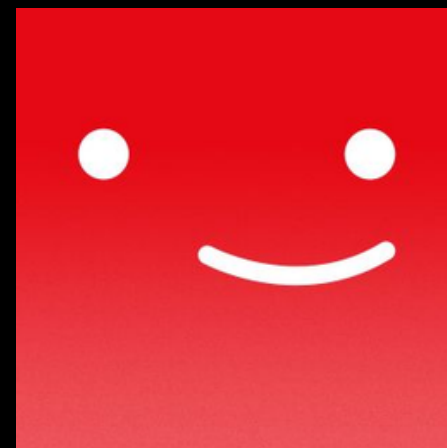


## WHO'S THE TEAM?



AKSHITHA  
19MIA1096



KARTHIK  
20MIA1032



NIKITHA  
20MIA1025

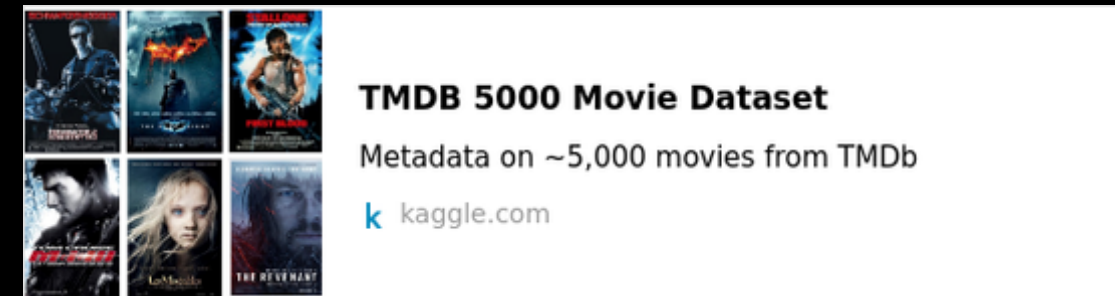
# ConvRec: Conversational Recommendations using LLMs

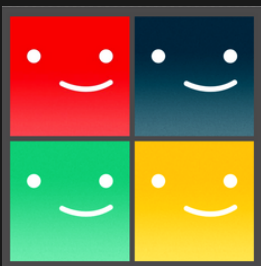
Large Language Models (LLMs) have exhibited considerable achievements in addressing a diverse array of application tasks. Nonetheless, conventional recommender systems confront significant obstacles, notably limited interactivity and explicable decision-making, impeding their widespread adoption in real-world contexts. To overcome these constraints, this project introduces an innovative framework known as ConvRec (Conversational Recommendations using LLMs), which harnesses the capabilities of LLMs to construct conversational recommender systems by transforming user profiles and historical interactions into conversational prompts.

ConvRec showcases its effectiveness in comprehending user preferences and forging connections between users and products through contextual learning, enhancing the interactive and explicable nature of the recommendation process. Furthermore, within the ConvRec framework, user preferences exhibit transferability across diverse product domains, enabling cross-domain recommendations. Moreover, the integration of prompt-based information injection into LLMs proves advantageous in addressing cold-start scenarios involving new items.

Several experiments validate ConvRec's capabilities in enhancing top-k recommendation outcomes and outperforming in the task of recommendation with reasoning. Ultimately, ConvRec introduces an innovative avenue for enhancing recommender systems and unveils novel practical prospects for incorporating AI-generated content in recommender system research.

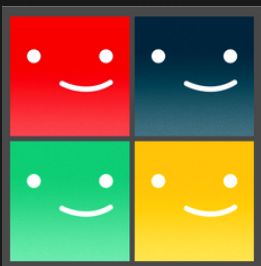
Datasets :





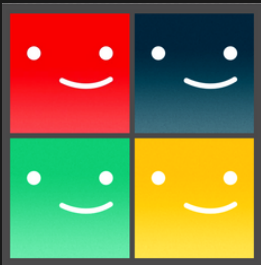
## OBJECTIVE

The objective of this project is to enhance content-based movie recommendation systems by integrating Large Language Models (LLMs) into chatbots. The goal is to provide users with more personalized and transparent movie recommendations based on small contextual cues, ultimately improving user satisfaction and engagement with the recommendation system.



## THE PROBLEM STATEMENT

Traditional recommender systems face limitations in providing personalized and transparent recommendations, particularly in understanding nuanced user preferences from small contextual clues. This project aims to address these limitations by leveraging LLMs in a chatbot framework, known as "Chat-Rec," to enhance content-based movie recommendations. The key challenges include ensuring interpretability, maintaining data privacy, and achieving scalability while providing accurate and contextually relevant movie suggestions.



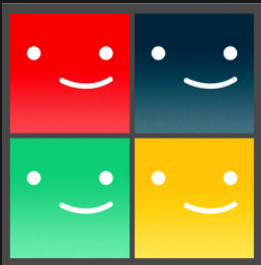
# APPROACH

# RECOMMENDER SYSTEMS



- Prompt Generation:
  - Convert user profiles and historical interactions into prompts.
  - Include item descriptions and user ratings in prompts.
- In-Context Learning:
  - LLMs process prompts to understand user preferences and background information.
  - Summarize user preferences for items in a domain.
  - Capture relationships between product attributes and user preferences.
- Candidate Set Filtering:
  - Provide recommender system's candidate set to LLMs.
  - LLMs further filter and sort the candidate set based on user preferences.
  - Present a smaller, more relevant set of recommendations to users.



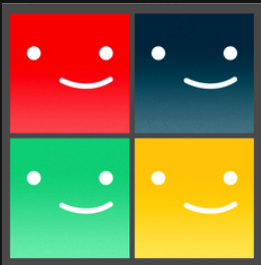


# APPROACH

# RECOMMENDER SYSTEMS



- Cold-Start Recommendations:
  - Utilize external information about new items.
  - Generate embeddings for new items using text data.
  - Calculate similarities to other items in the system.
  - Retrieve relevant item information for recommendation.
- Cross-Domain Recommendations:
  - Leverage LLMs' broad knowledge across domains.
  - Transfer user preferences from one domain to recommend items in another.
  - Recommend various types of items based on user preferences.
- Implicit Knowledge Injection:
  - Implicitly inject recommender system's knowledge into LLMs.
  - Reflect in candidate set rankings and background information.
  - Captured by LLMs through in-context learning.



# CONV REC

Benefits:

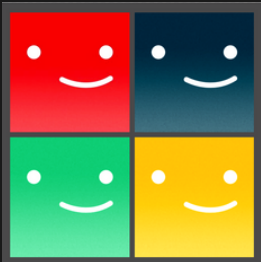
- Personalized recommendations based on user preferences.
- Opportunity for giving multilingual recommendations.
- Enhanced explanation of recommendations.
- Effective handling of cold-start and cross-domain scenarios.
- Utilization of LLMs' contextual understanding and vast knowledge.

Outcome:

- Improved recommendation performance and user experience.
- Addressing limitations of traditional recommender systems.
- Leveraging LLMs' capabilities for better recommendations.

# RECOMMENDER SYSTEMS





# CONV REC

This system is capable of performing the following via natural language sequences:

- Sequential recommendation
- Rating prediction
- Explanation generation
- Review summarization
- Direct recommendation

Ex- **ITEMS PURCHASED:**

*{Soccer Jersey, Soccer Goal Post, Soccer Cleats, Goalie Gloves}*

**CANDIDATES FOR RECOMMENDATION:**

*{Basketball Jersey, Football Jersey, Baseball Jersey, Tennis Shirt, Hockey Jersey, Soccer Ball, Basketball, Football, Baseball, Tennis Ball, Hockey Puck, Basketball Shoes, Football Cleats, Baseball Cleats, Tennis Shoes, Hockey Helmet, Basketball Arm Sleeve, Football Shoulder Pads, Baseball Cap, Tennis Racket, Hockey Skates, Basketball Hoop, Football Helmet, Baseball Bat, Hockey Stick, Soccer Cones, Basketball Shorts, Baseball Glove, Hockey Pads, Soccer Shin Guards, Soccer Shorts}*

# RECOMMENDER SYSTEMS

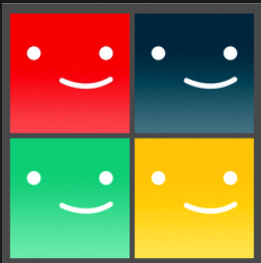


Based on the items you've purchased (Soccer Jersey, Soccer Goal Post, Soccer Cleats, Goalie Gloves), it seems you are interested in soccer. Here are some recommendations from the list of candidates that might complement your soccer gear:

1. Soccer Ball: A crucial accessory for practicing and playing soccer.
2. Soccer Shin Guards: Essential for protecting your legs during matches and practices.
3. Soccer Shorts: Comfortable shorts designed for soccer activities.
4. Soccer Cones: Great for setting up training drills and improving agility.
5. Soccer Socks: Proper socks to wear with your soccer cleats.

While the other items on the candidate list are related to various sports, the ones mentioned above would align with your current interest in soccer.





## ABOUT THE DATA:

This dataset was generated from [The Movie Database](#) API. This product uses the TMDb API but is not endorsed or certified by TMDb.

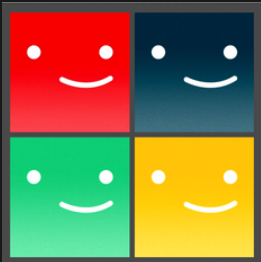
## OUR ATTRIBUTES:

- [Title](#), [Genres](#), [Overview](#)
- [Release Date](#), [Runtime](#)
- [Budget](#), [Revenue](#)
- [Popularity](#), [Vote Count](#), [Vote Average](#)
- [Production Companies](#), [Production Countries](#)
- [Languages](#), [Cast](#), [and Crew](#)

## RECOMMENDER SYSTEMS

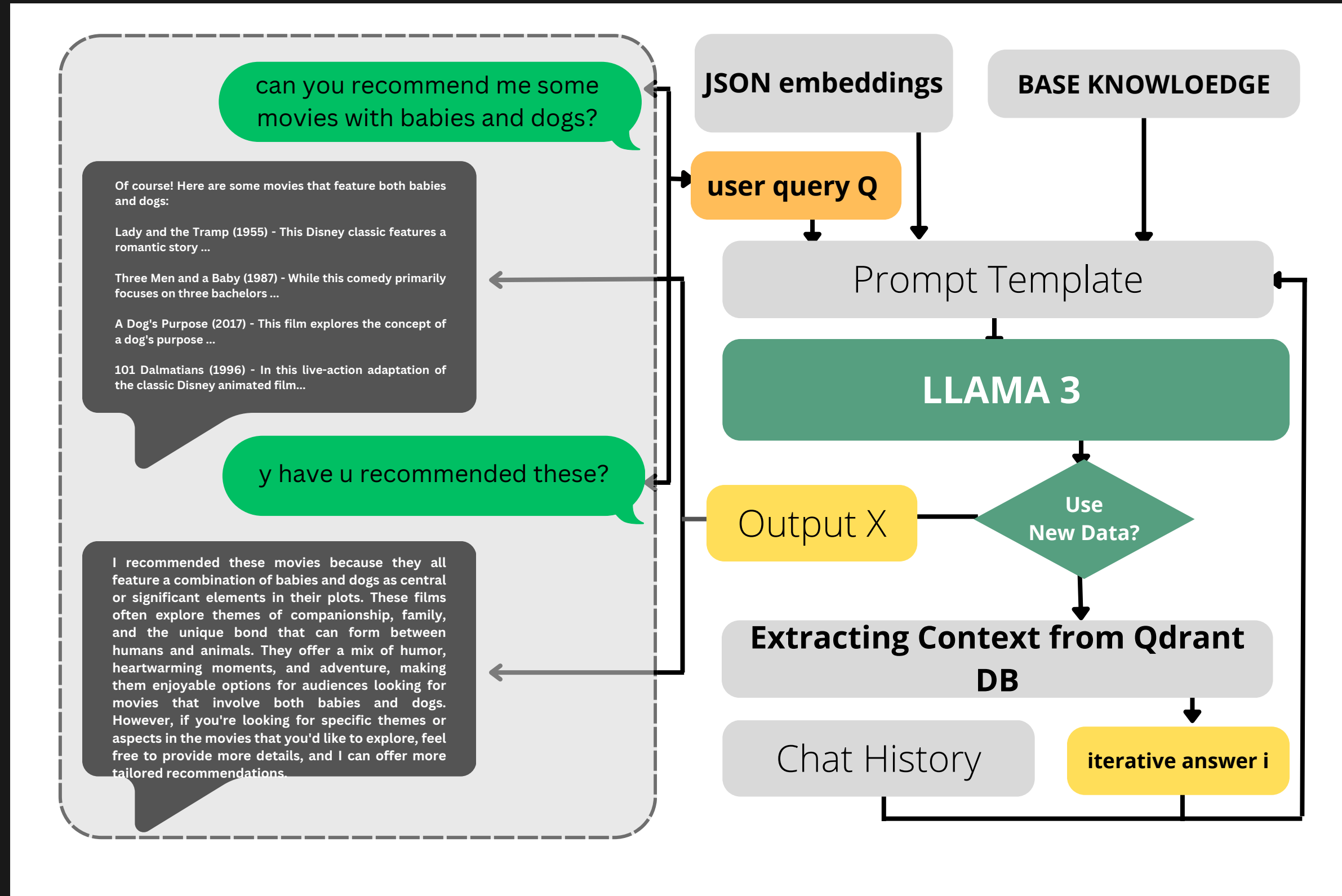


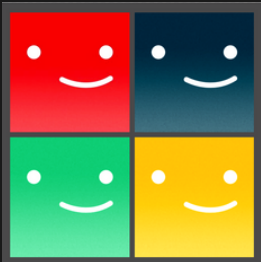
4801 MOVIES



## FRAMEWORK

# RECOMMENDER SYSTEMS





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Welcome

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Home

This app demonstrates Retrieval-Augmented Generation (RAG) using the Llama3 model.

Recommender Systems [J COMP]

## Llama 3 Contextual Recommendation System



### MOVIE RECOMMENDATIONS

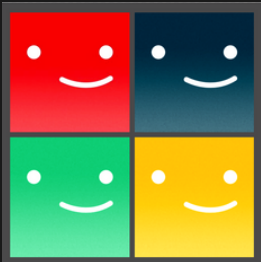
using Llama3

#### Home

Retrieval-Augmented Generation (RAG) using the Hugging Face Open Source Embedding Model integrated with LLAMA3. Made by A SRI KARTHIK, NIKITHA A R, AKSHITHA.

Welcome to the Chat application. Select 'Generate Response' from the menu to get started.

Using cutting-edge AI technology, It is an independent LLM-based Query agent. By utilizing cutting-edge models like the Open Source Model from Hugging Face and the BGE-Large-EN embeddings from BAAI, BookFinder provides an advanced retrieval-augmented generation (RAG) capacity. Through a conversational chat interface, users may interact and receive tailored suggestions based on their inquiries. Semantic search and deep learning models are easily integrated by the application to deliver precise and contextually relevant results. It was created with the user in mind, combining the effectiveness of AI-driven recommendation algorithms with natural user interfaces to improve the experience.



CHAT BOT

# RECOMMENDER SYSTEMS



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Recommnder Systems [J COMP](#)

## Llama 3 Contextual Recommendation System

### Chat with Llama

Assistant-0

Hello! How can I assist you today?

User-1

what is the vote average of tangled

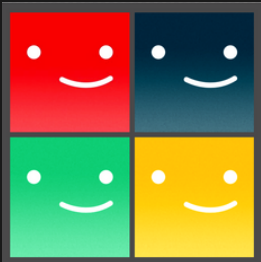
Assistant-2

A recommendation system!

Based on the provided context, I can see that there are multiple movies listed with various attributes such as revenue, runtime, genres, and vote averages. One of the movies is "Tangled" released in 2010.

The vote average for "Tangled" is **7.4**, based on a total of **3330** user ratings!





## CHAT BOT

# RECOMMENDER SYSTEMS

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This app demonstrates Retrieval-Augmented Generation (RAG) using the Llama3 model.

Recommnder Systems [J COMP](#)

give me movies based on dogs and cats

Assistant: 10

Based on your interests in dogs and cats, I've curated a list of movie recommendations that you might enjoy:

1. **The Secret Life of Pets** (2016) - An animated comedy about what pets do when their owners are away. The movie explores the adventures of Max, a terrier, and his friends as they navigate the ups and downs of pet life.
2. **Cats & Dogs** (2001) - A family-friendly adventure that follows a professor who develops a vaccine to eliminate human allergies to dogs, leading to an epic battle between cats and dogs for dominance.
3. **Keanu** (2016) - A comedy about two friends who hatch a plan to retrieve a stolen cat by posing as drug dealers for a street gang.

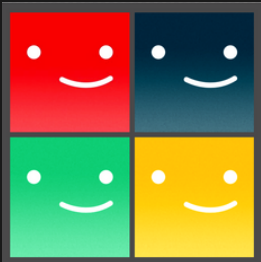
These movies feature dogs and cats in prominent roles, with plenty of humor, action, and heartwarming moments. If you enjoy these films, you might also like:

- \* **Beethoven** (1992) - A family comedy about a lovable St. Bernard who wreaks havoc on his adoptive family's home.
- \* **Turner & Hooch** (1989) - A detective comedy starring Tom Hanks as a clean-cut FBI agent paired with a slobbering dog to solve a murder case.
- \* **Pet Sematary** (2019) - A horror film based on the Stephen King novel, where a family's cat and dog become trapped in a supernatural cycle of death and rebirth.

I hope you enjoy these recommendations!

User: 11





CHAT BOT

# RECOMMENDER SYSTEMS



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User-7

i liked avatar 4/5, ready player one 5/5 , godzilla 3/5 and aliens 2/5 , how much would i like pacific rim

Ass'stant-8

A new movie to recommend!

Based on your ratings:

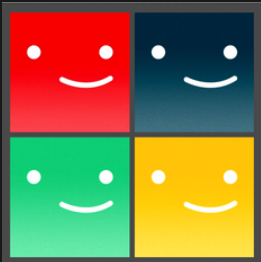
- \* You liked Avatar (4/5)
- \* You loved Ready Player One (5/5)
- \* You enjoyed Godzilla (3/5) but didn't quite love it
- \* You were underwhelmed by Aliens (2/5)

I'll analyze these ratings to make an educated guess about how much you might enjoy Pacific Rim.

Pacific Rim is an action-packed science fiction film that combines giant monsters, robots, and a post-apocalyptic setting. Given your fondness for Avatar's blend of science fiction and fantasy elements, I think you might appreciate the imaginative world-building in Pacific Rim. The movie's visual effects are also noteworthy, which could remind you of Ready Player One's impressive CGI.

The action-packed pace and monster battles in Godzilla might appeal to you as well, although Pacific Rim has a slightly different tone and style. While Aliens didn't quite resonate with you, the sci-fi setting and human-vs-monster conflict in Pacific Rim might still be engaging enough to keep your attention.

Overall, I predict that you'll enjoy Pacific Rim (3.5/5) for its unique blend of action, science fiction, and visual effects. It's a thrilling ride that will likely appeal to fans of these genres!



CHAT BOT

# RECOMMENDER SYSTEMS



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User-3

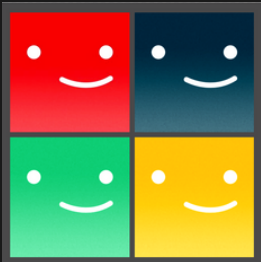
give me movies based on avatar, and why i would like them

Assistant-4

Based on your interest in the movie "Avatar", I recommend the following movies and why you would like them:

1. **"The Last Airbender"** (2006) - This fantasy adventure film shares a similar theme of exploring a new world and understanding its culture. As the protagonist Aang, you'll embark on an epic journey to stop the Fire Nation from enslaving other nations. Like "Avatar", it's set in a fantastical world with a rich cultural heritage.
2. **"Pirates of the Caribbean: At World's End"** (2007) - This swashbuckling adventure film explores a futuristic, high-stakes world where you'll encounter exotic islands, treacherous sea battles, and memorable characters. Like "Avatar", it features stunning visuals, action-packed sequences, and a sense of wonder.

Why these movies? Both share elements of exploration, cultural understanding, and thrilling adventures in unique settings. The fantastical worlds and memorable characters in each film will captivate your imagination and keep you engaged.



CONTACT

# RECOMMENDER SYSTEMS



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Contact Us

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Recommnder Systems [JCOMP](#)

## Llama 3 Contextual Recommendation System

### Contact Me

Please fill out the form below to get in touch with me.

Your Name

Your Email

Message

Submit

THANK YOU +

