

HAND Movies

Koko Imafuku, Park Kyunam, Seo Gaeun

Table of Contents

INTRODUCTION

P. 3 ~ 8

**DB MODELING AND
DESIGN**

P. 9 ~ 27

GUI DEMO

P. 28 ~ 36

LESSONS LEARNED

P. 37 ~ 39

1. Introduction

Introduction

Users?

Anyone trying to find a good movie to watch on Hulu, Amazon Prime, Netflix, and Disney+

People with limited Internet use

Main Goals?

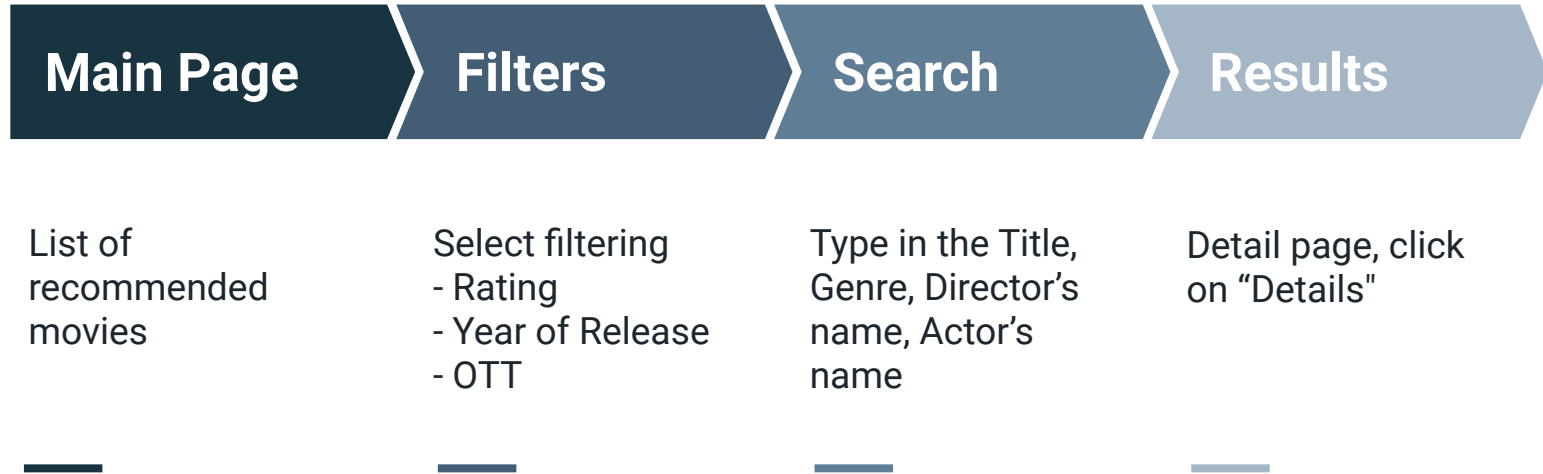
Provide a convenient application that allows users to search films on the 4 OTT platforms with multiple filters

The Hulu logo, consisting of the word "hulu" in a bold, green, lowercase sans-serif font.The Amazon Prime Video logo, featuring the word "prime" in blue and "video" in black, with a blue curved arrow underneath.The Netflix logo, consisting of the word "NETFLIX" in a bold, red, uppercase sans-serif font.The Disney+ logo, featuring the word "Disney" in its signature script font and a blue plus sign, with a blue arc above the text.

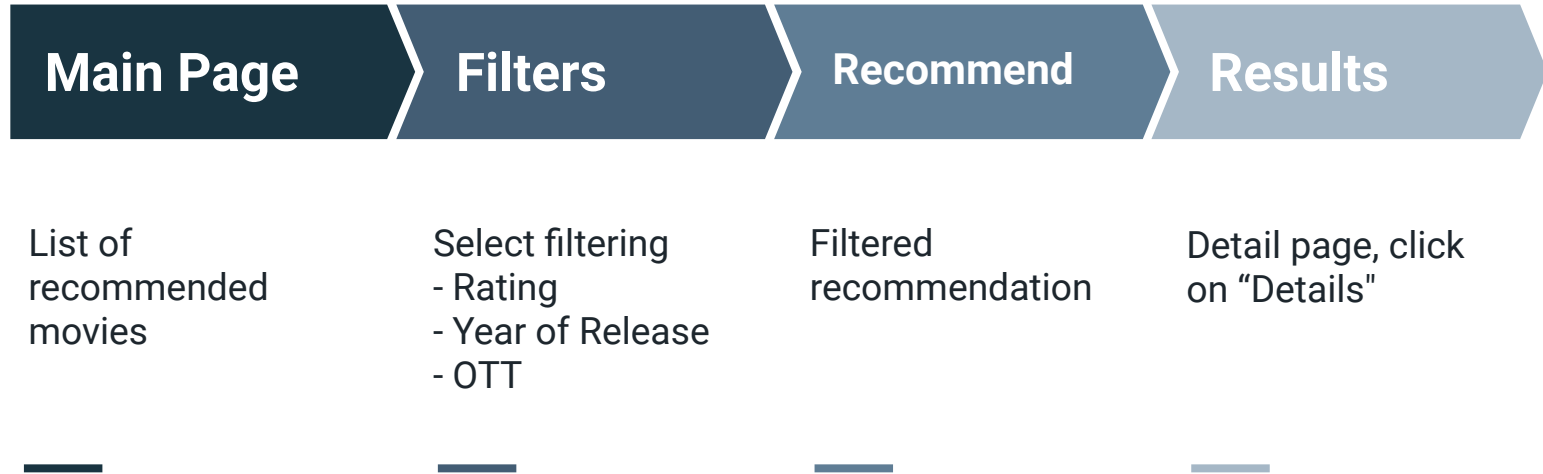
Main functions

- Filter function: Select filters like **rating**, **year of release**, or **OTT platform** of the movie
- Keyword function: Type in the **title of the movie**, **director's name**, **actor's name**, or the **genre of the movie**
- Delete function: Click the delete button on the details page to delete a film on the database

Overall flow of usage of application: Search



Overall flow of usage of application: recommendation



Languages, packages, and frameworks

- Python 3
- Tkinter Library for GUI
- Pandas for data cleaning




2. DB Modeling and Design

Raw Dataset

- Collected data from **Kaggle**.
- File format : csv

Data	row	column
Netflix	8807	12
Disney+	1450	12
Amazon Prime	9668	12
Hulu	3073	12

 SHIVAM BANSAL · UPDATED 2 YEARS AGO

▲ 8005

Download (1 MB)

🔔 ⋮





Netflix Movies and TV Shows

Listings of movies and tv shows on Netflix - Regularly Updated

[Data Card](#) [Code \(1463\)](#) [Discussion \(75\)](#)

About Dataset

Other Platform's Datasets (Click on the logos to view)

- [Amazon Prime Video Movies and TV Shows](#)
- [Disney+ Movies and TV Shows](#)
- [Netflix Prime Video Movies and TV Shows](#)
- [Hulu Movies and TV Shows](#)

Netflix Movies and TV Shows

About this Dataset: *Netflix is one of the most popular*

Usability ⓘ
10.00

License
CC0: Public Domain

Expected update frequency
Quarterly

Tags

Arts and Entertainment

Movies and TV Shows

Data Visualization

Exploratory Data Analysis

Websites

Raw Dataset

show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...

Raw Dataset

Column name	example
show_id	s1
type	Movie
title	Dick Johnson is Dead
director	Kirsten Johnson
date_added	September 25, 2021
release_year	2020
rating	PG-13

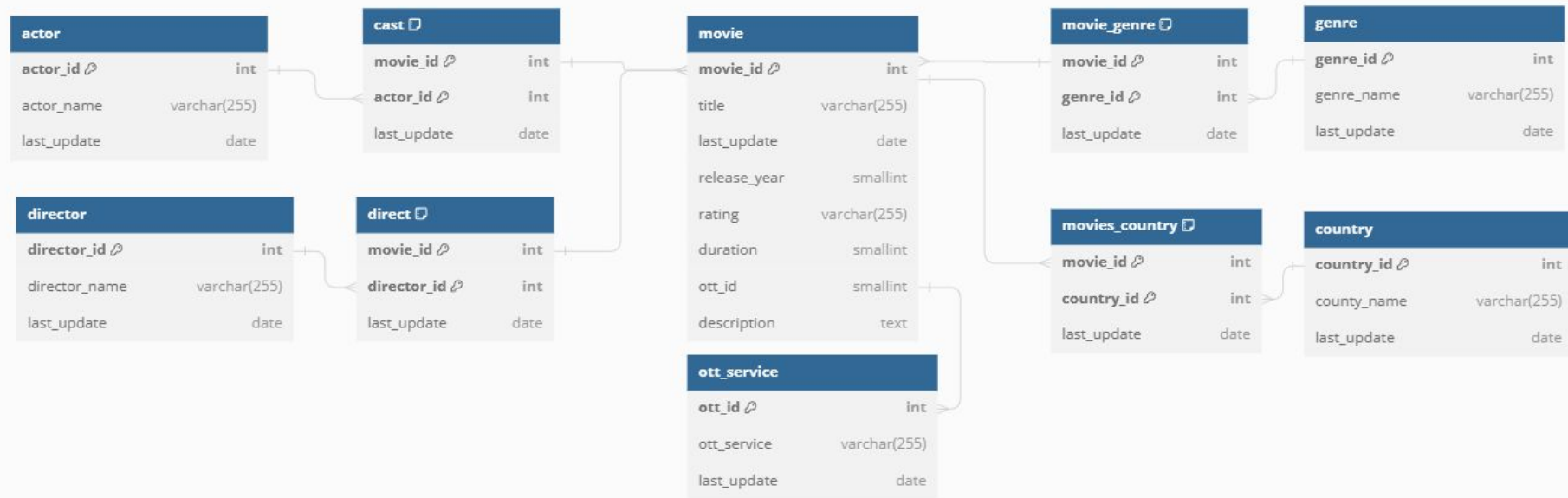
Raw Dataset

Column name	example
cast	Sami Bouajila, Tracy Gotoas, ...
country	United States, Ghana, United Kingdom, ...
listed_in	Dramas, Independent Movies, ...
duration	125 min
description	On a photo shoot in Ghana, an American,,,

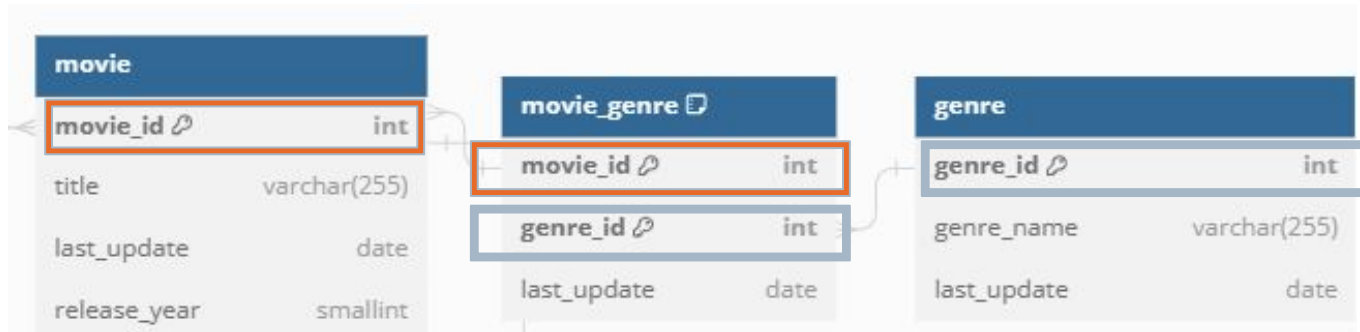
Data Preprocessing

- **Concat** 4 datasets (netflix, disney, amazon, hulu)
- Extract each string data from **list** data
- Fill missing data_added data '1970-01-01'
- Fill missing release_year data '0000'
- Fill missing duration data '000'
- Fill missing other values to 'no info'
- Change date format to use it in Mysql datetime format
 - [ex] September 25, 2021 -> 20210925
- Extract **int** data from string data
 - [ex] 90 min -> 90
- Unify **rating** information to [R, PG-13, PG, G, NC-17]
 - TV-MA, 16+ => R

ER diagram



DB Design



movie_id int	genre_id int	last_update date
1	25	2021-09-25
2	15	2021-09-24
3	26	2021-09-24
3	36	2021-09-24
3	37	2021-09-24
4	17	2021-09-24

genre_id int	genre_name varchar(255)	last_update date
1	& culture	2021-11-26
2	action	2021-11-26
3	action & adventure	2021-11-26
4	adult animation	2021-11-26
5	adventure	2021-11-26
6	animals & nature	2021-11-26

Table Shape

- **movies**: 8 columns * 16480 rows
- **ott_service**: 3 columns * 4 rows
- **cast**: 3 columns * 89652 rows
- **actor**: 3 columns * 48545 rows
- **direct**: 3 columns * 17997 rows
- **director**: 3 columns * 10672 rows
- **genre**: 3 columns * 73 rows
- **movies_genre**: 3 columns * 34071 rows
- **country**: 3 columns * 124 rows
- **movies_country**: 3 columns * 18825 rows

movies Table

- **Shape:** 8 columns * 16480 rows
- **Columns:** movie_id, title, last_update, release_year, rating, duration, ott_id, description
- **movie_id:** primary key, distinct number to be distinguished (1 ~ 16481)
- **title:** title of movies
- **last_update:** last update date of movies data (1970.01.01, 2008.01.01 ~ 2021.11.26)
- **release year:** release year of movie (0, 1920 ~ 2021)
- **rating:** Motion Picture Association film rating system [no info, R, PG-13, PG, G, NC-17]
- **duration:** running time of the movie (0, 1 ~ 601)
- **ott_id:** id of ott_service (1 ~ 4, 1: Amazon Prime, 2: Disney, 3: Hulu, 4: Netflix)
- **description:** detailed description of movie

ott_service Table

- **Shape:** 3 columns * 4 rows
- **Columns:** ott_id, ott_service, last_update
- **ott_id:** primary key, distinct number to be distinguished (1 ~ 4)
- **ott_service:** name of ott service
- **last_update:** last update date of ott_service data

actor/cast Table

- **Shape:** 3 columns * 48545 rows
 - **Columns:** actor_id, actor_name, last_update
 - **actor_id:** primary key, distinct number to be distinguished (1 ~ 48545)
 - **actor_name:** name of actor
 - **last_update:** last update date of actor data
-
- **Shape:** 3 columns * 89652 rows
 - **Columns:** movie_id, actor_id, last_update
 - **movie_id:** primary key, foreign key refers to movies.movie_id
 - **actor_id:** primary key, foreign key refers to actor.actor_id
 - **last_update:** last update date of cast data

director/direct Table

- **Shape:** 3 columns * 10672 rows
 - **Columns:** director_id, director_name, last_update
 - **director_id:** primary key, distinct number to be distinguished (1 ~ 10672)
 - **director_name:** name of director
 - **last_update:** last update date of director data
-
- **Shape:** 3 columns * 17997 rows
 - **Columns:** movie_id, director_id, last_update
 - **movie_id:** primary key, foreign key refers to movies.movie_id
 - **director_id:** primary key, foreign key refers to director.director_id
 - **last_update:** last update date of direct data

genre/movies_genre Table

- **Shape:** 3 columns * 73 rows
 - **Columns:** genre_id, genre_name, last_update
 - **genre_id:** primary key, distinct number to be distinguished (1 ~ 73)
 - **genre_name:** name of genre
 - **last_update:** last update date of genre data
-
- **Shape:** 3 columns * 34071 rows
 - **Columns:** movie_id, genre_id, last_update
 - **movie_id:** primary key, foreign key refers to movies.movie_id
 - **genre_id:** primary key, foreign key refers to genre.genre_id
 - **last_update:** last update date of movies_genre data

country/movies_country Table

- **Shape:** 3 columns * 124 rows
 - **Columns:** country_id, country_name, last_update
 - **country_id:** primary key, distinct number to be distinguished (1 ~ 124)
 - **country_name:** name of country
 - **last_update:** last update date of country data
-
- **Shape:** 3 columns * 18825 rows
 - **Columns:** movie_id, country_id, last_update
 - **movie_id:** primary key, foreign key refers to movies.movie_id
 - **country_id:** primary key, foreign key refers to country.country_id
 - **last_update:** last update date of movies_country data

Main SQL Queries: search

```
SELECT DISTINCT m.movie_id, m.title,  
GROUP_CONCAT(DISTINCT director.director_name SEPARATOR ', ') AS directors,  
GROUP_CONCAT(DISTINCT actor.actor_name SEPARATOR ', ') AS actors,  
GROUP_CONCAT(DISTINCT genre.genre_name SEPARATOR ', ') AS genres,  
m.release_year, m.rating, m.duration, ott_service  
FROM movies m  
LEFT JOIN direct ON m.movie_id = direct.movie_id  
LEFT JOIN director ON direct.director_id = director.director_id  
LEFT JOIN cast ON m.movie_id = cast.movie_id  
LEFT JOIN actor ON cast.actor_id = actor.actor_id  
LEFT JOIN movies_genre ON m.movie_id = movies_genre.movie_id  
LEFT JOIN genre ON movies_genre.genre_id = genre.genre_id  
LEFT JOIN ott_service ON m.ott_id = ott_service.ott_id  
WHERE {condition}  
GROUP BY m.movie_id  
LIMIT {limit}"
```


Main SQL Queries: recommendation

```
SELECT DISTINCT m.movie_id, m.title,  
GROUP_CONCAT(DISTINCT director.director_name SEPARATOR ', ') AS directors,  
GROUP_CONCAT(DISTINCT actor.actor_name SEPARATOR ', ') AS actors,  
GROUP_CONCAT(DISTINCT genre.genre_name SEPARATOR ', ') AS genres,  
m.release_year, m.rating, m.duration, ott_service  
FROM movies m  
LEFT JOIN direct ON m.movie_id = direct.movie_id  
LEFT JOIN director ON direct.director_id = director.director_id  
LEFT JOIN cast ON m.movie_id = cast.movie_id  
LEFT JOIN actor ON cast.actor_id = actor.actor_id  
LEFT JOIN movies_genre ON m.movie_id = movies_genre.movie_id  
LEFT JOIN genre ON movies_genre.genre_id = genre.genre_id  
LEFT JOIN ott_service ON m.ott_id = ott_service.ott_id  
WHERE {where_clause}  
GROUP BY m.movie_id # for GROUP_CONCAT  
ORDER BY RAND()  
LIMIT {limit}
```

Main SQL Queries: detail

```
SELECT DISTINCT m.movie_id, m.title,  
GROUP_CONCAT(DISTINCT director.director_name SEPARATOR ', ') AS directors,  
GROUP_CONCAT(DISTINCT actor.actor_name SEPARATOR ', ') AS actors,  
GROUP_CONCAT(DISTINCT genre.genre_name SEPARATOR ', ') AS genres,  
m.release_year, m.rating, m.duration, ott_service, m.last_update, m.description  
FROM movies m  
LEFT JOIN direct ON m.movie_id = direct.movie_id  
LEFT JOIN director ON direct.director_id = director.director_id  
LEFT JOIN cast ON m.movie_id = cast.movie_id  
LEFT JOIN actor ON cast.actor_id = actor.actor_id  
LEFT JOIN movies_genre ON m.movie_id = movies_genre.movie_id  
LEFT JOIN genre ON movies_genre.genre_id = genre.genre_id  
LEFT JOIN ott_service ON m.ott_id = ott_service.ott_id"  
WHERE m.movie_id = {movie_id}  
GROUP BY m.movie_id'
```

Main SQL Queries: delete

```
DELETE FROM {'movies', 'direct', 'cast', 'movies_genre', 'movies_country'} WHERE movie_id = {movie_id}
```

3. GUI Demo

GUI

Recommendation

When you turn on the program, there will be recommendation.

You can get another recommendation by pressing Clear button.

HAND-MOVIE

Category Search Clear

Recommendation Results

Rating

G

PG

PG-13

R

NC-17

Release Year

1900s

2000s

2010s

2020s

OTT

Amazon Prime

Disney+

Hulu

Netflix

Title: Stella Dallas (1937)
Directors: king vidor
Actors: anne shirley, barbara stanwyck, john boles
Genres: drama, romance
Release Year: 1937
Rating: PG
Duration: 106 min
OTT Service: amazon_prime
Detail

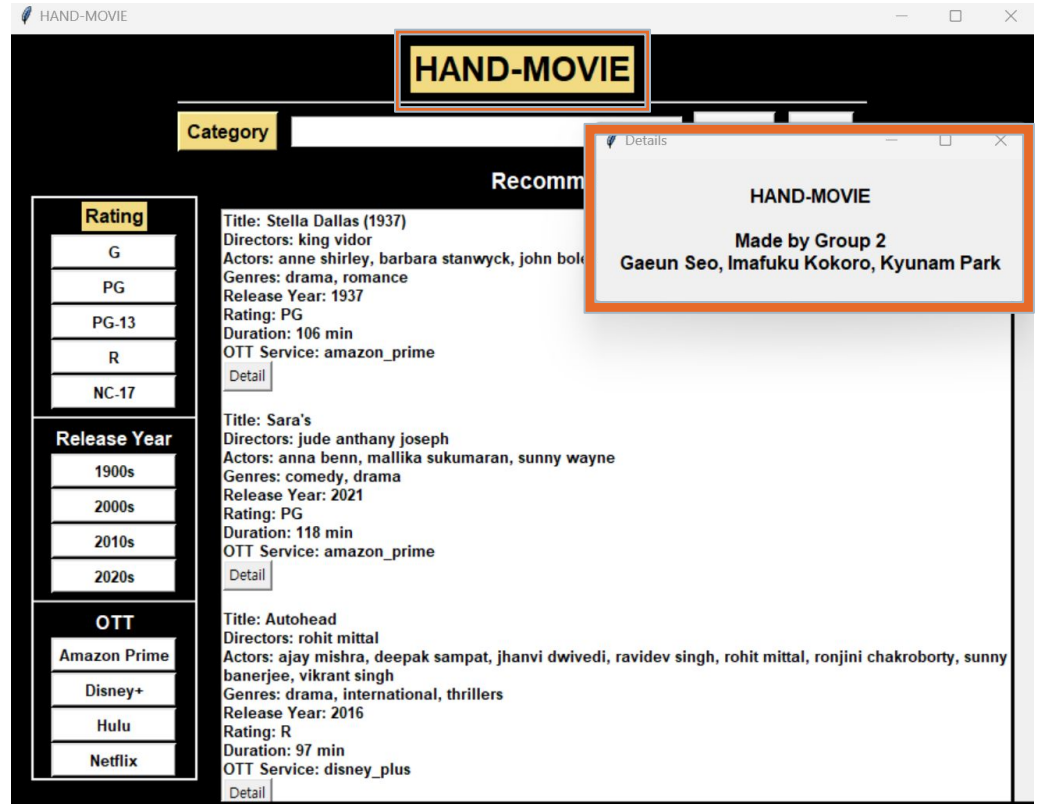
Title: Sara's
Directors: jude anthany joseph
Actors: anna benn, mallika sukumaran, sunny wayne
Genres: comedy, drama
Release Year: 2021
Rating: PG
Duration: 118 min
OTT Service: amazon_prime
Detail

Title: Autohead
Directors: rohit mittal
Actors: ajay mishra, deepak sampat, jhanvi dwivedi, ravidev singh, rohit mittal, ronjini chakroborty, sunny banerjee, vikrant singh
Genres: drama, international, thrillers
Release Year: 2016
Rating: R
Duration: 97 min
OTT Service: disney_plus
Detail

GUI

Click title HAND-MOVIE

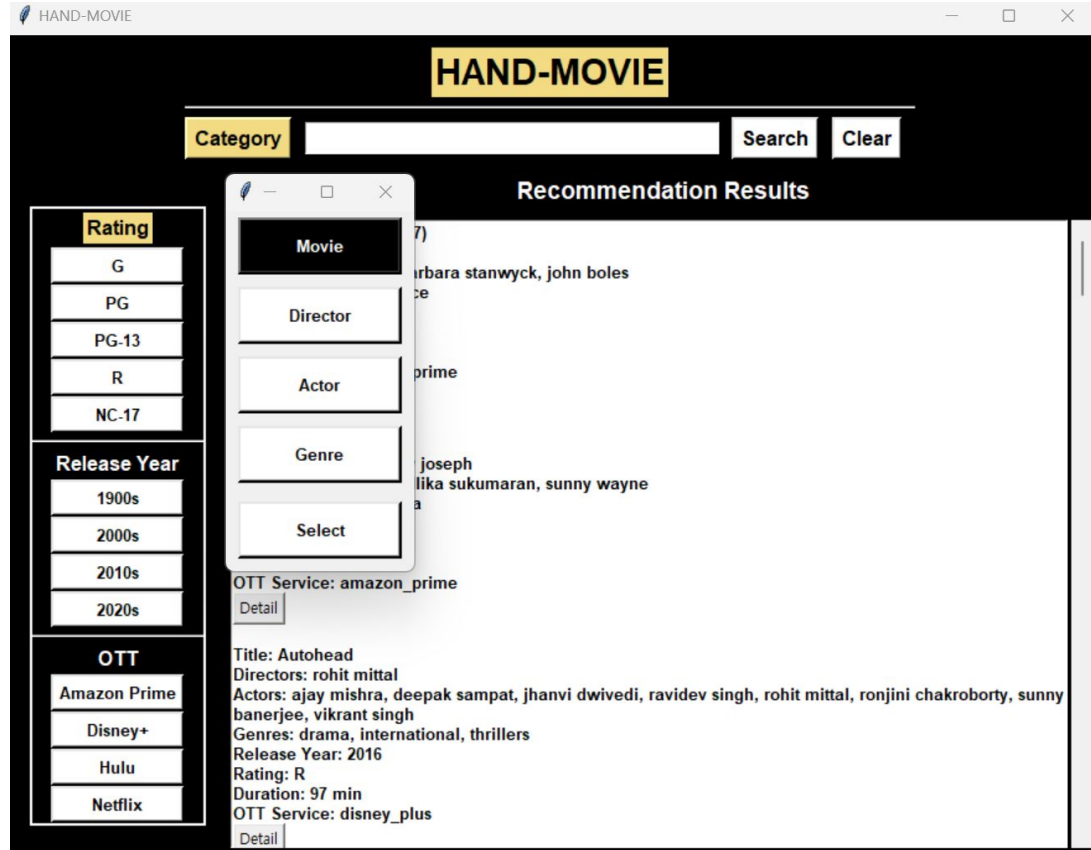
- You can see 'made by' info



GUI

Click Category

- Can choose the way to search
 - Movie
 - Director
 - Actor
 - Genre



GUI

Click Search

- Can get the information of the movie

HAND-MOVIE

Movie

Avengers

Search

Clear

Search Results

Rating

G

PG

PG-13

R

NC-17

Release Year

1900s

2000s

2010s

2020s

OTT

Amazon Prime

Disney+

Hulu

Netflix

Title: LEGO Marvel Super Heroes: Avengers Reassembled!

Directors: rob silvestri

Actors: ben diskun, bumper robinson, eric bauza, fred tatasciore, grant george, jim meskimen, jp karliak, i aura bailey, mick wingert, roger craig smith, travis willingham, troy baker

Genres: children & family

Release Year: 2015

Rating: G

Duration: 22 min

OTT Service: Disney+

Detail

Title: Avengers: Infinity War

Directors: anthony russo, joe russo

Actors: anthony mackie, benedict cumberbatch, benedict wong, benicio del toro, bradley cooper, chadwick boseman, chris evans, chris hemsworth, chris pratt, cobie smulders, danai gurira, dave bautista, don cheadle, elizabeth olsen, jeremy renner, josh brolin, karen gillan, mark ruffalo, paul bettany, paul rudd, po m klementieff, robert downey jr., scarlett johansson, sebastian stan, tom hiddleston, tom holland, vin diesel, zoe seldana

Genres: action & adventure, sci & fi & fantasy

Release Year: 2018

Rating: PG-13

Duration: 150 min

OTT Service: Disney+

Detail

Title: Marvel Studios' Avengers: Infinity War

Directors: anthony russo, joe russo

Actors: chris evans, chris hemsworth, don cheadle, mark ruffalo, robert downey jr., scarlett johansson

Genres: action & adventure, fantasy, science fiction

Release Year: 2018

GUI

Filtering

- Click 'PG' and click 'search' again, you can get the filtered movie list.

The screenshot shows a web application titled "HAND-MOVIE" in a browser window. The main header is "HAND-MOVIE" in a yellow box. Below it, there's a search bar with "Avengers" entered, and buttons for "Movie", "Search", and "Clear". The "Search Results" section displays details for the movie "Scavengers". On the left, there are three filter sections: "Rating" (with options G, PG, PG-13, R, NC-17), "Release Year" (with options 1900s, 2000s, 2010s, 2020s), and "OTT" (with options Amazon Prime, Disney+, Hulu, Netflix). The "PG" rating option is highlighted with a red box. The search results for "Scavengers" include: Title: Scavengers, Directors: giovanni jennings, Actors: andrew gomez, anisa maggiore, atticus musashi slosson, christian mohr, cole voss, david adams, gabriel dy, melanie jennings, robert jennings, sienna ishihara, Genres: drama, suspense, Release Year: 2021, Rating: PG, Duration: 46 min, and OTT Service: Amazon Prime. A "Detail" button is also present.

HAND-MOVIE

Movie **Search** **Clear**

Search Results

Rating

- G
- PG**
- PG-13
- R
- NC-17

Release Year

- 1900s
- 2000s
- 2010s
- 2020s

OTT

- Amazon Prime
- Disney+
- Hulu
- Netflix

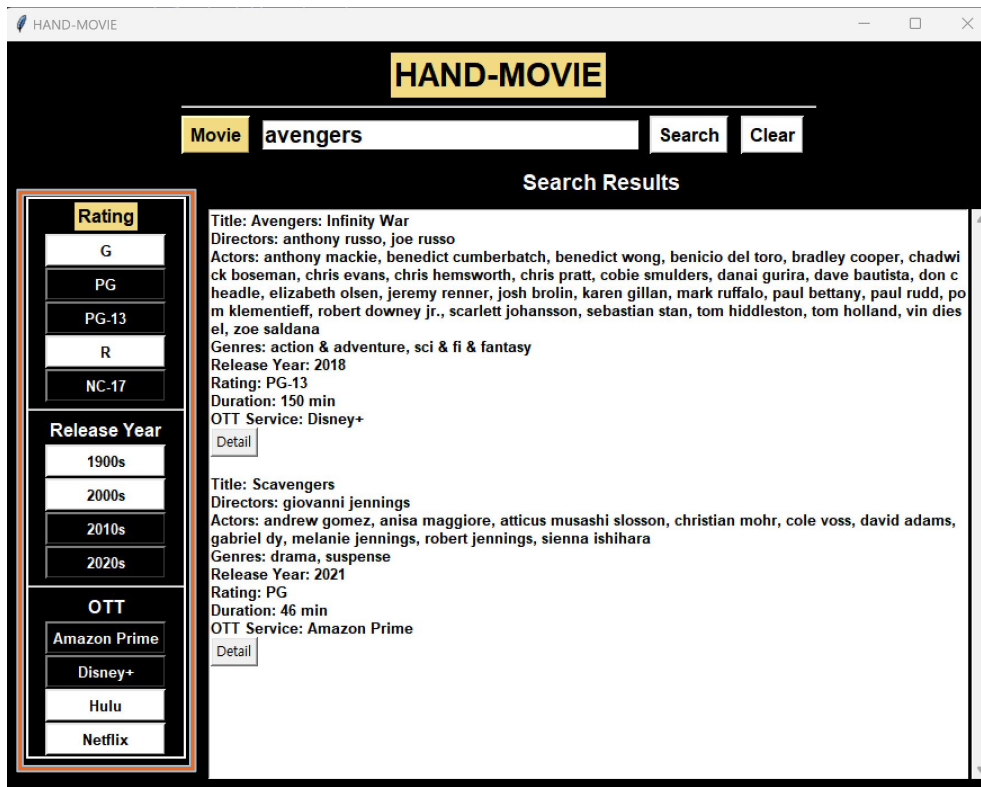
Title: Scavengers
Directors: giovanni jennings
Actors: andrew gomez, anisa maggiore, atticus musashi slosson, christian mohr, cole voss, david adams, gabriel dy, melanie jennings, robert jennings, sienna ishihara
Genres: drama, suspense
Release Year: 2021
Rating: PG
Duration: 46 min
OTT Service: Amazon Prime

[Detail](#)

GUI

Filtering

- You can also filter through multiple element.



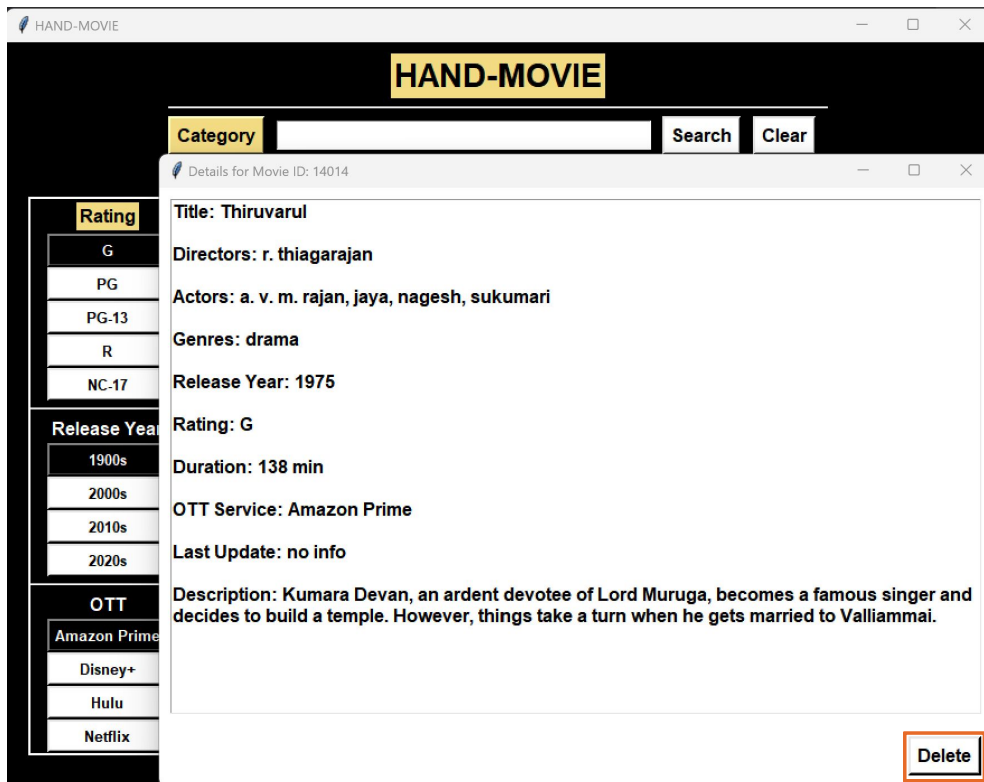
GUI

Detail

- You can enter detail movie page by pressing detail button placed under the searching or recommendation result.

Delete

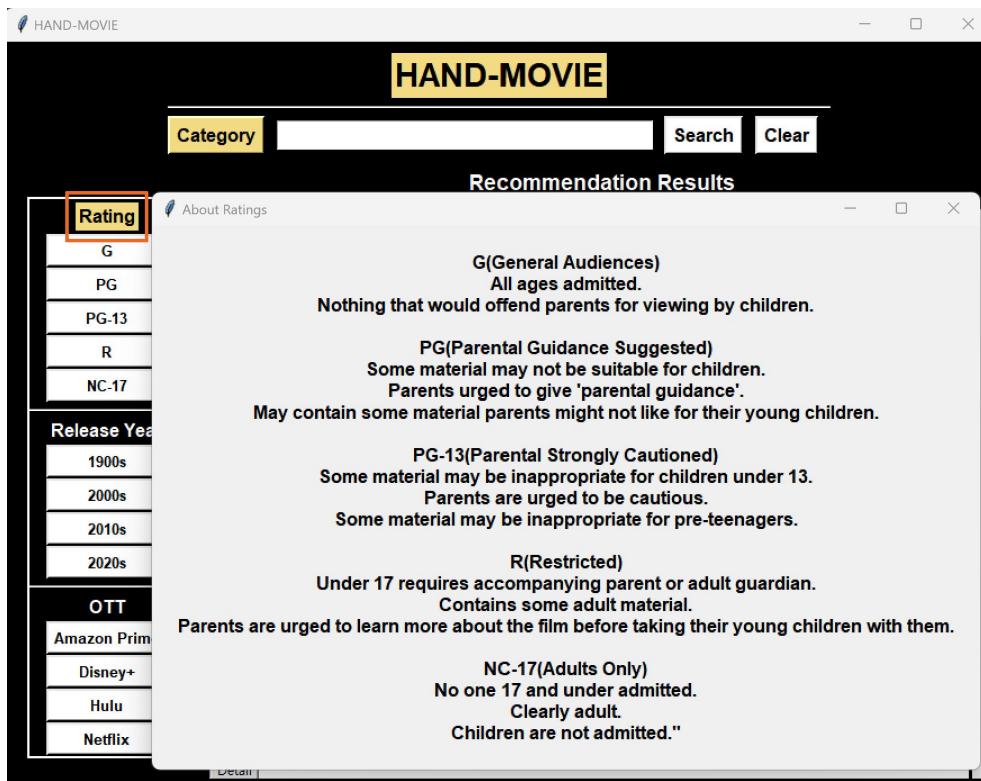
- You can delete movie by pressing delete in detail page.



GUI

Rating info

- Press rating title



4. Lessons Learned

Lessons Learned

Problems

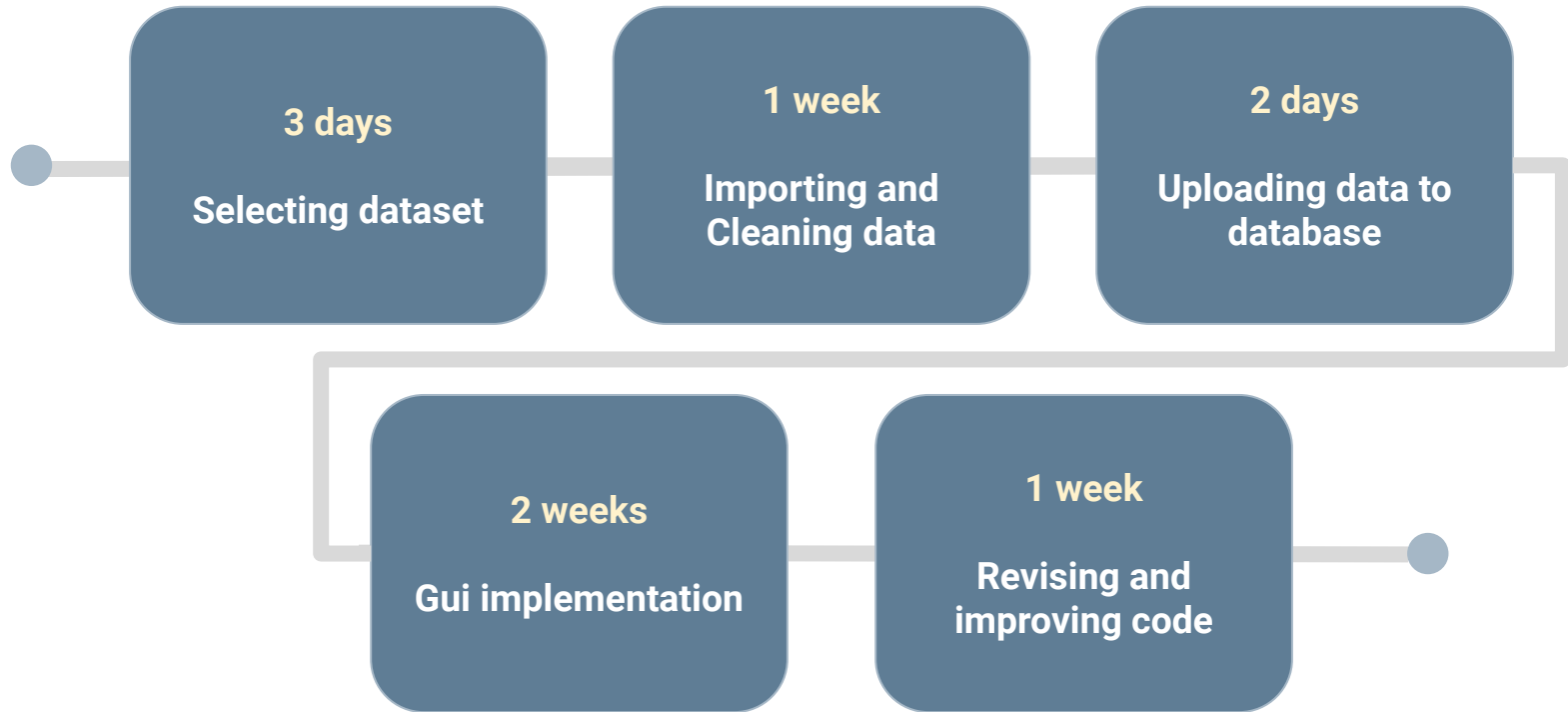
- Inefficient Communication and Collaboration method
- Unclear graphics that does not promote usability

Solutions

- Github for version control and development
- Color coded GUI, Button click effects, and clear word indication for functions like "Search" , "Clear"



Timeline



Questions?