



# OTTunes - Tune Your Context to User Intent

Mrs. B. Ramya Sri<sup>1</sup>, N. Akshaya<sup>2</sup>, D. Manasa<sup>3</sup>,  
P. Poojitha<sup>4</sup>, P. Sreecharani<sup>5</sup>

<sup>1</sup>Assistant Professor, <sup>2,3,4,5</sup>B Tech 3<sup>rd</sup> Year Students

<sup>1,2,3,4,5</sup>CSE (AI&ML), Vignan's Institute of Management and Technology for Women, Hyderabad, India.

## Abstract:

The OTTunes system is a context-based movie recommendation system that provides movie recommendations based on the user's mood and story. Unlike other movie recommendation systems that provide movie recommendations based solely on viewing history, the OTTunes system provides movie recommendations based on TF-IDF and cosine similarity. In addition to this, the system also provides a safety filter to ensure that family-friendly movies are recommended.

**Keywords:** Movie Recommendation System, Context-Aware System, TF-IDF, Cosine Similarity, Content-Based Filtering, User Intent, Mood-Based Recommendation, OTT Platforms

## I.INTRODUCTION:

OTT platforms offer a large volume of content, making it challenging for users to choose the right movie according to their interest at a particular time. The available recommendation systems are based only on watch history and popularity, but the mood of the user and the viewing context are not taken into consideration.

OT Tunes is a recommendation system that recommends movies based on the mood of the user, the story, and the viewing context. It uses TF-IDF and cosine similarity for content-based recommendation, and a safety feature for safe recommendations.

## II.RELATED WORK:

Past approaches for movie recommendation relied heavily on user preferences, ratings, and popularity of the movies. Content-based and collaborative filtering are some of the techniques which were used in such systems. However, most of these methods have concentrated more on user behaviors from the past than on their current requirements.

A few approaches have used text analysis techniques such as Term Frequency-Inverse Document Frequency (TF-IDF) and similarity measurements to recommend movies based on their similarity in content. Only a few sophisticated systems use contextual information, but not those that consider user mood, intention of the story, and viewing context.

## OUR CONTRIBUTION:

Contributions of our system unlike other systems .ottunes provides a new angle by considering the current state of the user rather than focusing solely on the past it uses real-time input data such as mood story selection and environment context for best understand the users intentions through the use of tf-idf similarity matching and content appropriateness checkers the system provides recommendation which are both relevant and appropriate at the same time



## **III. PROPOSED SYSTEM**

### **A. Overview of Proposed System**

OTTunes is a movie recommendation system that is context-based, meaning it offers users a personalized movie recommendation according to the user's mood, story, and other relevant information.

#### **USER INPUT**

The system also accepts user inputs like user mood, story of interest, and viewing conditions (alone, with friends, and family). This helps the system understand the user intent and provides appropriate movie suggestions.

#### **DATA PROCESSING**

The system processes user data by matching the user's mood, story preference, and viewing context with corresponding movie genres and features. Then, the system converts movie data into numerical data using TF-IDF and calculates the similarity using the cosine similarity algorithm.

#### **RECOMMENDATION ENGINE**

The recommendation engine uses TF-IDF and Cosine similarity to compare the user input with the movie descriptions. The engine recognizes and recommends movies that are very similar to the user's mood, story, and viewing context.

#### **SAFETY FILTERING**

The system also includes a safety filtering feature that filters out inappropriate or explicit content based on the context for viewing. For example, when family mode is chosen, only safe and appropriate movie suggestions are displayed.

#### **OUTPUT DISPLAY**

The output display module will be used for displaying movies that the system recommends to the user. This module will display all the necessary information about the movies in an organized manner so that the user finds it convenient to view.

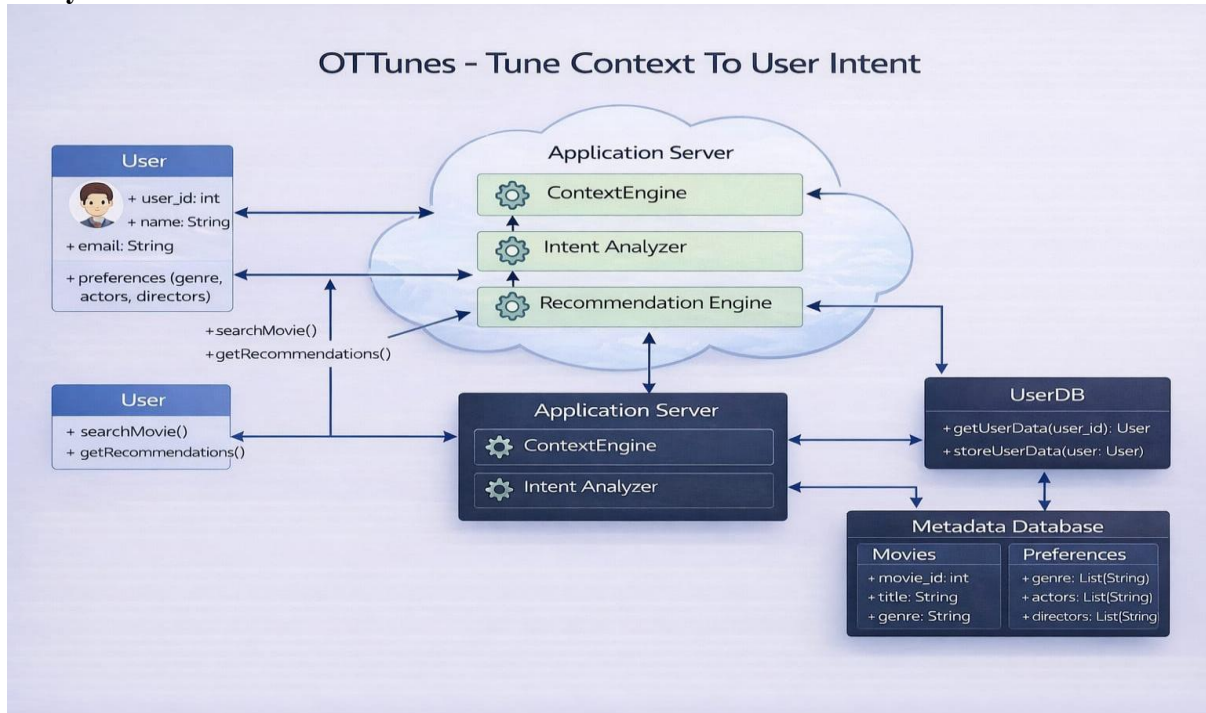
#### **FRONT END**

The front end acts as an interaction layer for users that receive inputs from users. The front end has been designed using HTML and CSS technologies so that the system can provide an easy interaction experience to users. Using this interface, users select their mood, genre, and context of watching movies, which are then sent to the backend.

#### **BACKEND**

The backend takes care of all the processes performed within the system. This is where processing takes place and the recommendation engine does its job of generating recommendations. The backend also interacts with the database to finally provide movie recommendations back to the user interface.

## Overall System Architecture:



Architecture of the entire system in the ottunes system architecture is quite systematic where all parts interact to produce customized recommendations for movies this starts from the user interface where the users enter data including the mood story preference and watching mode these details are then transmitted to the backend server where they are processed analyzed the data processing module will analyze the inputs and correlate them with appropriate genres while the movie metadata will be transformed into numeric form through the tf-idf model then the recommendation engine compares this data by applying similarity algorithms to find out the best movies before presenting the recommendations the safety filter module will check whether there are any inappropriate movies according to the chosen watching mode after that the final outputs will be delivered to the front end to present the recommendations to the users

### 1. USER INTERFACE (FRONT END)

This interface involves the area within the system through which users will interact with ottunes this module is created using html css programming languages to make it simple and easy to use the user chooses his or her mood preferred story and viewing scenario and these choices are then forwarded to the back end of the system

### 2. USER INPUT MODULE

The user input module involves and collect information from the user regarding his or her preferences and viewing scenarios this module gathers information like user mood preferred story type and other relevant input data.

### 3. DATA PROCESSING MODULE

Module data processing involves processing the collected data from the user and linking it with suitable genres and features in the movies the textual data is then converted to numeric values using the tf-idf method.

### 4. RECOMMENDATION ENGINE

recommendation engine involves the use of Tf-Idf measures and comparison to identify movies based on users mood and preferences this module makes suggestions on movies that fit the preferences provided by the users



## 5. SAFETY FILTERING MODULE

Safety filtering ensures that the movie selection process does not involve selecting inappropriate movies especially when choosing the family mode option in the viewing scenario section

## 6. DATABASE

The Database holds all movie related data, including title names, genre types, keywords, and descriptions. The data held in the database is analyzed by the system to compare and identify appropriate movies for recommendation.

## 7. BACKEND SERVER (FLASK)

The Backend Server is implemented using Flask technology and acts as a bridge connecting the front-end and the system logic. It processes input data from the user, performs calculations using the recommendation engine, and returns results to the user.

## 8. OUTPUT DISPLAY MODULE

The Output Display Module displays recommended movies to the user in an organized and informative manner.

## IV. IMPLEMENTATION DETAILS:

OTTunes movie recommender system is implemented as an online tool where both the front-end and back-end work together to provide intelligent recommendations for movies. Here, a simple user interface created in HTML and CSS helps the user choose his/her desired genre/mood/plot and other viewing preferences.

Back-end uses Flask to handle all the user requests as well as their inputs. Data from the movies' database is analyzed using Pandas. In particular, text preprocessing is performed before converting textual data into numerical features by using the TF-IDF approach, and comparing movies by finding cosine similarity between them.

In addition, another module takes care of filtering out any movies containing inappropriate content when the user sets Family Mode on. The system ensures smooth integration between its various parts allowing for quick and accurate processing and recommendations.

## RESULTS AND ANALYSIS OF THE EXPERIMENT

The OTTunes model was evaluated for the various combinations of mood, genre, and viewing mode chosen by users. Based on the tests, it can be concluded that OTTunes is capable of providing customized and relevant suggestions for movies.

In particular, the employment of TF-IDF and cosine similarity made the content suggestions precise and personalized according to user's interests. Moreover, the OTTunes model can adapt to a variety of cases and recommend safe movie content when the family mode is chosen.

As opposed to other recommendation algorithms, OTTunes offers relevant and situational movie recommendations. Generally, the proposed model demonstrated good performance by increasing precision, removing irrelevant items, and providing a better experience to users.

## V. EXPERIMENT RESULTS AND ANALYSIS

The OTTunes system was tested through varying user inputs such as mood, story liking, and context. In each case, the system came up with recommendations that aligned with the input given, indicating that it could accurately understand the intentions of the user.

By making use of the TF-IDF text vectorization model and cosine similarity, it became easier for the system to find similarities in terms of theme description among the movies. The results produced in this experiment were more accurate and diversified than the ones based solely on historical data.

The functionality of the safety filtering system worked well, as it limited access to undesirable content when necessary, especially during family mode.

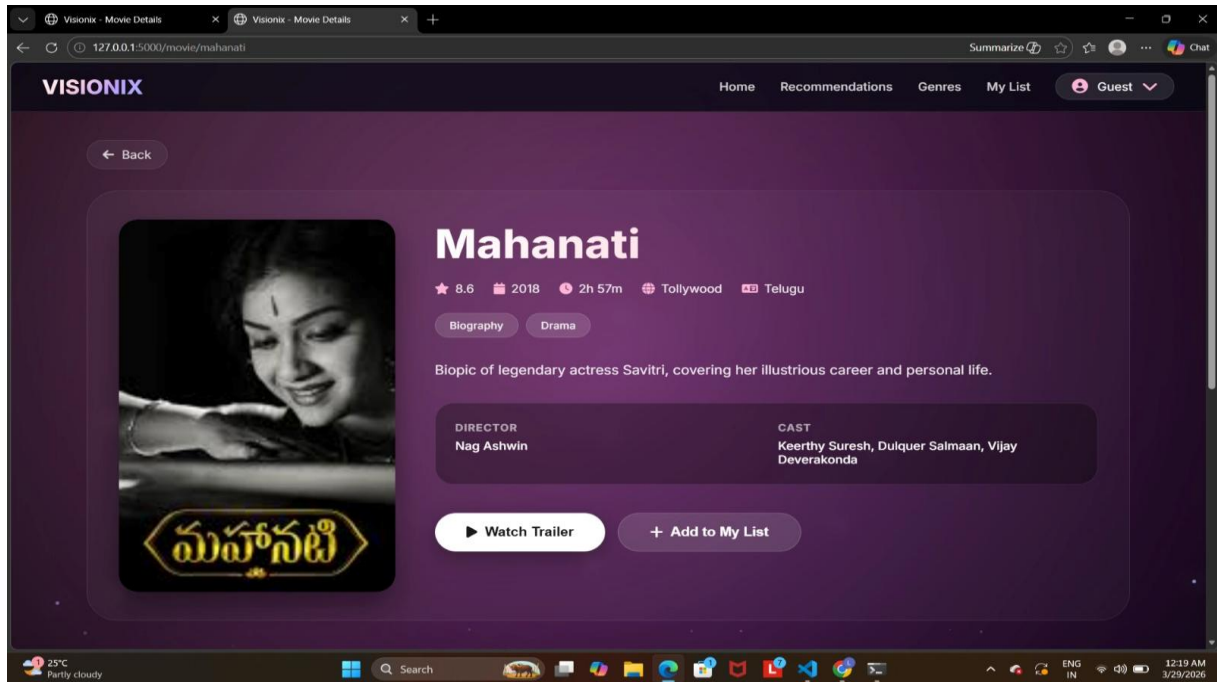


Figure: displays movie recommendations based on the user's choices of mood, story type, and context. shows simple movie recommendations based on user input.

## VII.CONCLUSION

OTTunes is an intelligent movie recommendation system where users get recommendations of movies according to their mood, genre, and even circumstances of watching. It offers more effective recommendations than other conventional methods.

Easy-to-use interface, useful suggestions, and the guarantee of secure content are some advantages of the proposed system.

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