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A Survey on Intelligent Chatbot for Entertainment Recommendation

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Abstract: ***Chatbots, also called chatterbots, is a form of artificial intelligence (AI) that simulates text or voice commands and give answers accordingly. It is a computer application uses voice instructions, text dialogues, or both to mimic human communication. In order to reduce the problem of information overload, which has created a possible problem for many Internet users, it is necessary to filter, prioritize, and efficiently distribute essential information on the Internet, where the quantity of options is overwhelming. A chatbot can be employed to communicate with end users, respond to their questions, comprehend their feelings, and make suggestions that are relevant. The objective of our project is to build a chatbot that allows the user to interact with it and get movies or songs recommendation of his liking/choice. Our proposed system is a single page website which can be run on user's desktop as well as mobile and its main focus is to accurately comprehend the user's question in text or voice format and respond to the user with relevant responses. We used Natural Language Processing (NLP) to convert the human conversation in text or voice format into data that is decrypted using recurrent text and patterns and then shaped into automated answers and responses. In recommendation model, Content based filtering is used which works on the data that we take from the user. The system will suggest various movies or songs based on the user's interests, and the result will be shown to the user.***
Keywords: Chatbot, Natural Language Processing, Recommendation System, Content-Based Filtering.

I. INTRODUCTION

A chatbot is essentially a computer program that mimics human communication. It allows a human and a machine to interact/communicate with one other via messages or voice commands. A chatbot is designed to work without the assistance of a human operator. Natural language processing is used by the chatbot to convert human conversation into data that is decrypted using recurrent text and patterns and then shaped into automated answers and responses. It can respond to inquiries posed to it in natural language as if it were a real person. It responds using a combination of pre-programmed scripts and machine learning algorithms. They can be found on social media platforms such as Facebook Messenger, WhatsApp, Skype, Slack, Line, and even your website. Chatbots have an application layer, a database, APIs, and a Conversational User Interface, just like traditional apps. In general, chatbots handle problems with recommender systems, which search through a vast amount of dynamically created data to present users with individualized content and services. Data for recommender systems comes from explicit user evaluations after seeing a movie or listening to a music, implicit search engine queries and purchase histories, and other information about the users/items themselves. This data is used by the chatbot, which employs recommender systems to do various analyses, classification, and filtering algorithms on it, resulting in meaningful and tailored ideas and recommendations for users.

A. Organization Of Paper

The organization of the paper is as follows section II gives the related work and limitations and last section concludes the paper with future work followed by references.

II. RELATED WORK

In this paper [1], the EBER chatbot is introduced, which aims to close the digital divide faced by the elderly. Adapting to the user's mood, EBER reads news in the background. Its originality comes in the idea of "intelligent radio," according to which, rather than simplifying a digital information system to make it accessible to the elderly, a traditional channel they find familiar—background news—is enhanced with voice dialogues. By merging Sentiment Analysis, Automatic Natural Language Generation, and Artificial Intelligence Modelling Language, it is made possible.

This paper [2] discusses about the intelligent conversational computer programs known as chatbots which are created to mimic human speech in order to provide automated online support and guidance. In order to give clients virtual support, chatbots have been widely used by numerous businesses due to their growing benefits.

Chatbots use techniques and algorithms from two fields of artificial intelligence: Processing Natural Language and Machine Learning.

The problems with text message recognition for intelligent chat-bot information systems were examined in this paper [3]. It was reported and the performance issue with text message recognition was fixed. There were suggestions for cutting down on the time needed for semantic text analysis. There are relationships between the text length, semantic kernel, number of terminology knowledge bases, and overall number of terms in the compound terminological knowledge base.

People who recommend pertinent information about restaurants are increasingly using mobile app markets, thanks to their expansion [4]. By enabling restaurant customers to quickly and easily obtain the information they need whenever and wherever they choose, the suggestion service app based on AI Chatbot can effectively manage time and budgets. Consumers who eat out use smartphone applications to find restaurants, make reservations, and acquire information about them, including reviews. The study of AI chatbots has also recently received societal attention. Due to the text-based interactive service, the Chatbot is integrated with the mobile messaging platform and allows for the provision of numerous services.

The most common place for sick people to receive medical examinations, disease diagnosis, and treatment recommendations is at hospitals. Almost everyone in the world has been doing this for a long time. The goal of the suggested system [5] is to develop an alternative to the current diagnostic procedure, which involves going to a hospital and scheduling an appointment with a doctor. The goal of this study is to build a chatbot by combining the ideas of machine learning and natural language processing. People can communicate with the chatbot in the same way they would with a real person, and through a series of questions, it can determine the user's symptoms, which allows it to diagnose the user's condition and suggest a course of therapy.

The topic of movie recommendations is covered in this paper [6]. The value of a movie recommendation in our social lives stems from its capacity to offer better amusement. Based on the users' interests or the popularity of the films, such a system can recommend a selection of movies to them. A recommendation system is employed to make suggestions for things to see or buy. By reducing the size of the informational database, they point people in the direction of products that can satisfy their needs.

In this research project [7], the K-Means Clustering and K-Nearest Neighbor algorithms are used to create a movie recommender system. The dataset for Movie lens is acquired from Kaggle. Python is the programming language used to implement the system. The suggested work focuses on introducing several machine learning and recommendation system ideas. In this work, recommender systems have been constructed using a variety of tools and methods. There have been detailed descriptions of a number of algorithms, including K-Means Clustering, KNN, Collaborative Filtering, and Content-Based Filtering.

This paper [8] discusses about the recommender systems used by various applications. To make recommendations, these systems employ filtering algorithms. The three main types of these strategies are content-based, collaborative filtering, and hybrid algorithms. The necessity to incorporate recommendation features in digital libraries to lessen information overload served as the inspiration for this project. Because it works well in circumstances or domains where people are outnumbered by objects, content-based techniques are increasingly being used. To ascertain how pertinent or comparable a research paper is to a user's query or profile of interest, TF-IDF (Term Frequency Inverse Document Frequency) and cosine similarity were used.

III. EXISTING SYSTEM

In existing system, collaborative recommender system is used which utilizes user’s past behaviour that he might be interested in. But if we have a new user, we won’t have his past data. In that case it won’t be possible to use collaborative filtering. Rule-based chatbots are also known as decision tree bots. As the name suggests, it uses a set of predefined rules. These rules form the basis for the types of problems that the chatbot knows well and can offer solutions to. Like flowcharts, rule-based chatbots record conversations. It does this by anticipating what the customer will ask and how the chatbot will respond. Rule-based chatbots can use very simple or complex rules. However, it cannot answer questions outside the defined rules. These chatbots do not learn through interaction. Also, they will only lead and work with scenarios you have trained them on.

IV. PROPOSED SYSTEM

NLP blends statistical, machine learning, and deep learning models with computational linguistics—rule-based modelling of human language. With the use of these technologies, computers are now able to process human language in the form of text or audio data and fully "understand" what is being said or written, including the speaker's or writer's intentions and sentiment.

Our Chabot is going to use similar approach to understand what exactly user use asking for and ask follow up questions to get as much relevant features we can get.

In our case those features will be the genre of movie or song, name of actors, name of characters, name of director and more similar possible features. But to be able to ask these questions we are going to use Bag of Words and feed forward neural network.

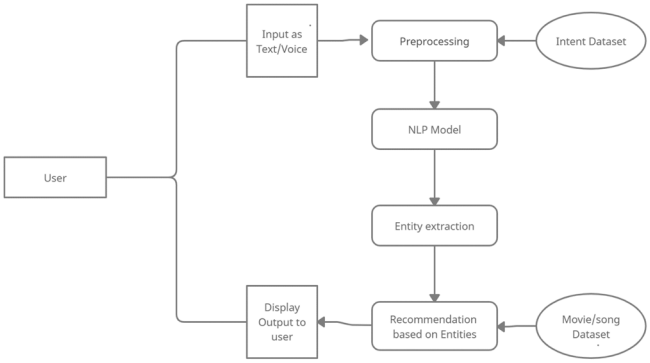

Fig 1: Overall architecture

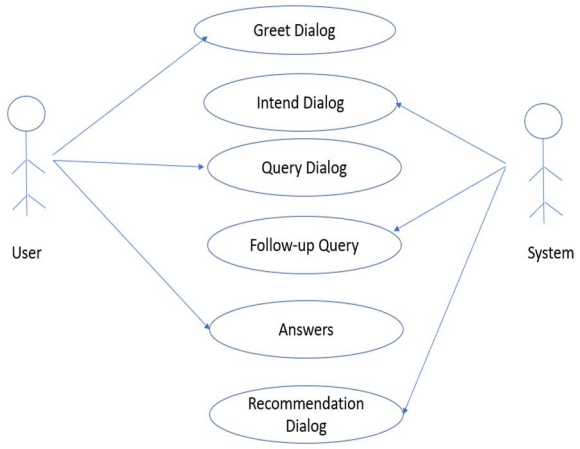

Fig 2: Use-Case Diagram

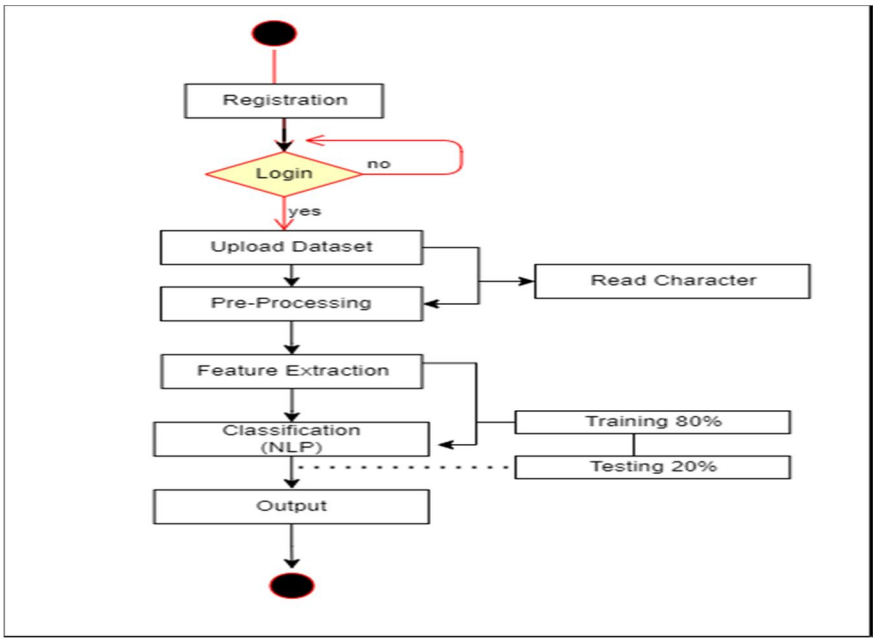

Fig 3: Activity Diagram

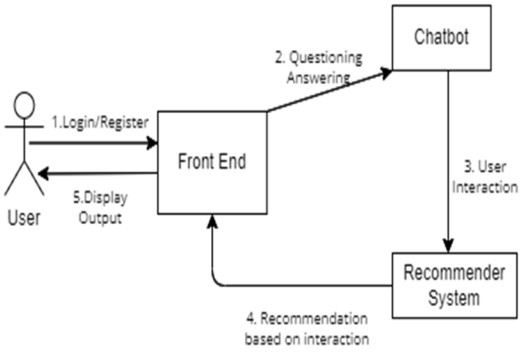

Fig 4: Collaboration Diagram

V. CONCLUSION

Chatbots are one of the most important advancements of Artificial Intelligence technology. Recommendation System is vital in showing relevant data to users for improving their experience. The chatbot application developed in our project will allow the user to interact with the system and give recommendation about songs and movies on the basis of the interaction. Thus, the user will get personalized suggestions according to their taste and also it will help to get the data about most liked and recently searched movies and songs that determine which songs or movies are trending. The future enhancements in this project can be recommendation on the basis of the detection of mood of the user using sentiment analysis.

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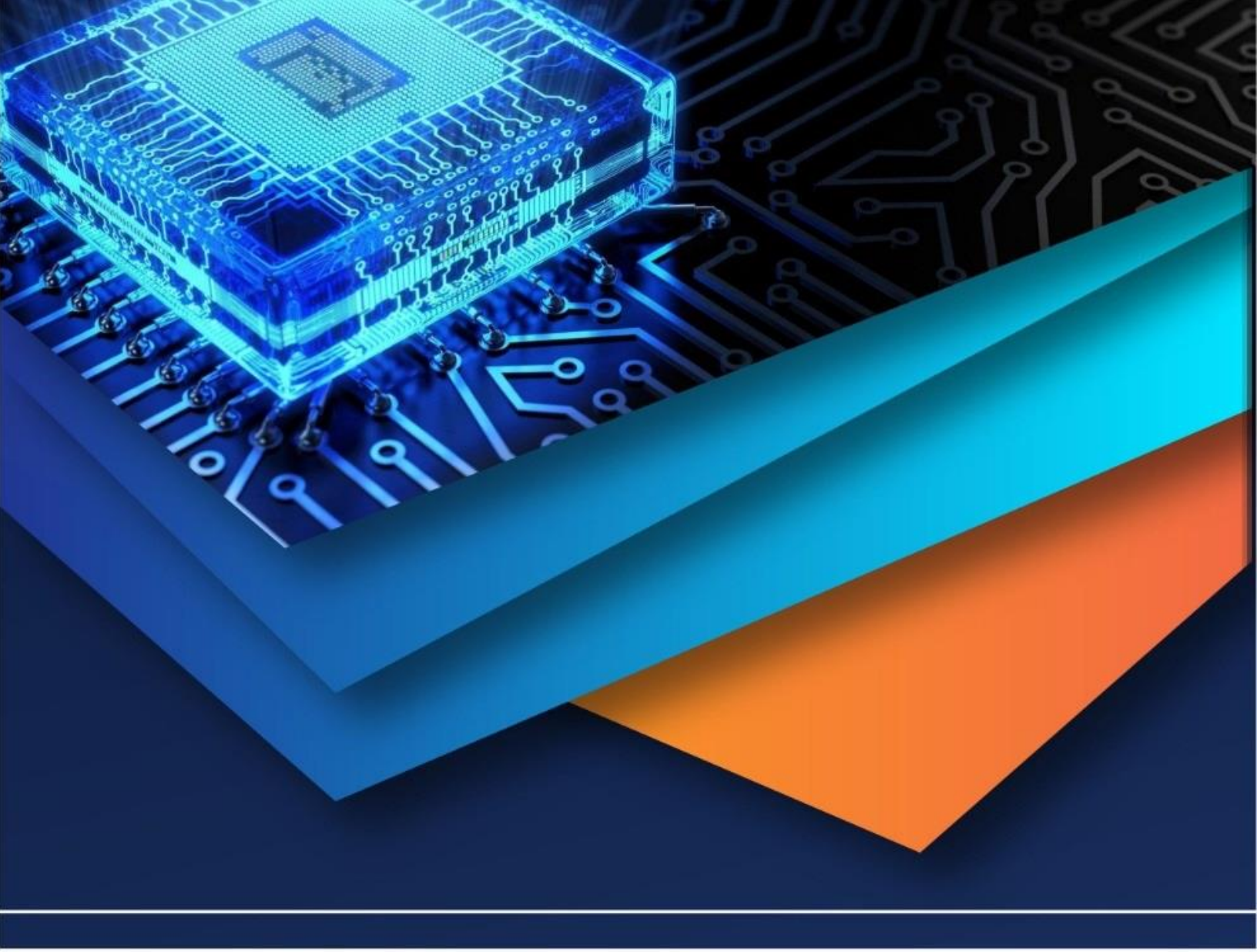

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