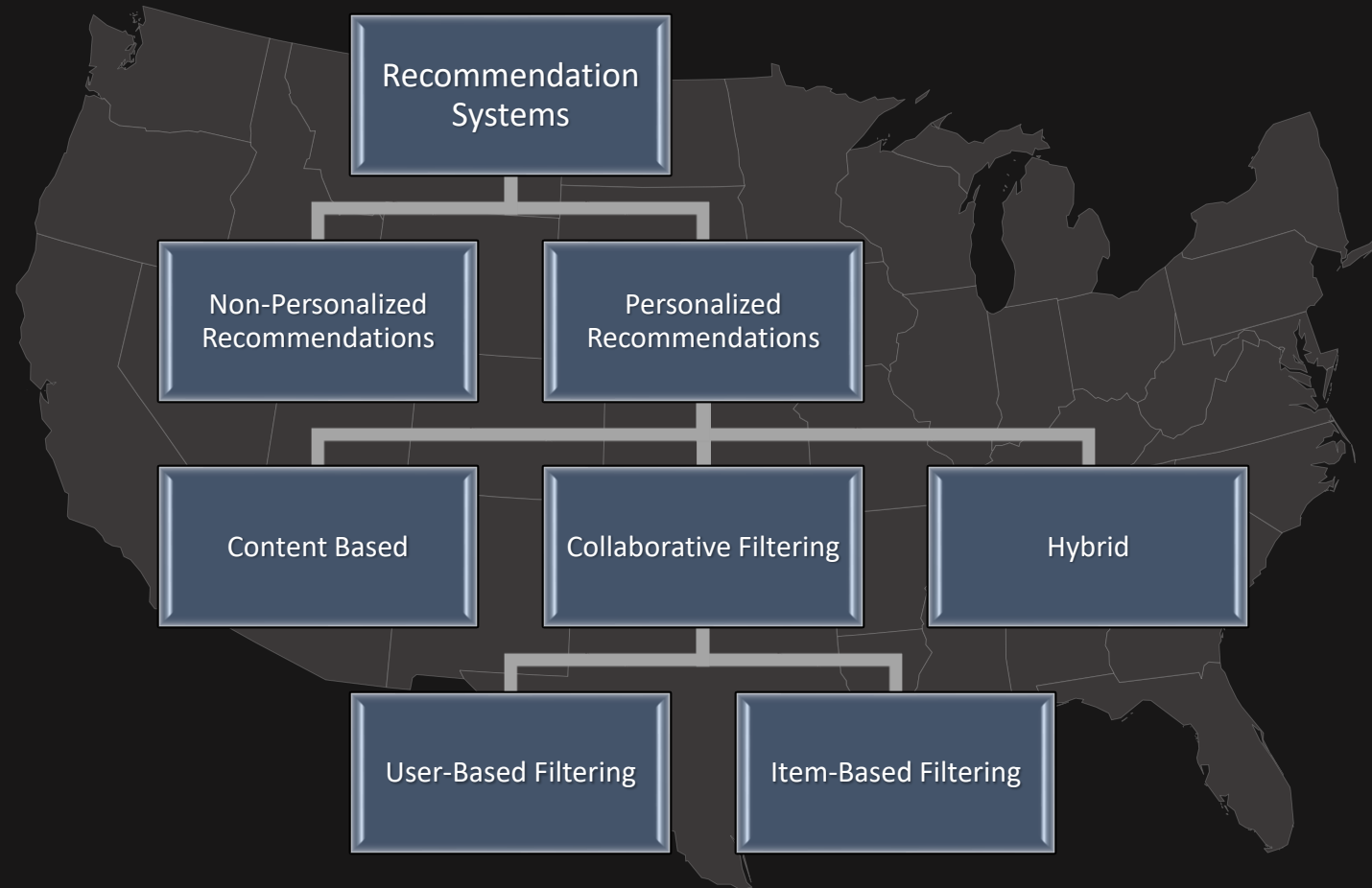
Plot descriptions for ~35,000 movies

## IMDb Dataset (Kaggle)

Ratings for ~1.2M movies

## MovieLens Dataset (Grouplens)

100,000 ratings applied to 9,000 movies by 600 users



# CONTENT BASED FILTERING

## PLOT BASED MODEL

### Titles Similar to 'Toy Story's' Plot

Toy Story 2

Destination Meatball

Toy Story 3

Puny Express

Nebraska

LUV

The Barber of Seville

Girl from Havana

Mr. B Natural

It's a Boy Girl Thing







### Titles Similar to 'Toy Story's' Meta-Data

Toy Story 2

The Polar Express

Raggedy Ann & Andy: A Musical Adventure

Pound Puppies and the Legend of Big Paw

DuckTales the Movie: Treasure of the Lost Lamp

Tom and Jerry: The Movie

Hercules

The Wild Life

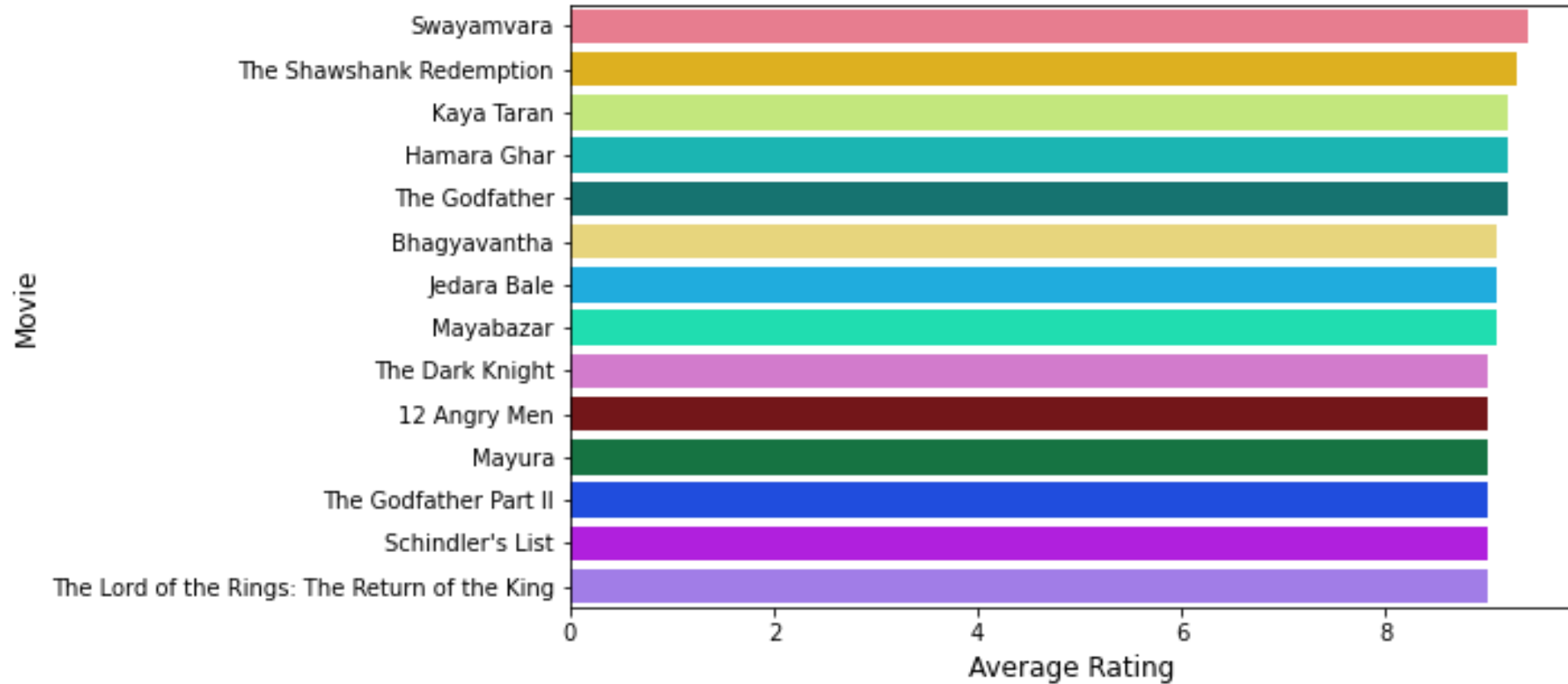
CONTENT BASED FILTERING  
**METADATA-BASED MODEL**



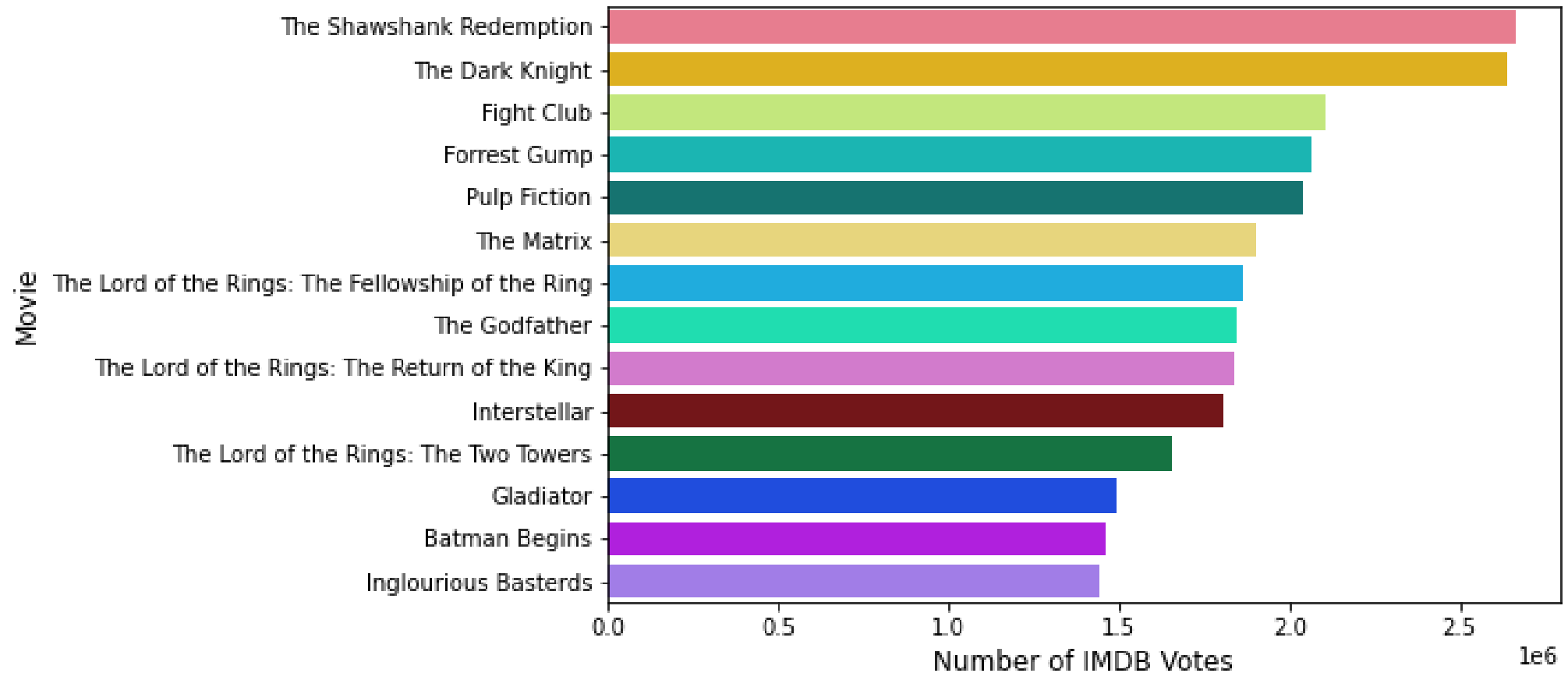


## RATINGS MODELS

Most Popular Movies By Average IMDB Rating



Movies With Most IMDB Votes



# CONTENT BASED FILTERING

## WEIGHTED RATINGS MODELS

0 Votes  
Required

Title	Average Rating	Number of Votes	Weighted Score
Swayamvara	9.4	16	9.4
The Shawshank Redemption	9.3	2,663,062	9.3
Kaya Taran	9.2	7	9.2
Hamara Ghar	9.2	6	9.2
The Godfather	9.2	1,845,515	9.2

237 Votes  
Required

Title	Average Rating	Number of Votes	Weighted Score
The Shawshank Redemption	9.3	2,663,062	9.3
The Godfather	9.2	1,845,515	9.2
Mayabazar	9.1	5,149	9.1
Schindler's List	9.0	1,348,587	9.0
Aha Naa Pellanta	9.0	3,056	9.0

28k+ Votes  
Required

Title	Average Rating	Number of Votes	Weighted Score
The Shawshank Redemption	9.3	2,663,062	9.3
The Godfather	9.2	1,845,515	9.2
Schindler's List	9.0	1,348,587	9.0
The Dark Knight	9.0	2,636,054	9.0
12 Angry Men	9.0	786,416	9.0



# COLLABORATIVE FILTERING

Type of Model	RMSE
Baseline Model (User Based)	1.141
Mean Model (User Based)	0.963
KNN Basic (Item Based)	0.893
KNN Baseline (Item Based)	0.830
KNN With Means (Item Based)	0.852
SVD (Item Based)	0.828
SVD With GridSearch (Item Based)	0.824



# Hybrid Model

**Content Filter:** Top performing movies with >50k votes

**Collaborative Filter:** K-Neighbors algorithm taking into account baseline rating

RMSE: 0.739

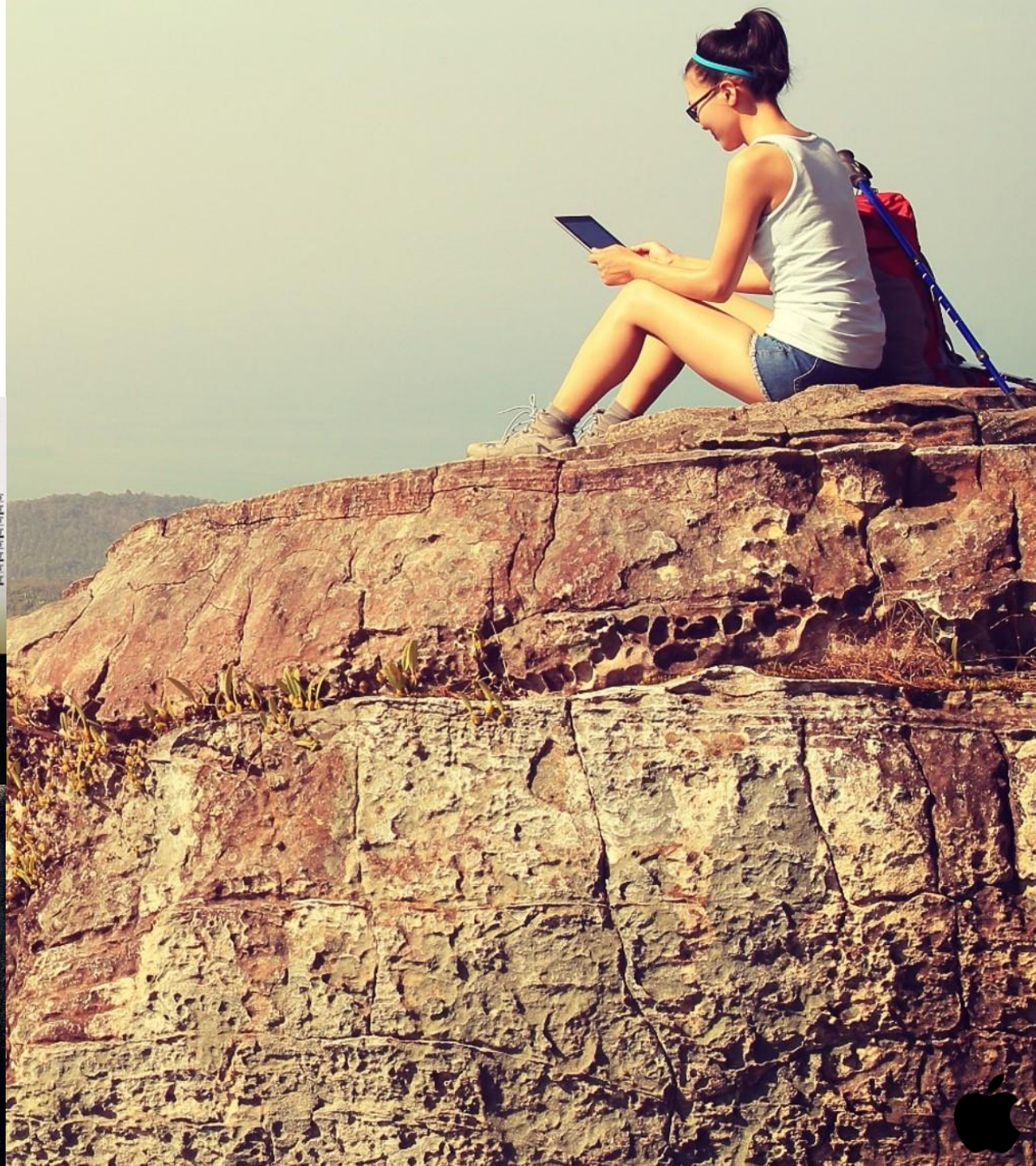




# Recommendation

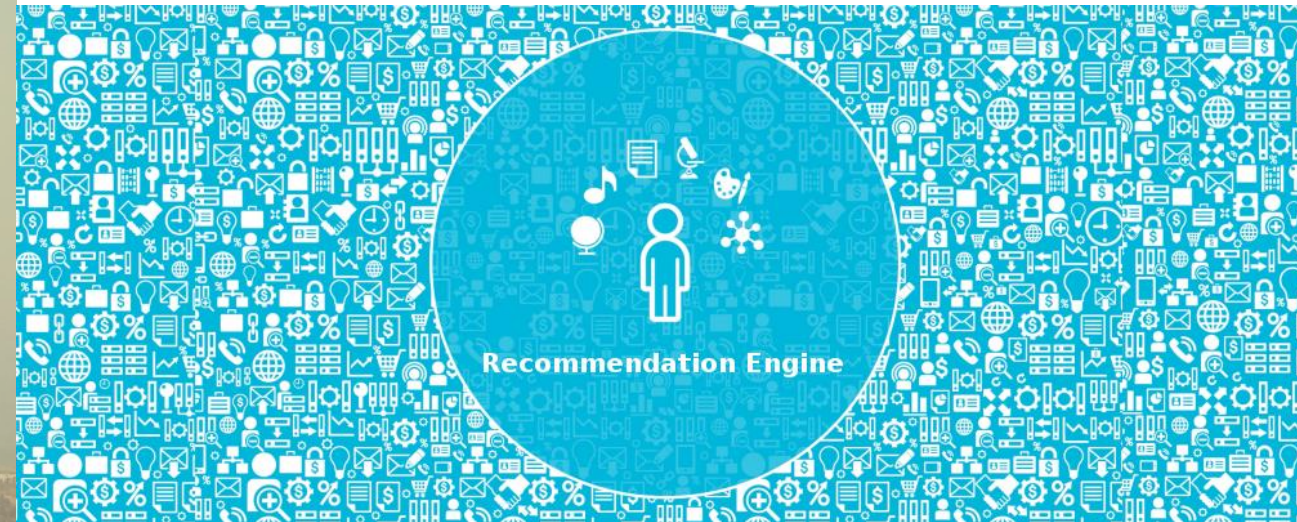
#1

Add Specific Movies To Apple TV+





# Utilize Movie Recommendation Engines



Recommendation  
#2



# NEXT STEPS

## Where do we go from here...?

### Continue to acquire movies

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If the number of subscribers grows, continue to add movies to the platform

### Use data to dial in movie preferences

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Recommend content that is tailored towards an individual user

### Compare demographics to competitors

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Look at Netflix, Amazon Prime, Disney+, Paramount+, Hulu, Peacock, etc....



# APPLE TV+ MOVIE RECOMMENDATIONS!

THANK YOU

