Music Room - A Chatbot Based Song Recommender using Sentiment Analysis

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ABSTRACT

In this era of technological advancement, mood-based music recommendations are highly needed because they help people relieve stress and listen to mood-sensitive music.

In our project, system recommends music based on the user's mood in communication(chatting) with chatbots. The motive of this our project is to identify the user's emotion. Once the mood is identified, the API will play the song, depending on what the user has selected and the current mood.

The system we propose can be run on the user's desktop and is implemented as an application whose main purpose is to reliably determine the user's mood. But is it more important not to worry about weird chatbots that exist all over the world and are created primarily for business purposes? This project is building a complete chatbot service to visit. And blame chatbots for not being business-oriented. It will be a casual conversation. In addition, chatbot recommends list of songs to users that based on their current tone. The recommended feature of this song uses basically the same Last.fm API as the popular Spotify API. It also uses the IBM Tone Analyzer API for conversation tone / sentiment analysis. It is very important to work with these types of APIs, as the preferred chatbots in the world today are data-driven conversations. Add user-oriented features. The reason Python needs to build chatbots is that Python is honestly chosen for open source chatbot libraries such as Scikit-learn and TensorFlow. Great for small datasets and simpler analyses. In addition, Python libraries tend to be more useful in creating such self-learning Architecture.

Keywords: Chatbot, IBM Tone Analyzer, Last.fm API, Flask Web Application, React Framework

I. INTRODUCTION

Music is a universal language. Music has been an important part of our lives since the birth of the era. We listen to music when we're having a bad day, we listen to it when we have a great day. Music inspires and enlightens us. From chirping of birds to drum percussion, from harp to riffs of an electric guitar, music has different forms of expression. Music connects people for all that of religion, caste or belief.

It connects people and has a great effect on our way of life. Music isn't just an art form or a language, but it also affects the human mind and body.

Project Context: The purpose of chatbots is to support and empower business teams in their relationships with their customers. Integrate all major chat applications such as Facebook Messenger, WhatsApp, Telegram and text messages. Chatbot applications optimize the interaction between people and services and improve the customer experience. At the same time, it provides enterprises with new opportunities to improve customer retention processes and operational efficiencies by reducing the day-to-day costs of customer service. This project focuses on building custom chatbots. This is a basic step in the tutorial curve to build your own professional chatbot. Mood-based music recommendations are very important in this era of technological advancement It is necessary because it helps people relieve stress and listen to soothing music that suits their mood. Our proposed system is tending to identify the emotions expressed by the user. The identified song will be played by the API according to the user's mood and the current user's choice. The proposed system is implemented as a web application that can be run on the user's desktop, without the need of any expensive requirement. The main focus of which is to ensure that the user's mood is evaluated.

II. METHODS AND MATERIAL

A. Chatbot –

The cake chat is built using Dialog flow. It provides a Flexible code and allow to create an emotional chatting machine. We are using pre-trained model which uses context or list of strings or we can say Message's dialogue and pass as token. Using NLP (Natural Language Process) those tokens are converted to respond emotion and send it back or we can display as Prime Emotion of that particular chat history. The chat bot is run on Local HTTP-server with requests with input message and returns response message from model. Chatbots literally chat as if they were chatting with real people in the real world, enjoying the music recommended by the system.

B. IBM Tone Analyzer-

To detects the emotional and linguistic tones of written or conversation text based on voice analysis we have used the IBM-Watson Tone Analyzer Service. This service can analyse audio at both document and sentence levels.

Sound complements traditional indicators by helping others understand how they sound. It uses machine learning (ML) and Speech processing to analyse voice aggressiveness and tone. Aggression is measured by how happy or sad you make, and energy indicates how excited or tired you are.

Steps Involved to use service are:

- Submit your content as JSON, Plaintext or HTML file.
- Analyse you content.
- View json analysis of your content
- To adjust the tone of you content the analysis is used

Following is example of how IBM Watson tone analyser works, we will pass "I am Feeling Happy" sentence and try to get desired output.
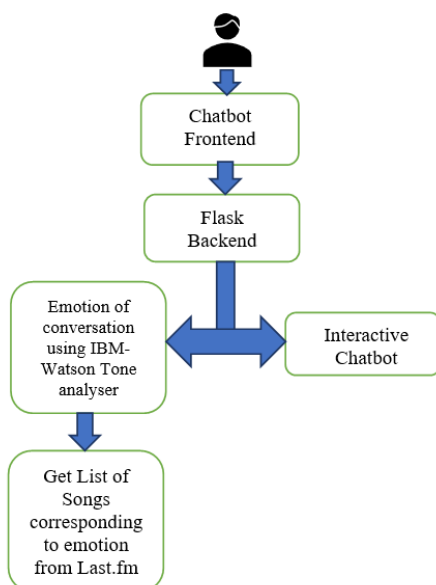
C. Last.fm API Module-

The Last.fm is a Huge Cloud-Base Music Platform Which Provides services like Online Listening to music, live access to concerts across globe, API services which provide Variety of songs on demand with free of charge, etc.

The account holder of Last.fm can have access to his personalized Playlist, libraries, events, loved tracks, frequently played tracks by him. One can manage those services and can create a handful of Playlist which will provide a soothing environment for his workspace.

Tags is a Feature of Last.fm which includes Rock, Hip-Hop, Indie, Classical Indian, 80s, Jazz, Dance, EDM etc. and not only from a Particular country, but it has numerous and Huge Data of Songs stored on the cloud. So, one can access any Kind of music that he loves from any Corner of the world Without having any Language barrier. You can use the Last.fm API to call methods that respond in REST-style XML or JSON format. Each method is explained in detail in the menu on the left on the API homepage. Therefore, you can send the method parameters described as `package. Method-specific arguments for "method" and root URL. The API only supports REST requests and transport formats, such as XML-RPC and JSON as output format.

By the API request we need to mention API key and with method Parameter as 'get top tracks', we can Request for top songs with particular tag field and it will Send recommended song data in JSON format.

The system Architecture below provides conceptual model which provides more and clear view for proposed system. The user will directly have connected interface with chatbot in the Frontend; while the modules will be performing defined tasks in the backend API along with Chatbot server.

Fig. 1 Block Diagram of Proposed system

D. Flask Web Framework-

Python Flask application is a microframework which allows user to create micro web application and to deploy some functionalities on Web facility. It contains variety of libraries and functions. It meets the requirements of the WSGI (Web Server Gateway Interface), it is the standard way to develop Python web applications.

Jinja2 is a template engine that runs on Python. Templates are entities that have a specific data source for rendering dynamic web pages.

E. React Framework -

React is a free open-source JavaScript library primarily used in front-end development for building user interfaces based on components. In our project, React plays a fundamental role in creating API modules and deploying them to a local web server. If successful, you can edit each module individually. i.e. IBM tone, Songs API and Chat bot module. React's main goal is to minimize errors that developers encounter when creating user interfaces. This is done using components (self-contained logical code that describes part of the user interface). You can stitch these components together to create a complete UI, and React abstracts much of your rendering work so you can focus on your UI design. Under each component in react, we need to specify each module differently and further to create each different API module. By route method, we will provide access to user to create GET and POST methods for each module in routes. These react components are basically created in .jsx (JavaScript XML) extension which contains and elements in the system that instructs reacts to render a dynamic API or Web page.

III. RESULTS AND DISCUSSION

Once we have understood the complete flow, we can do whatever we want now. We can go forward with building a command-line interface that collects all these things and does them. Alternatively, you can

create another Flask server that can perform the above steps as part of your API or web page.

 High-level approach: -

- User initiates a conversation
- Tone analysis of the conversation is performed using the IBM-Watson ToneAnalyzerV3 API
- Chat Receives a response to a conversation from a chatbot Based on the emotions received. - Top songs are retrieved using Last. FM's song API

IV. CONCLUSION

At the end of this project, will have a working chatbot song recommender system with a good GUI. For example, a user is working out in the gym and while working out he/she needs motivation so using this chatbot user can chat with the system and this API based system will analyse the tone of the conversation and after analysing the tone on the basis of motivational tone, the system will recommend motivational or party songs to the user so that user feels motivated. Or we can take another example as if a user is having a bad day and through the tone analyser API system get to know this then system will recommend silent songs to the user in the queue.

V. REFERENCES

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