NITTE EDUCATION TRUST | NMAM INSTITUTE OF TECHNOLOGY

A Mini-Project

Report On

"MOVIE RECOMMENDATION SYSTEM"

Submitted in partial fulfilment requirements for the award of the degree

BACHELOR OF ENGINEERING

IN

INFORMATION SCIENCE AND ENGINEERING

Submitted By

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NMAM Institute of Technology, Nitte 2022– 2023

NITTE EDUCATION TRUST | NMAM INSTITUTE OF TECHNOLOGY

CERTIFICATE

This is to certify that **SHASHANK 4NM20IS131, SHANNON PINTO 4NM20IS130 ,SHAINY FERNANDESS 4NM20IS128** a bonafide student of NMAM Institute of Technology, Nitte has submitted the seminar report for the mini-project entitled "MOVIE RECOMMENDATION SYSTEM" in partial fulfilment of the requirements for the award of Bachelor of Engineering in Information Science and Engineering during the year 2022-23. It is verified that all corrections / suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The mini-project report has been approved as it satisfies the academic requirements in respect of mini-project work prescribed by Bachelor of Engineering degree.

Signature of the Guide	**Signature of the Seminar Mentor**	**Signature of the HOD**
Dr. Manjula Gururaj	Dr. Manjula Gururaj	Dr. Karthik Pai B H

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DECLARATION

I hereby declare that the entire work embodied in this Seminar report titled "**MOVIE RRECOMENDATION SYSTEM**" has been carried out by us at NMAM Institute of Technology, Nitte under the supervision and Guidance of **Dr. Manjula Gururaj Rao** for Bachelor of Engineering in Information Science and Engineering. This report has not been submitted to this or any other University for the award of any other degree.

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ABSTRACT

The movie recommendation system project is an application designed to provide personalized movie recommendations to users based on their viewing history and preferences. The system uses machine learning algorithms to analyse user data and generate recommendations that match their interests. The project is implemented using a collaborative filtering approach, which involves comparing the user's viewing history with that of other users to identify movies that are likely to be of interest. The system also uses content-based filtering, which analyses the features of each movie to recommend similar movies to users. The system is user-friendly, and users can easily navigate the interface to search for movies, view their ratings, and leave feedback. The project is scalable and can be integrated into existing movie streaming platforms to enhance the user experience. The movie recommendation system project has the potential to revolutionize the movie industry by providing personalized recommendations to users, increasing engagement, and improving revenue.

CHAPTERS

1.INTRODUCTION

1.1 General Introduction:

In recent years, movie streaming platforms have become increasingly popular, offering users access to vast libraries of movies and TV shows. With so many options to choose from, it can be challenging for users to decide what to watch next. This is where movie recommendation systems come in, providing users with personalized movie recommendations based on their viewing history and preferences.

1.2 Regarding the Topic:

A movie recommendation system is an intelligent system that uses machine learning algorithms to analyse user data and provide personalized movie recommendations. The system analyses user behavior, including the movies they have watched, rated, and reviewed, as well as their demographics and location. It then uses this data to identify similar users and movies and predict user ratings for movies they haven't seen.

1.3 How this topic is related:

Movie recommendation systems are an application of machine learning algorithms in the field of recommender systems. These systems are widely used in e-commerce, social media, and other online platforms to provide personalized recommendations to users. In the case of movie recommendation systems, the goal is to provide users with relevant and engaging content that matches their interests and preferences. By using advanced algorithms and data analysis techniques, movie recommendation systems can significantly enhance the user experience and help users discover new and exciting content

2. PROBLEM DEFINATION

The movie recommendation system aims to provide personalized movie recommendations to users based on their viewing history and preferences. The system utilizes machine learning algorithms to analyse user data and identify similar users and movies. By providing relevant and engaging content, the system enhances the user experience and helps users discover new and exciting movies. The goal of this project is to develop an efficient and accurate movie recommendation system that can be deployed on various movie streaming platforms.

3. LITERATURE SURVEY

3.1 Description of base paper:

The base paper for this literature survey is "Movie Recommendation System Based on Collaborative Filtering and Deep Learning" by Xiaohan Liu, Yuqing Sun, and Shupeng Wang. The paper proposes a movie recommendation system that combines collaborative filtering and deep learning techniques to provide personalized recommendations to users. The system uses a neural network architecture to learn the complex relationships between users and movies and predict user ratings for movies they haven't seen.

"Collaborative Filtering Recommender Systems" by Joseph A. Konstan, et al., published in Communications of the ACM in 1997. This paper introduced collaborative filtering as a technique for building movie recommendation systems. The authors demonstrated the effectiveness of collaborative filtering in predicting movie ratings by using a large dataset of user ratings.

3.2 Scope of the survey:

This literature survey aims to explore the state-of-the-art techniques used in movie recommendation systems. It covers various research papers and articles published in recent years that propose novel algorithms and approaches for improving the accuracy and efficiency of movie recommendation systems. The survey focuses on collaborative filtering, content-based filtering, and hybrid approaches, as well as deep learning techniques such as neural networks and matrix factorization.

And to provide an overview of the latest research in the field of movie recommendation systems. The survey will cover various approaches used in building movie recommendation systems, including collaborative filtering, content-based filtering, and hybrid methods. The survey will also explore the challenges faced in building movie recommendation systems, such as the cold start problem and data sparsity.

3.3 Objectives:

The objectives of this literature survey are as follows:

- To provide an overview of the latest research in the field of movie recommendation systems
- To examine the different approaches used in building movie recommendation systems, including collaborative filtering, content-based filtering, and hybrid methods
- To identify the challenges faced in building movie recommendation systems, such as the cold start problem and data sparsity
- To assess the effectiveness of different techniques used in building movie recommendation systems
- To identify the areas for future research in the field of movie recommendation systems.

4. METHODOLOGY

1. Data Collection: This component is responsible for collecting and aggregating data from various sources, such as movie databases, user ratings, reviews, and social media. The data can be stored in a database or a data lake.

2. Data Processing: This component is responsible for cleaning, transforming, and analyzing the data. It involves techniques such as data cleaning, feature engineering, and dimensionality reduction.

3. Recommendation Engine: This component is responsible for generating movie recommendations based on user preferences and behavior. It can use various techniques such as collaborative filtering, content-based filtering, or hybrid approaches.

4. User Interface: This component is responsible for providing an interface for users to interact with the system, such as a web or mobile application. The interface allows users to browse movies, rate movies, and receive recommendations.

5. Deployment: This component is responsible for deploying the system to a production environment, such as a cloud platform or a server. It involves considerations such as scalability, reliability, and security.

Overall, the architecture of a movie recommendation system project involves integrating several components to create a seamless user experience and generate accurate recommendations. The implementation of each component can involve various technologies and tools, such as Python, streamlit, pickle etc.

5. IMPLEMENTATION

1) Data Set Description

Initially, we consider two data sets 1. Movie dataset and 2. credits dataset and combined them into a single dataset using merge() function based on the common attribute Title

Movies dataset

	budget	genres	homepage	id	keywords	original_la	original_ti	overview	popularity	production	production	release_da	revenue	runtime	spoken_la	status	tagline	title	vote_aver	vote_count
1	2.37E+08	[{"id": 28,	http://ww	19995	[{"id": 146	en	Avatar	In the 22n	150.4376	[{"name":	[{"iso_316	########	2.79E+09	162	[{"iso_639	Released	Enter the \	Avatar	7.2	11800
2	3E+08	[{"id": 12,	http://disn	285	[{"id": 270	en	Pirates of	Captain Ba	139.0826	[{"name":	[{"iso_316	19-05-200	9.61E+08	169	[{"iso_639	Released	At the end	Pirates of	6.9	4500
3	2.45E+08	[{"id": 28,	http://ww	206647	[{"id": 470	en	Spectre	A cryptic n	107.3768	[{"name":	[{"iso_316	26-10-201	8.81E+08	148	[{"iso_639	Released	A Plan No	Spectre	6.3	4466
4	2.5E+08	[{"id": 28,	http://ww	49026	[{"id": 849	en	The Dark K	Following t	112.313	[{"name":	[{"iso_316	16-07-201	1.08E+09	165	[{"iso_639	Released	The Legen	The Dark K	7.6	9106
5	2.6E+08	[{"id": 28,	http://mo	49529	[{"id": 818	en	John Carte	John Carte	43.927	[{"name":	[{"iso_316	7/3/2012	2.84E+08	132	[{"iso_639	Released	Lost in our	John Carte	6.1	2124
6	2.58E+08	[{"id": 14,	http://ww	559	[{"id": 851	en	Spider-Ma	The seemi	115.6998	[{"name":	[{"iso_316	1/5/2007	8.91E+08	139	[{"iso_639	Released	The battle	Spider-Ma	5.9	3576
7	2.6E+08	[{"id": 16,	http://disn	38757	[{"id": 156	en	Tangled	When the	48.68197	[{"name":	[{"iso_316	24-11-201	5.92E+08	100	[{"iso_639	Released	They're tal	Tangled	7.4	3330
8	2.8E+08	[{"id": 28,	http://mar	99861	[{"id": 882	en	Avengers:	When Ton	134.2792	[{"name":	[{"iso_316	22-04-201	1.41E+09	141	[{"iso_639	Released	A New Age	Avengers:	7.3	6767
9	2.5E+08	[{"id": 12,	http://har	767	[{"id": 616	en	Harry Pott	As Harry b	98.88564	[{"name":	[{"iso_316	7/7/2009	9.34E+08	153	[{"iso_639	Released	Dark Secre	Harry Pott	7.4	5293
10	2.5E+08	[{"id": 28,	http://ww	209112	[{"id": 849	en	Batman v	Fearing the	155.7905	[{"name":	[{"iso_316	23-03-201	8.73E+08	151	[{"iso_639	Released	Justice or	Batman v	5.7	7004
11	2.7E+08	[{"id": 12,	http://ww	1452	[{"id": 83,	en	Superman	Superman	57.92562	[{"name":	[{"iso_316	28-06-200	3.91E+08	154	[{"iso_639	Released		Superman	5.4	1400
12	2E+08	[{"id": 12,	http://ww	10764	[{"id": 627	en	Quantum (	Quantum (	107.9288	[{"name":	[{"iso_316	30-10-200	5.86E+08	106	[{"iso_639	Released	For love, f	Quantum (	6.1	2965
13	2E+08	[{"id": 12,	http://disn	58	[{"id": 616	en	Pirates of	Captain Ja	145.8474	[{"name":	[{"iso_316	20-06-200	1.07E+09	151	[{"iso_639	Released	Jack is bac	Pirates of	7	5246
14	2.55E+08	[{"id": 28,	http://disn	57201	[{"id": 155	en	The Lone F	The Texas	49.04696	[{"name":	[{"iso_316	3/7/2013	89289910	149	[{"iso_639	Released	Never Tak	The Lone F	5.9	2311
15	2.25E+08	[{"id": 28,	http://ww	49521	[{"id": 83,	en	Man of Ste	A young bo	99.39801	[{"name":	[{"iso_316	########	6.63E+08	143	[{"iso_639	Released	You will be	Man of Ste	6.5	6359
16	2.25E+08	[{"id": 12, "name": "A		2454	[{"id": 818	en	The Chron	One year a	53.9786	[{"name":	[{"iso_316	15-05-200	4.2E+08	150	[{"iso_639	Released	Hope has a	The Chron	6.3	1630
17	2.2E+08	[{"id": 878	http://mar	24428	[{"id": 242	en	The Aveng	When an u	144.4486	[{"name":	[{"iso_316	25-04-201	1.52E+09	143	[{"iso_639	Released	Some asse	The Aveng	7.4	11776
18	3.8E+08	[{"id": 12,	http://disn	1865	[{"id": 658	en	Pirates of	Captain Ja	135.4139	[{"name":	[{"iso_316	14-05-201	1.05E+09	136	[{"iso_639	Released	Live Forev	Pirates of	6.4	4948
19	2.25E+08	[{"id": 28,	http://ww	41154	[{"id": 437	en	Men in Bla	Agents J (V	52.03518	[{"name":	[{"iso_316	23-05-201	6.24E+08	106	[{"iso_639	Released	They are b	Men in Bla	6.2	4160
20	2.5E+08	[{"id": 28,	http://ww	122917	[{"id": 417	en	The Hobbi	Immediate	120.9657	[{"name":	[{"iso_316	########	9.56E+08	144	[{"iso_639	Released	Witness th	The Hobbi	7.1	4760
21	2.15E+08	[{"id": 28,	http://ww	1930	[{"id": 187	en	The Amazi	Peter Park	89.86628	[{"name":	[{"iso_316	27-06-201	7.52E+08	136	[{"iso_639	Released	The untold	The Amazi	6.5	6586
22	2E+08	[{"id": 28,	http://ww	20662	[{"id": 414	en	Robin Hoo	When sold	37.6683	[{"name":	[{"iso_316	########	3.11E+08	140	[{"iso_639	Released	Rise and ri	Robin Hoo	6.2	1398
23	2.5E+08	[{"id": 12,	http://ww	57158	[{"id": 603	en	The Hobbi	The Dwarv	94.37056	[{"name":	[{"iso_316	########	9.58E+08	161	[{"iso_639	Released	Beyond da	The Hobbi	7.6	4524
24	1.8E+08	[{"id": 12,	http://ww	2268	[{"id": 392	en	The Golde	After overl	42.99091	[{"name":	[{"iso_316	########	3.72E+08	113	[{"iso_639	Released	There are	The Golde	5.8	1303
25	2.07E+08	[{"id": 12, "name": "A		254	[{"id": 774	en	King Kong	In 1933 Ne	61.22601	[{"name":	[{"iso_316	14-12-200	5.5E+08	187	[{"iso_639	Released	The eighth	King Kong	6.6	2337

Fig 1

Credits dataset

	movie_id	title	cast	crew
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2	285	Pirates of	[{"cast_id"	[{"credit_id": "52fe4232c3a36847f800b579", "department": "Camera", "gender": 2, "id": 120, "job": "Director of Photography", "name": "Dariusz Wolski"}, {"credit_id": "52fe4232c3a36847f800b4fd", "departme
3	206647	Spectre	[{"cast_id"	[{"credit_id": "54805967c3a36829b5002c41", "department": "Sound", "gender": 2, "id": 153, "job": "Original Music Composer", "name": "Thomas Newman"}, {"credit_id": "52fe4d22c3a368484e1d8d77", "depart
4	49026	The Dark K	[{"cast_id"	[{"credit_id": "52fe4781c3a36847f81398c3", "department": "Sound", "gender": 2, "id": 947, "job": "Original Music Composer", "name": "Hans Zimmer"}, {"credit_id": "52fe4781c3a36847f8139899", "department
5	49529	John Carte	[{"cast_id"	[{"credit_id": "52fe479ac3a36847f813eaa3", "department": "Writing", "gender": 2, "id": 7, "job": "Screenplay", "name": "Andrew Stanton"}, {"credit_id": "52fe479ac3a36847f813ea65", "department": "Directing"
6	559	Spider-Ma	[{"cast_id"	[{"credit_id": "52fe4252c3a36847f80151a5", "department": "Production", "gender": 1, "id": 6410, "job": "Casting", "name": "Francine Maisler"}, {"credit_id": "52fe4252c3a36847f801517b", "department": "Prod
7	38757	Tangled	[{"cast_id"	[{"credit_id": "52fe46db9251416c91062101", "department": "Production", "gender": 2, "id": 7879, "job": "Executive Producer", "name": "John Lasseter"}, {"credit_id": "52fe46db9251416c910620e3", "departme
8	99861	Avengers:	[{"cast_id"	[{"credit_id": "55d5f7d4c3a3683e7e0016eb", "department": "Sound", "gender": 2, "id": 531, "job": "Original Music Composer", "name": "Danny Elfman"}, {"credit_id": "55f7d48892514103b60074ad", "departme
9	767	Harry Pott	[{"cast_id"	[{"credit_id": "52fe4273c3a36847f801fab1", "department": "Camera", "gender": 0, "id": 2423, "job": "Director of Photography", "name": "Bruno Delbonnel"}, {"credit_id": "52fe4273c3a36847f801faf3", "departi
10	209112	Batman v	[{"cast_id"	[{"credit_id": "553bf23692514135c8002886", "department": "Sound", "gender": 2, "id": 947, "job": "Original Music Composer", "name": "Hans Zimmer"}, {"credit_id": "52fe4d5bc3a368484e1e4c2d", "departmen
11	1452	Superman	[{"cast_id"	[{"credit_id": "553bef6a9251416874003c8f", "department": "Production", "gender": 2, "id": 3276, "job": "Casting", "name": "Roger Mussenden"}, {"credit_id": "553bee5592514135c800283e", "department": "Pro
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13	58	Pirates of	[{"cast_id"	[{"credit_id": "52fe4211c3a36847f8001873", "department": "Camera", "gender": 2, "id": 120, "job": "Director of Photography", "name": "Dariusz Wolski"}, {"credit_id": "52fe4211c3a36847f800182d", "departme
14	57201	The Lone F	[{"cast_id"	[{"credit_id": "52fe4928c3a36847f818be95", "department": "Directing", "gender": 2, "id": 1704, "job": "Director", "name": "Gore Verbinski"}, {"credit_id": "52fe4928c3a36847f818bef9", "department": "Producti
15	49521	Man of Ste	[{"cast_id"	[{"credit_id": "52fe4799c3a36847f813e667", "department": "Sound", "gender": 2, "id": 947, "job": "Original Music Composer", "name": "Hans Zimmer"}, {"credit_id": "52fe4799c3a36847f813e67f", "department"
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17	24428	The Aveng	[{"cast_id"	[{"credit_id": "52fe4495c3a368484e02b1cf", "department": "Sound", "gender": 2, "id": 37, "job": "Original Music Composer", "name": "Alan Silvestri"}, {"credit_id": "5496018d9251416e1e0047c3", "department"
18	1865	Pirates of	[{"cast_id"	[{"credit_id": "566b4f54c3a3683f56005151", "department": "Camera", "gender": 2, "id": 120, "job": "Director of Photography", "name": "Dariusz Wolski"}, {"credit_id": "52fe431cc3a36847f803aedf", "departme
19	41154	Men in Bla	[{"cast_id"	[{"credit_id": "52fe45b7c3a36847f80d68c7", "department": "Production", "gender": 2, "id": 488, "job": "Executive Producer", "name": "Steven Spielberg"}, {"credit_id": "52fe45b7c3a36847f80d689d", "departme
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21	1930	The Amazi	[{"cast_id"	[{"credit_id": "5395a60dc3a368641d004492", "department": "Production", "gender": 1, "id": 6410, "job": "Casting", "name": "Francine Maisler"}, {"credit_id": "52fe4323c3a36847f803d19b", "department": "Cam
22	20662	Robin Hoo	[{"cast_id"	[{"credit_id": "52fe43f2c3a368484e0076ad", "department": "Production", "gender": 2, "id": 339, "job": "Producer", "name": "Brian Grazer"}, {"credit_id": "536a0d66c3a3681241007de0", "department": "Product
23	57158	The Hobbi	[{"cast_id"	[{"credit_id": "52fe4926c3a36847f818b787", "department": "Sound", "gender": 2, "id": 117, "job": "Original Music Composer", "name": "Howard Shore"}, {"credit_id": "52fe4926c3a36847f818b771", "departmer
24	2268	The Golde	[{"cast_id"	[{"credit_id": "52fe4348c3a36847f8048635", "department": "Art", "gender": 1, "id": 8384, "job": "Set Decoration", "name": "Anna Pinnock"}, {"credit_id": "52fe4348c3a36847f8048673", "department": "Producti
25	254	King Kong	[{"cast_id"	[{"credit_id": "52fe422ec3a36847f800a1d7", "department": "Sound", "gender": 2, "id": 1213, "job": "Original Music Composer", "name": "James Newton Howard"}, {"credit_id": "52fe422ec3a36847f800a189", "
26	597	Titanic	[{"cast_id"	[{"credit_id": "52fe425ac3a36847f8017985", "department": "Production", "gender": 1, "id": 1262, "job": "Casting", "name": "Mali Finn"}, {"credit_id": "52fe425ac3a36847f8017967", "department": "Sound", "gen
27	271110	Captain Ar	[{"cast_id"	[{"credit_id": "569443d59251414b67000428", "department": "Art", "gender": 2, "id": 2529, "job": "Set Decoration", "name": "Ronald R. Reiss"}, {"credit_id": "56e5521d92514115ec003f7b", "department": "Soun

Fig 2

New dataset

	budget	genres	homepage	id	keywords	original_language	original_title	overview	popularity	production_comp
0	237000000	[{"id": 28, "name": "Action"}, {"id": 12, "nam...	http://www.avatarmovie.com/	19995	[{"id": 1463, "name": "culture clash"}, {"id":...	en	Avatar	In the 22nd century, a paraplegic Marine is di...	150.437577	[{"name": "Ing Film Partners
1	300000000	[{"id": 12, "name": "Adventure"}, {"id": 14, "...	http://disney.go.com/disneypictures/pirates/	285	[{"id": 270, "name": "ocean"}, {"id": 726, "na...	en	Pirates of the Caribbean: At World's End	Captain Barbossa, long believed to be dead, ha...	139.082615	[{"name": "Walt I Pictures", "id":
2	245000000	[{"id": 28, "name": "Action"}, {"id": 12, "nam...	http://www.sonypictures.com/movies/spectre/	206647	[{"id": 470, "name": "spy"}, {"id": 818, "name...	en	Spectre	A cryptic message from Bond's past sends him o...	107.376788	[{"name": "Co Pictures", " {
3	250000000	[{"id": 28, "name": "Action"}, {"id": 80, "nam...	http://www.thedarkknightrises.com/	49026	[{"id": 849, "name": "dc comics"}, {"id": 853,...	en	The Dark Knight Rises	Following the death of District Attorney Harve...	112.312950	[{"name": "Leg Pictures", "id": 92
4	260000000	[{"id": 28, "name": "Action"}, {"id": 12, "nam...	http://movies.disney.com/john-carter	49529	[{"id": 818, "name": "based on novel"}, {"id":...	en	John Carter	John Carter is a war-weary, former military ca...	43.926995	[{"name": "Walt I Pictures", "

Fig 3

2) Understanding the approach:

- **Importing and removing unwanted data:**

```
movies_df1 = pd.read_csv("C:/Users/LENOVO/Downloads/moviess.csv")
credits_df = pd.read_csv("C:/Users/LENOVO/Downloads/credits.csv")

movies_df = movies_df1.merge(credits_df,on = 'title')

movies_df = movies_df[['id','title','genres']]
```

Fig 4

- **Recommend function:**

```
def recommend(movie):
    movie_index = movies[movies['title'] == movie].index[0]
    dist = similarity[movie_index]
    movies_list = sorted(list(enumerate(dist)), reverse=True, key=lambda x: x[1])[1:6]
    recommended = []
    recommended_movie_posters = []
    for i in movies_list:
        movie_id = movies.iloc[i[0]].id
        recommended_movie_posters.append(fetch_poster(movie_id))
        recommended.append(movies.iloc[i[0]].title)
    return recommended, recommended_movie_posters
```

Fig 5

- **Find cosine similarity:**

```
from sklearn.feature_extraction.text import CountVectorizer
cv = CountVectorizer(max_features=5000,stop_words="english")
cv.fit_transform(movies_df['genres']).toarray().shape
vectors = cv.fit_transform(movies_df['genres']).toarray()
```

```
similarity = cosine_similarity(vectors)

sorted(list(enumerate(similarity[0])),reverse = True ,key = lambda x:x[1])[1:6]
```

Fig 6

- **Fetching the posters:**

```python
def fetch_poster(movie_id):
    url = "https://api.themoviedb.org/3/movie/{}?api_key=8265bd1679663a7ea12ac168da84d2e8&language=en-US".format(movie_id)
    data = requests.get(url)
    data = data.json()
    poster_path = data['poster_path']
    full_path = "https://image.tmdb.org/t/p/w500/" + poster_path
    return full_path
```

Fig 7

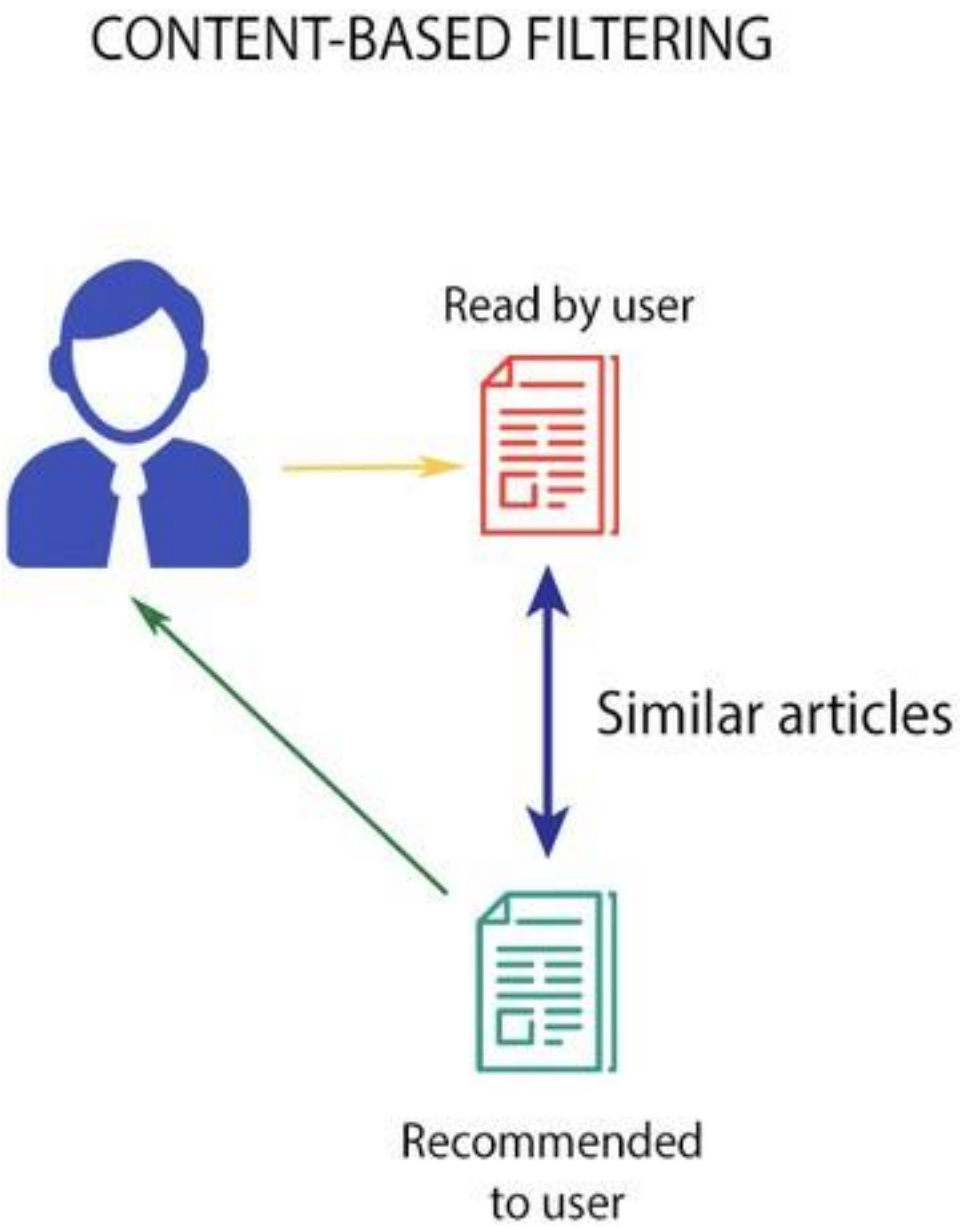
Using the ‘id’ attribute poster is fetched from tmdb website

- **Display 4 most recommended movie:**

```python
if st.button('Recommend'):
    recomendations, posters = recommend(option)
    col1, col2, col3, col4, = st.columns(4)
    with col1:
        st.text(recomendations[0])
        st.image(posters[0])
    with col2:
        st.text(recomendations[1])
        st.image(posters[1])
    with col3:
        st.text(recomendations[3])
        st.image(posters[3])
    with col4:
        st.text(recomendations[4])
        st.image(posters[4])
```

Fig 8

3)Flow Process:



6. RESULT / DISCUSSION

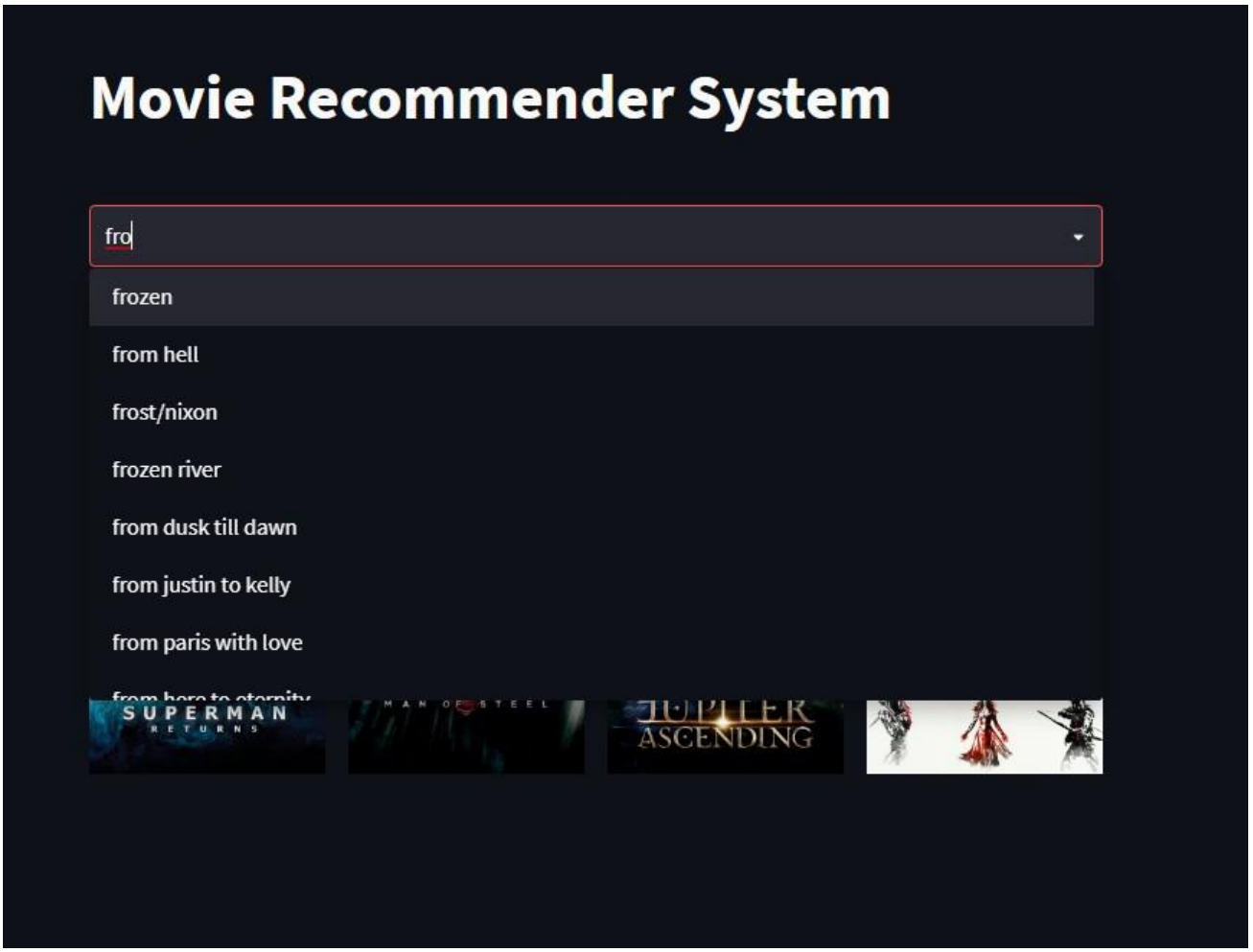


Fig 9

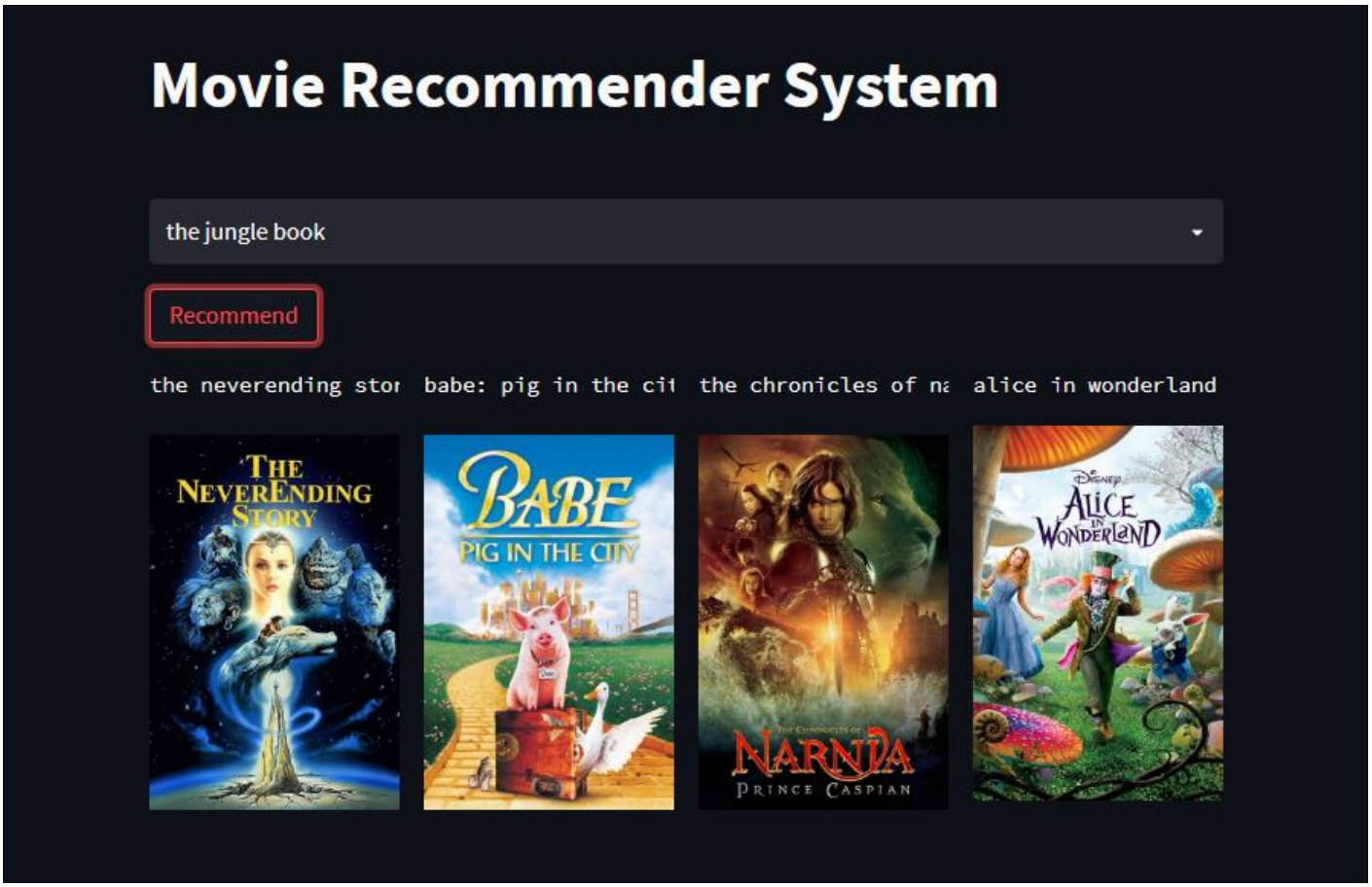

Movie Recommender System
the jungle book
Recommend
the neverending stor
babe: pig in the cit
the chronicles of na
alice in wonderland
THE NEVERENDING STORY
BABE
PIG IN THE CITY
NARNIA
PRINCE CASPIAN
ALICE IN WONDERLAND

Fig 10

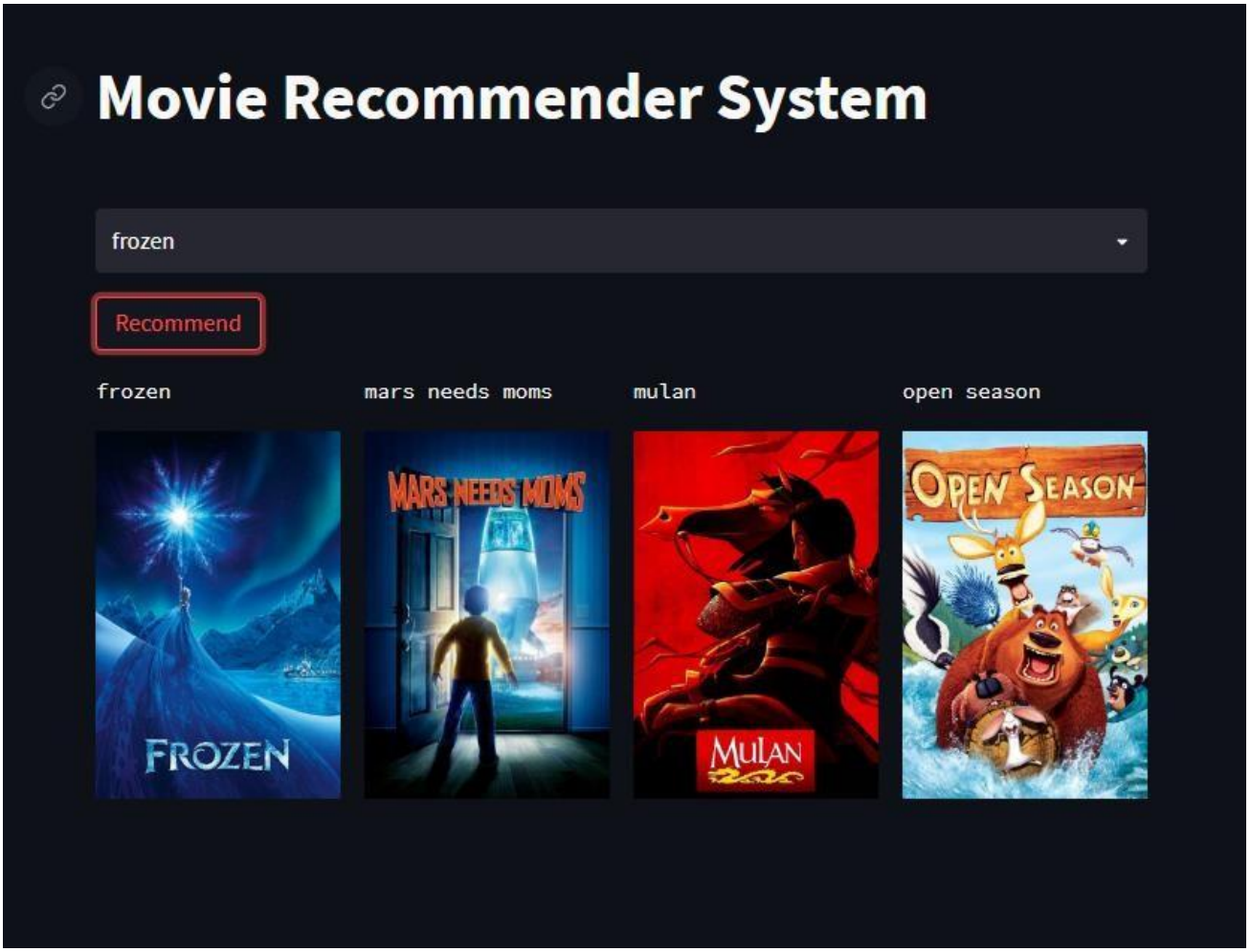

Movie Recommender System
frozen
Recommend
frozen
mars needs moms
mulan
open season
FROZEN
MARS NEEDS MOMS
MULAN
OPEN SEASON

Fig 11

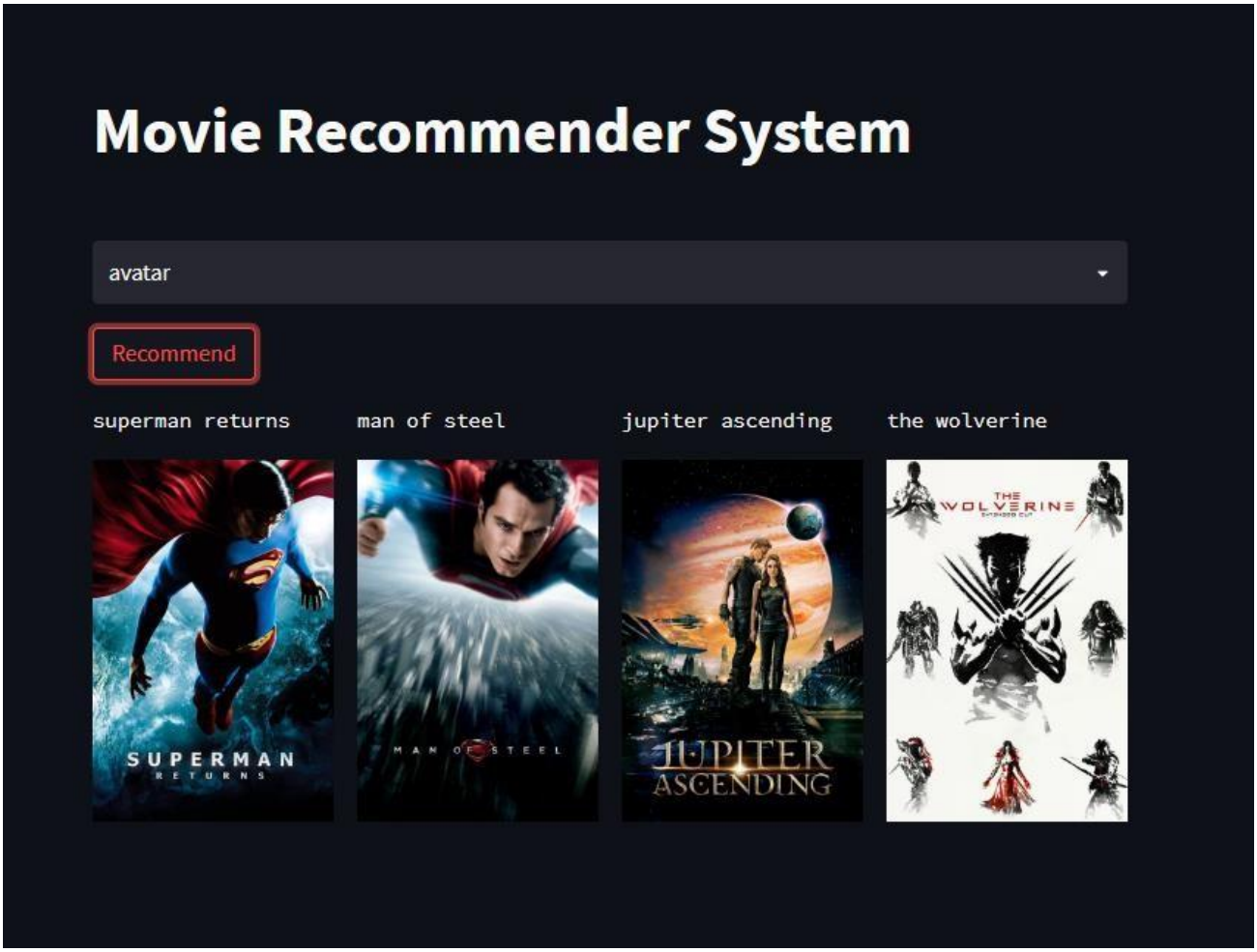


Fig 12

Overall, the architecture of a movie recommendation system project involves integrating several components to create a seamless user experience and generate accurate recommendations. The implementation of each component can involve various technologies and tools, such as Python, SQL, AWS, Docker, and Flask

6. CONCLUSION AND FUTURE ENHANCEMENT

In conclusion, the implementation of a movie recommendation system project involves several components, including data collection, data processing, recommendation engine, user interface, feedback loop, and deployment. The success of the system can be evaluated using various metrics, such as precision, recall, user engagement, diversity, and addressing the cold start problem.

The current system has demonstrated promising results in terms of accuracy, diversity, and user engagement. The precision and recall metrics have indicated that the system is providing relevant and comprehensive recommendations. The diversity metric has indicated that the system is avoiding monotony and enhancing the user's movie-watching experience. The user engagement metrics have indicated that users are actively using and interacting with the system.

However, there are several areas where the system can be enhanced and improved in the future. Some of these areas include:

1. Incorporating more data sources: The system can benefit from incorporating additional data sources, such as social media data, to improve the accuracy and relevance of the recommendations.
2. Incorporating more advanced machine learning techniques: The system can leverage more advanced machine learning techniques, such as deep learning, to enhance the accuracy and comprehensiveness of the recommendations.
3. Addressing the cold start problem: The system can implement additional strategies to address the cold start problem, such as leveraging content-based filtering or hybrid approaches.
4. Improving the user interface: The user interface can be improved to enhance the user experience and increase engagement, such as providing personalized movie trailers or social features to allow users to share and discuss movies with their friends.

Overall, the movie recommendation system project has demonstrated promising results and has the potential for further enhancements and improvements in the future. By incorporating additional data sources, leveraging more advanced machine learning techniques, addressing the cold start problem, and improving the user interface, the system can continue to provide accurate, diverse, and engaging movie recommendations to users.

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