

Summary

Movie production is known to be risky. At the box office, only 30-40% of movies break even and one out of ten movies on average become profitable. Our interactive tool enables directors to efficiently select an ideal set of actors for a movie and estimates the movie success based on the cast selection.

It utilizes movie and cast characteristics to sequentially suggest the most suitable actors.

Why Casting Analytics?

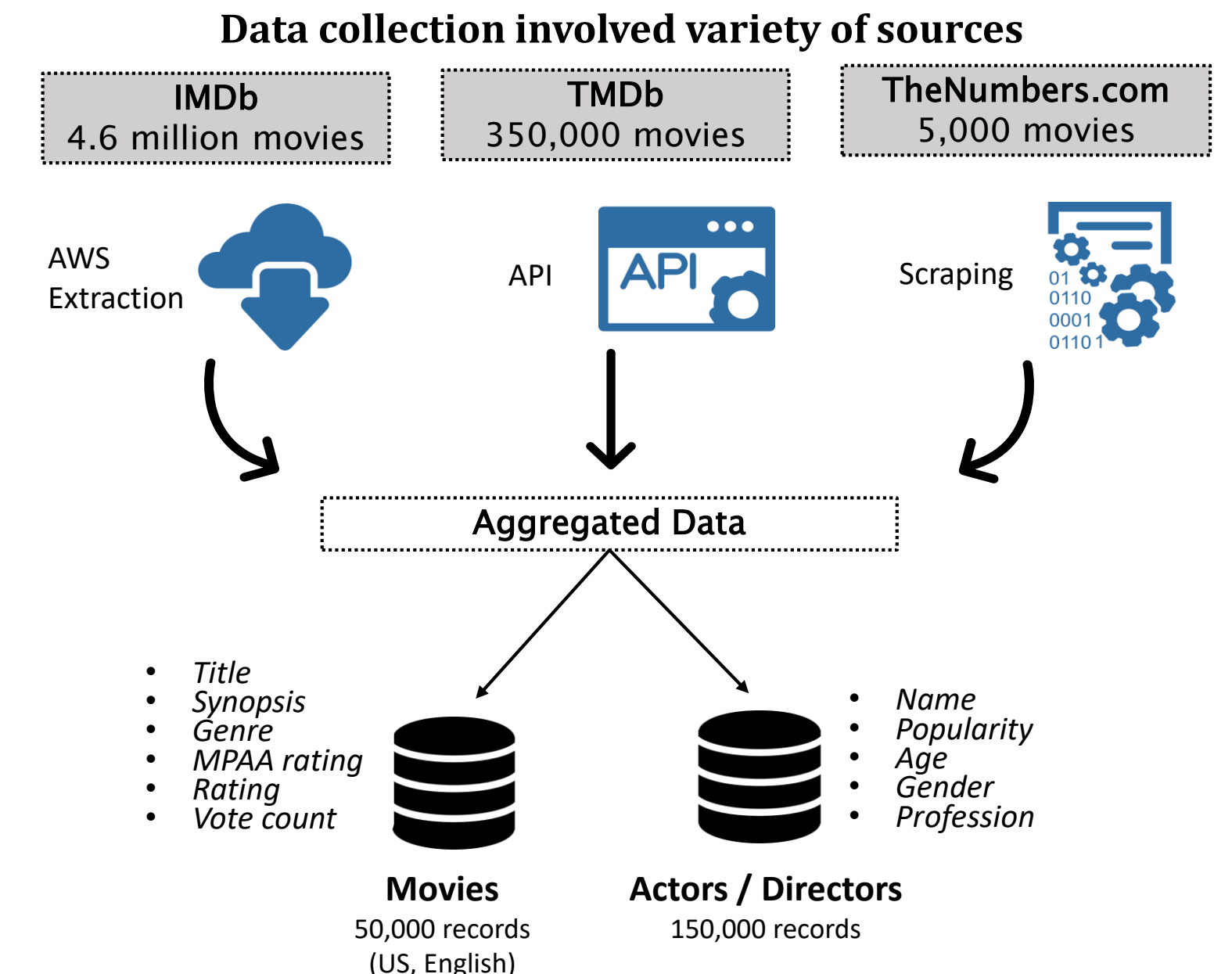
Decision Making at Pre-Production Stage

Existing tools predict movie success at the pre-release stage, when the cast has already been decided. Our tool enables end users to identify potentially successful cast combinations at the pre-production stage while there is still opportunity for change.

Expedited and Efficient Casting Process

Casting directors are required to know the capabilities of a vast landscape of actors, known and unknown. Our tool simplifies this challenging task by supplementing casting directors' knowledge for preliminary cast screening.

Data Description



User Interface

Enter Movie Characteristics

Director:

Genre:

Number of Actors:

Synopsis:

Actor 1

Age:
Gender:
Pop:

Tom Cruise

Johnny Depp

Vin Diesel

Djimon Hounsou

Actor 2

Age:
Gender:
Pop:

Keira Knightley

Abbie Cornish

Sofia Boutella

Emily Rossum

The adjacent snapshot shows GUI use for predicting cast for recently released movie. Can you guess which one?

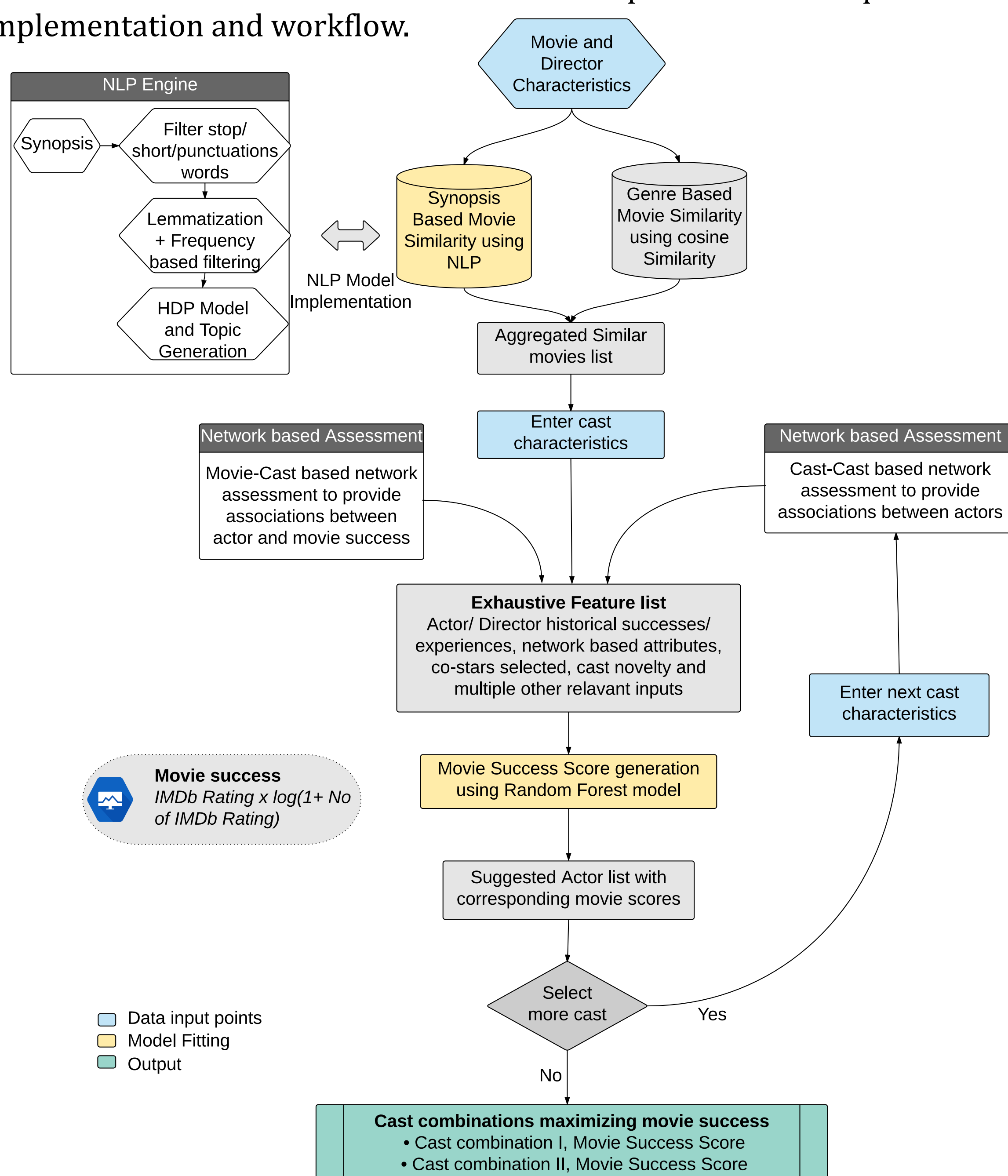
1. Movie Characteristics: Users begin by entering a director's name, movie genres, a short synopsis and the number actors they want to cast and click the initialize button.

2. Actor 1 Suggestions: Once the model is initialized, users can select actor attributes. Additional flexibility has been provided to obtain actors with different levels of star value and manage the movie budget expectations. Actors are suggested and ranked by their ability to make the movie successful.

3. Subsequent Actor Suggestions: Actor-actor interactions are accounted for subsequent actor suggestions. The tooltip provides additional information, such as predicted movie success score and movies the actor is best known for.

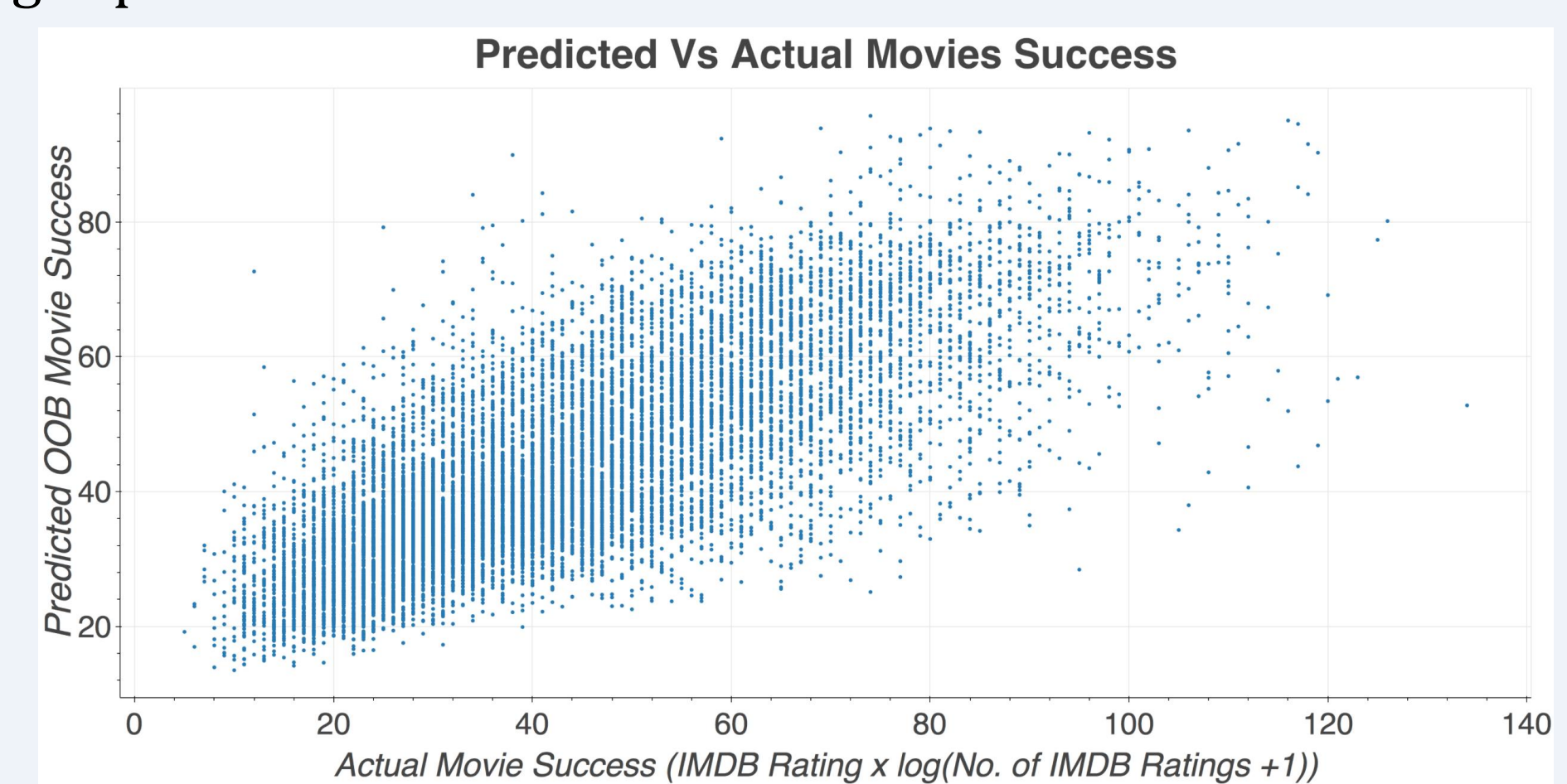
Algorithm

Movie attributes known in pre-production phase are used to find successful similar movies. Actors from these movies are filtered based on user-set conditions. An exhaustive feature list is fed into a Random Forest model that predicts the movie success for all potential actor combinations. The actors with the highest scores are recommended to the user. The workflow repeats for subsequent actor selections while considering co-actor interactions. The flowchart explains specifics of the implementation and workflow.



Experiments and Results

Random forest out-of-bag evaluation was used to predict success measure for released movies and the actual in-movie cast. High correlation (R-square = 60%) between true and predicted success measures was observed, confirming the forecasting capabilities of the model.



Feature ranking identified the director's impact as the most significant predictor. Cast based features were ranked next, confirming the impact of cast selection on movie success measure. These observations match previous research findings.

