

Solving Everyday Problems: What do I watch next?

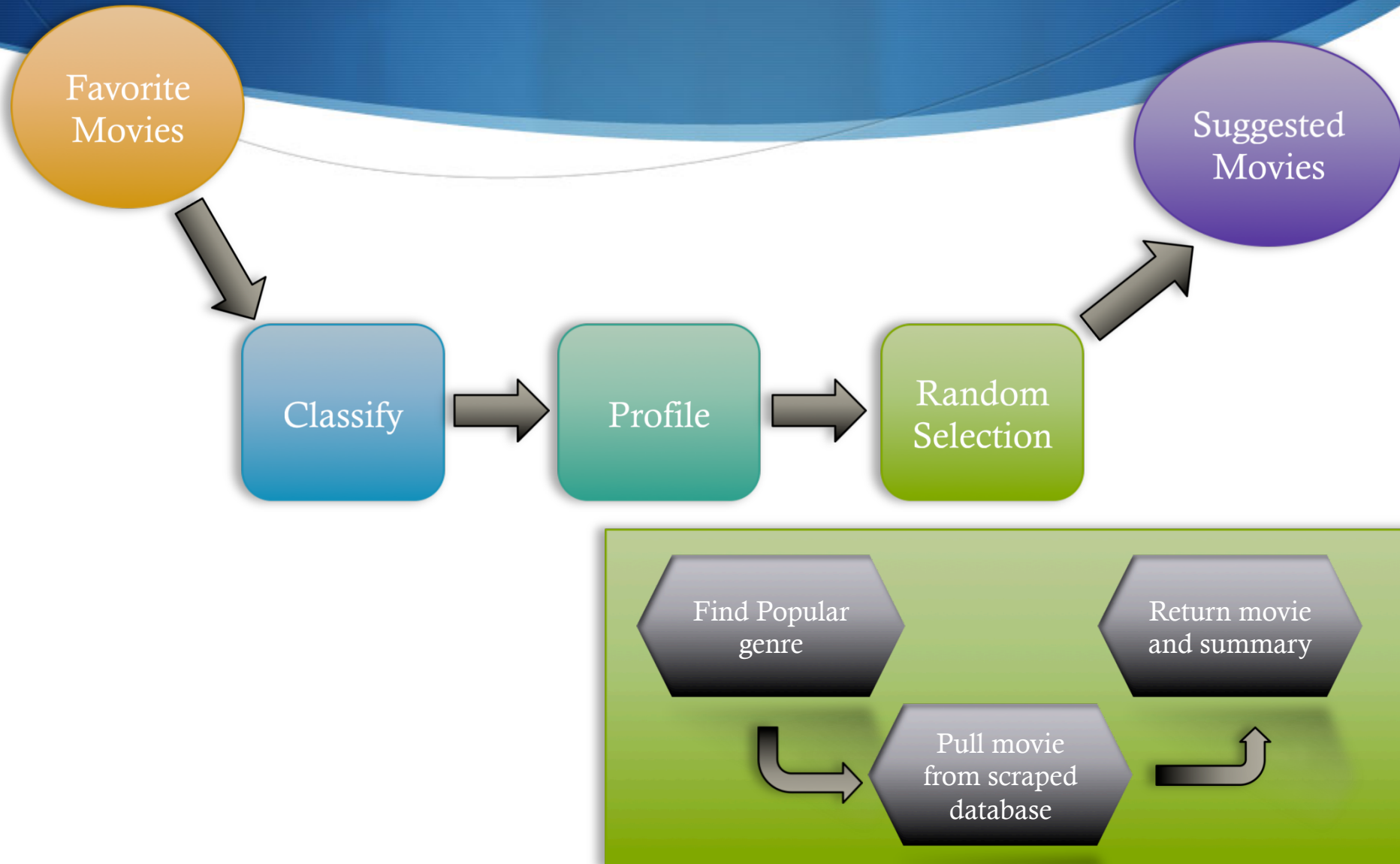
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Final Capstone Presentation



Introduction

- ◆ The film industry is forecasted to increase from 38 billion in 2016 to 50 billion in 2020
- ◆ More than half of Americans adults prefer to watch movies at home than any other medium
- ◆ The population of digital video viewers is expected to grow from 119 million in 2016 to 124.7 million in 2022
- ◆ Between 400-600 movies are made each year
 - ◆ How do we decide what to watch?

Breakdown of Program



Gathering Data

The Best Western Movies Ever Made



Originally by Ranker Community

271.9k votes • 14.5k voters • 302.5k views • 405 items

The best Western movies ever made include some true classics from the early days of cinema, and more modern day films that captured our imagination and took us to the days of the wild, *wild West*. From Sergio Leone's classics like *The Good, The Bad and the Ugly* to the 2010 Joel and Ethan Coen remake of *True Grit*, the Western movies listed here are considered some of the greatest of all time. Be sure to vote for your favorite Westerns and vote down any you don't like.

What makes a great Western? Aside from casting Clint Eastwood (he's in so many of these) or John Wayne, an outstanding Western offers movie goers fantastic characters, lots of *drama* and tension and certainly a nasty, memorable villain or two. Setting is obviously important in top western movies as well. Throw in a High Noon style standoff and you simply can't miss. Those are the most important elements in the best western and cowboy movies.

What are your favorite *western films*? Vote for the greatest western movie ever made and be sure to add any of your favorite Western movies that might be missing! Giddyup, and enjoy!

1



4,366 1,512



The Good, The Bad and The Ugly

Clint Eastwood, Viggo Mortensen, Mark Strong

The Good, the Bad and the Ugly is a 1966 Italian epic Spaghetti Western film directed by Sergio Leone, starring Clint Eastwood, Lee Van Cleef, and Eli Wallach in the title roles respectively. ...more

2



3,728 1,316



The Outlaw Josey Wales

Clint Eastwood, Sondra Locke, John Vernon

The Outlaw Josey Wales is a 1976 American revisionist Western film set during and after the American Civil War. It was directed by and starred Clint Eastwood, with Chief Dan George, Sondra ...more

3



3,935 1,223



Unforgiven

Clint Eastwood, Morgan Freeman, Gene Hackman

Unforgiven is a 1992 American Western film produced and directed by Clint Eastwood with a screenplay written by David Webb Peoples. The film portrays William Munny, an aging outlaw and killer ...more



Created own dataset for program



Popular movies titles were voted on by users and scraped from Ranker.com (left)



Movie data was scraped from OMDb (IMDb API) (below)

▼<root response="True">

```
<movie title="Batman" year="1989" rated="PG-13" released="23 Jun 1989" runtime="126 min" genre="Action, Adventure" director="Tim Burton" writer="Bob Kane (Batman characters), Sam Hamm (story), Sam Hamm (screenplay), Warren Skaaren (screenplay)" actors="Michael Keaton, Jack Nicholson, Kim Basinger, Robert Wuhl" plot="The Dark Knight of Gotham City begins his war on crime with his first major enemy being the clownishly homicidal Joker." language="English, French, Spanish" country="USA, UK" awards="Won 1 Oscar. Another 8 wins & 26 nominations." poster="https://m.media-amazon.com/images/M/MV5BMTYwNjAyODIyMF5BM15BanBnXkFtZTYwNDMwMDk2.V1_SX300.jpg" metascore="69" imdbRating="7.6" imdbVotes="302,842" imdbID="tt0096895" type="movie"/>
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Exploratory Analysis

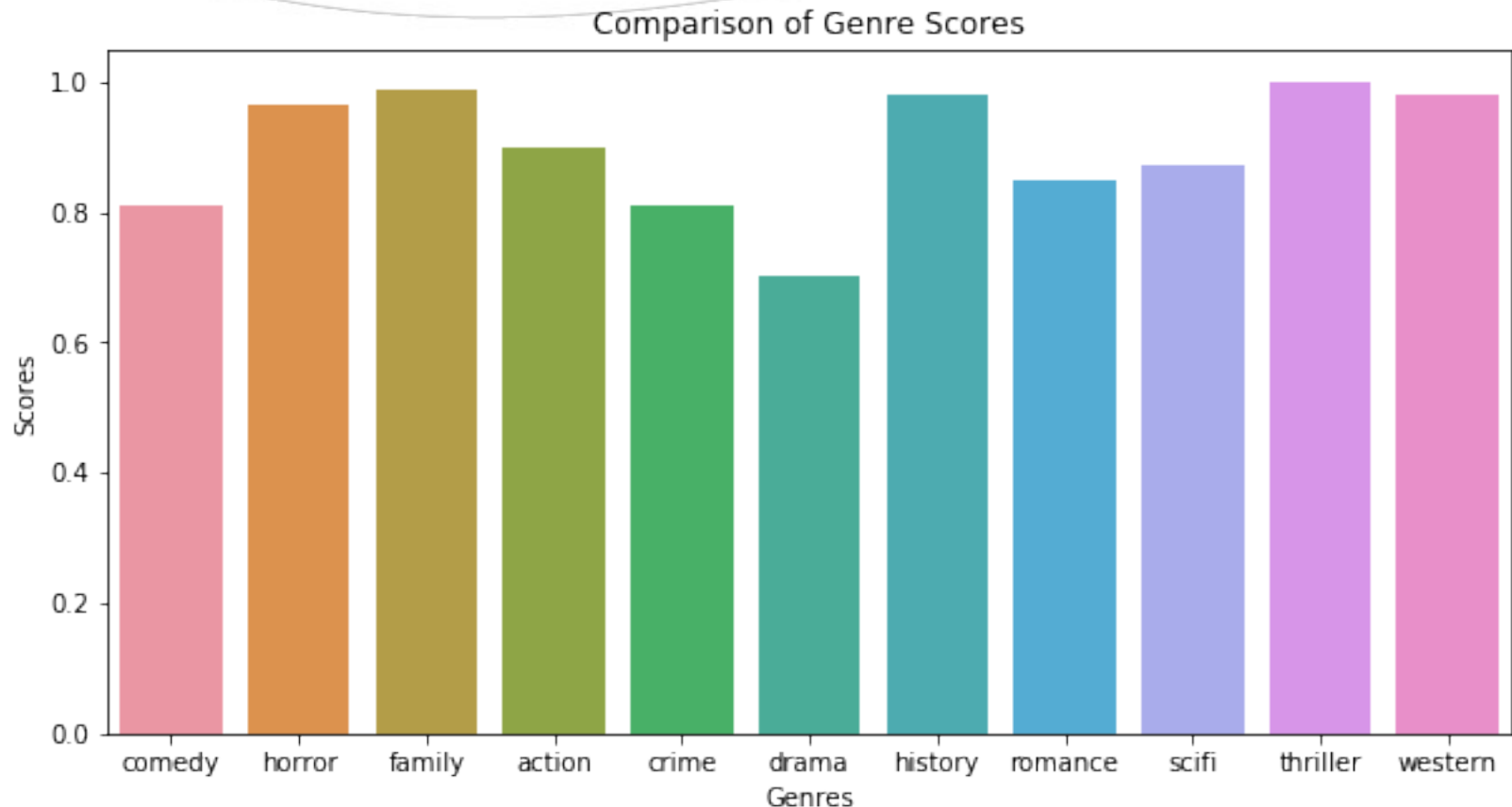
- Using pagerank, the five most relevant digrams for each genre were found

action	comedy	crime	drama	family	history	horror	romance	scifi	thriller	western
year old	best friend	police force	year old	year old	year old	serial killer	high school	life form	tennis player	white man
drug dealers	high school	best friend	nursing home	young boy	old actor	year old	love life	human race	evil organization	cattle thieves
drug dealer	birthday party	family business	members 2nd	night watchman	relationship career	urban legend	year old	year old	Bond mission	young gun
aliens survivors	Their quest	maximum security	state police	true love	humorous meaningful	gas station	best friend	alien spacecraft	secret service	bounty hunters
rescue mission	love life	crime boss	non whites	epic journey	meaningful sequence	young boy	true love	sci fi	time machine	story town

Classifiers and Performance

- ◆ Eleven Genres Classifiers: **Comedy, Action, Crime, Drama, Family, History, Horror, Romance, Science Fiction, Thriller, Western**
- ◆ Popular movie titles per genre from Ranker and movie information from IMDb
- ◆ All classifiers determined whether the input data of plot, ranking, and year fit into that genre classification with a binary output
- ◆ All classifiers performed with an accuracy above 70% when tested on genres they were not trained on

Comparison of Classifier Accuracies



Program Functions

💧 Classification

- 💧 Creating testing data for each genre
- 💧 Fitting & Testing the classifiers

💧 Returning Output

- 💧 Getting topic sentence from output movie

💧 Program

- 💧 Create testing data with input in correct format
- 💧 Scraper to get input movie data from IMDb
- 💧 Getting profile for input movies

Examples

- ◆ Input: Lego Movie, Batman, Titanic
 - ◆ Outcome: None (2015)
- ◆ Input: Shawshank Redemption, The Hurt Locker, Jaws
 - ◆ Outcome: Rain Main (1988)
- ◆ When Harry met Sally, 10 Things I Hate About You, Crazy Rich Asians
 - ◆ Outcome: Shawshank Redemption (1994)

Proposed Integration

- ◆ This program is proposed to be used as a movie prediction app as part of a movie database like IMDb
- ◆ Similar to Urbanspoon used to be for restaurants
- ◆ Movie recommendation program to help people decide what movies to watch
 - ◆ They can create profiles of movies they like
 - ◆ Help increase registration on IMDb

Next Steps

- ◆ Program is currently limited to recommended only from the title list scraped from
 - ◆ Integrate with a movie database so no scraping is required
- ◆ If user does not want to watch movie should be able to have a “next suggestion” option so that the predictor can give more than one option
- ◆ More robust predictions, pairing up genres to try to better match the movie suggestion to what the user likes
 - ◆ Example: Romantic Comedy

References

- ◆ <https://www.statista.com/statistics/459423/digital-video-users-digital-market-outlook-usa/>
- ◆ <https://www.statista.com/topics/964/film/>
- ◆ <https://www.statista.com/statistics/264399/preferred-place-of-movie-consumption-in-the-us/>
- ◆ <https://www.independent.co.uk/arts-entertainment/films/news/too-many-films-are-released-each-year-says-british-film-institute-9626850.html>