Reclaiming Serenity: Music Therapy and Holistic Wellness in a Modern World

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Abstract: **Stress, anxiety, and sadness have significantly increased in every person's life in the modern day. People don't experience as much anxiety and tension in ancient India, and they lead peaceful lives. The way people live today has changed, and they continue to lead physically unhealthy lives while constantly using their minds. Through music therapy, those struggling with depression, anxiety, and other issues may find relief. This paper will offer advice to the patient on how to recover from illnesses including stress, diabetes attacks, and thyroid problems. This paper follows a few processes, including data collection, recommendation, and prediction.**

Keywords — Stress, depression, data collection, recommendation, prediction.

I. INTRODUCTION

These days, stress and anxiety affect patients and our fellow students who will be our future colleagues. There could be several factors, such as a tone of work, a fear of failing, or an addiction. This paper can introduce them to music and the alchemy known as "music therapy." Many people are unaware of the power of Indian classical music. The seven svara of music, like "Shadja (svara: sa)," can aid in healing issues with the lower back, diarrhea, constipation, the hips, legs, calves, ankles, and feet. "Rishabh" (svara: re) is the remedy for issues like urinary tract infections and renal issues, dysfunctional menstrual cycles, gut and gallbladder issues, and persistent lower back pain. "Gandhar" (svara: ga) is a treatment for issues with the stomach, intestines, metabolism, diabetes, obesity, and other stress-related issues.

Madhyam (ma) svara lowers the incidence of pneumonia, asthma, upper back discomfort, shoulder pain, and upper-arm pain. Pancham (svara: pa) "helps to lessen issues including sore throat, jaw, nasal congestion, and thyroid issues. "Dhaivat" is a reduction cure for ailments like vision problems, hearing loss, spinal disorders, and scalp and hair problems. The final svara is "Nishad (svara: ni) reduces the risk of neurological problems, autoimmune diseases, dementia, and light sensitivity.

Svara's place and sickness are comparable. This paper suggests musical genres for various bodily svara and illness positions. Shortly, it will be implemented the music-based recommender system for every ailment closely associated with human chakras. This paper will primarily focus on diabetes, blood pressure, and hypertension. To increase the likelihood that the user would receive accurate data, a machine learning approach will be integrated.

II. RELATED WORK

The paper [1] seeks how to observe and record brainwave waves that can be used to interpret human psychological states. The EEG Bluetooth headset used in this study has sensors that can record changes in brain waves (such as alpha and beta waves). The EEG signal can reveal a wealth of information regarding a variety of diseases and cognitive dysfunctions. This paper [2] tries to incorporate user characteristics and emotional states to create a single music recommendation system. It seeks to relate the listener's personality and current emotional state to the audio features to build an emotion-and-personality awareness music recommendation system. The electroencephalogram (EEG) used in the research [3][7] was used to record 32 participants' physiological signals as they watched 40 one-minute-long music video snippets. Arousal, valence, like/dislike, dominance, and familiarity were all given ratings for the videos. Investigated are correlations between the EEG signal frequencies and participant ratings. According to Paper [4], the majority of high school pupils in Korea are under pressure due to their grades. Some of them commit themselves because they are unable to cope with the pressure of their studies. The suggested solution creates a brain training application that runs on a smartphone or tablet using individualized rain music therapy. Music's mood impact is studied in psychology. Indian ragas evoke emotions. Advanced tech enables smart music systems.[14] Academic stress affects students. Korean high schoolers face extreme pressure, leading to suicides. Solution is personalized music therapy via EEG recognition on mobile app for stress management. [15]

Machine learning techniques have been applied to Music recommendation system [17] for betterment of user. Facial expressions reveal emotions. Computer Vision & ML detect human feelings. Music's universal connection transcends differences. Mood-based player enhances satisfaction by suggesting suitable songs.[16]

III Proposed System

We are all aware of the positive effects that music has on conditions like hypertension, high blood pressure, and diabetes. The force your heart needs to pump blood throughout your body is measured by your blood pressure. Blood pressure is expressed as two numbers and measured in millimeters of mercury (mmHg). Systolic pressure is the force exerted by the heart when it pumps blood out. Diastolic pressure is the pressure that exists between the beats of the heart. [8] The recommended range for blood pressure is 90/60 mmHg to 120/80 mmHg. When blood pressure is 140/90mmHg or greater, it is deemed high. 90/60 mmHg or below is regarded to be low blood pressure.

Which type of music has the most impact on blood pressure is shown below in some statistical data. 100% of the individuals' diastolic pressure and 94% of their systolic pressure increased in response to tense music. The impact of soothing music was the reverse. Because of the calming music, 68% of people saw a drop in diastolic pressure, and 100% saw a drop in systolic pressure.

a.   Musicological Analysis of Indian Music Therapy

Ragas like Todi, Bhupali, Ahir Bhairava, Puriya, Hindol, Bhimpalas, and Kausi Kanada have been listed in the Sama Veda and other classical Indian music literature [14] pertaining to music therapy as being successful in decreasing blood pressure.

A subject is considered to have received music therapy in an Indian setting when the sound (nada), note (Swara), melody (raga), music interval (Shruti), beat (tala), and rhythm (laya) are intonated correctly and methodically, according to the aesthetic emotion/mood (rasa), and format/mode (Thaat). It should be noted that Swara is composed of the seven notes Sa, Re, Ga, Ma, Pa, Dha, and Ni. The individual notes might have a higher or lower pitch. The term "flat note" (Komal) refers to a note with a lower pitch, whereas the term "sharp note" refers to a note with a higher pitch (Teevra).

Raga is a collection of Swaras that adds the appropriate rasa, aesthetic expression, or mood to a song or piece of music [18]. A raga has the power to evoke or amplify feelings of anticipation, joy, peace, love, compassion, courage, sadness, and emotional and mental tranquility. Raga is suitable for music therapy because of this. Based on the specific quantity of Komal or Teevra Swaras found in each raga, the Thaat may be identified with ease. Positive feelings, which raga therapy may produce, have been demonstrated to cause positive physical, physiological, and psychological effects.

b.   Hypertension in Humans

The conventional definition of hypertension is systolic blood pressure (SBP) > 140 and diastolic blood pressure (DBP) > 90 mm Hg. The Society of Hypertension (ESH) used the same SBP and DBP levels to define hypertension. Subjects who have elevated systemic arterial blood pressure often receive therapy.

Primary hypertension (essential hypertension) and secondary hypertension are the two most common kinds of hypertension. Primary hypertension is the most prevalent and affects the vast majority (90 - 95%) of hypertensive individuals. It has no one identified origin; its causes are unknown and complex in nature. A sedentary lifestyle, excessive salt intake, alcohol use, smoking, stress, insulin resistance, age, and obesity all play a part in its development. Secondary hypertension is a less common kind that affects 5-10% of hypertensives. It can arise because of a variety of underlying medical disorders, including renal, heart, and endocrine system illnesses, as well as medicines.

c.   Diabetes

The human body is made up of cells. Each cell needs the energy to survive and do what it needs. This energy is obtained from these chemicals. We get it from the food we eat. The nutrients are delivered to the cells. Let's say that the glucose from the blood comes to the cells, but if it cannot be taken in, then the cells will not break down the sugar and the blood sugar level will increase. Cells will die. Cells were covered with an impenetrable wall. What would come in and what would be taken out of the cells were kept under strict control. The mixture of sugar, protein, and water that were kept under control in the cell there is different technology for controlling different works. Insulin is used to control the sugar level. Insulin is a chemical compound. The pancreas creates insulin, which is a part of the canal itself. The human is kneaded directly into the blood. By biting the gut, the window opens, and the sugar goes into the cell. When the cell needs sugar, it immediately turns off. again, the cell needs sugar then new osmolality takes place Now, suppose that for some reason there is no insulin created that is required, then no one will come to enter the sugar cell that is coming out. Sugar will be left out. The cells will not get infected. Cells remain hungry to send the message to the mind that food is needed. Then the human eats again. A new sugar is absorbed. A new sugar accumulates outside the walls of the cells. The external sugar is still increasing. This is called diabetes. If there is no diabetes, sometimes sugar comes into the diet. The blood sugar level increases. The amount of sugar is slightly higher. When sugar is needed, the sugar is stored inside the cells. The remaining sugar remains in the sugar. If the sugar level in the sugar increases, it will not be as hard, that's why our body tries to reduce the sugar level. Sugar body makes fat and is stored for a difficult time. But as this happens continuously, the muscles are getting tired, and the muscles are getting fatter. If the sugar level in the blood increases too much, it can affect other organs, we can see the side effects on mainly blood vessels and nerves. all blood from the body will come into the kidney to clean and sugar inside the blood shows side effects the kidney will be infected and there will be chances of kidney failure.

Causes of diabetes-Diabetes are caused by two factors. One type is integral. You can find this one In this, some of their genes are bad and they get it from their parents. Another is auto syndrome. it is found in some people. in that their immune system turns upside down. Another type is external lethal. There are many aspects of lifestyle. Eating habits, Stubbornness, habitual lifestyle, and lack of exercise. infection in the pancreas from viruses will also be a cause. The high possibility of diabetes can be due to mental stress.[12]

All remedies should be considered such as:
Bhapu,Yemen,Khamaz,Gaud,sarang,tilang,shankara,bihag, and ragoshree

IV Algorithm Design and Framework

The ML model is based on a content-based filtering method. So far data has been collected from various other resources. The raw data is then preprocessed and split into 4 features.

Data sample below.
Feature-1 Raags
Feature-2 Affective against
Feature-3 Playing time (Morning, evening, Night, etc.)
Feature-4 (Disease) in which it is used.

This label-type data is used to build the Machine Learning model.[17] The data has been divided and converted the adjective and adverb-type words like lovely to love, affective to affect, etc. using portstreamer from Sklearn. This enables the creation of a tag that is appropriate for each raga separately. Following this, a given text is converted into a vector based on the frequency (count) of each word that appears in the full text by using a countvectorizer to compare all tags with each raga.

The similarity between two vectors in an inner product space is determined using cosine similarity. It establishes whether two vectors are roughly pointing in the same direction by calculating the cosine of the angle between them.

The whole project entails creating a web application where users/patients can choose their disease and frequency of mood from the frontend side, which will be input to the backend. The backend component will gather this data, and find the ragas which match the input, and this raga is further passed down to the predicted logic.

Obtaining the five suggested ragas from the predicted logic function. For the "prev" and "next" functionalities, the first raga will be saved in the stack and the other 2 ragas will be put in the queue. When the user selects "next," the other 5 ragas related to the ragas in the queue will then be used to recommend the next 5 ragas, and if the user selects "prev," they will be provided the data stored in the stack.
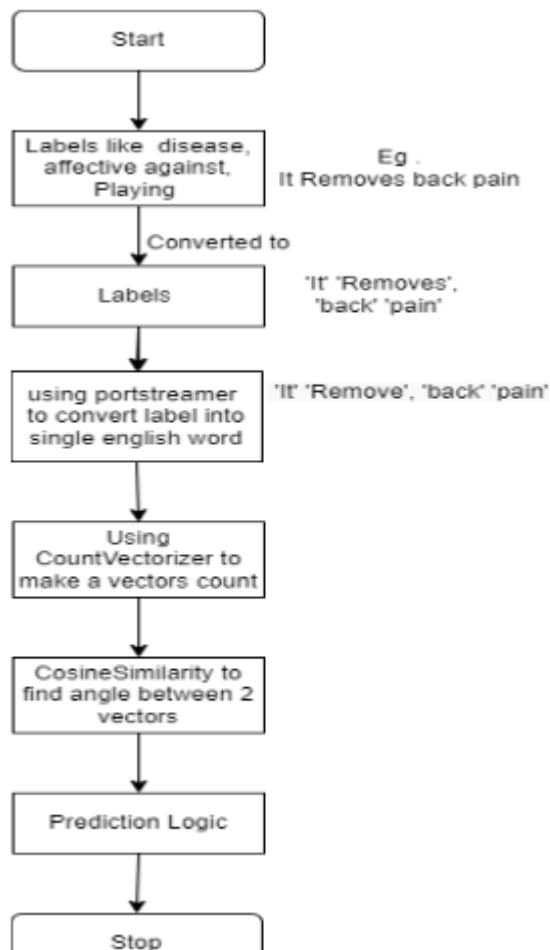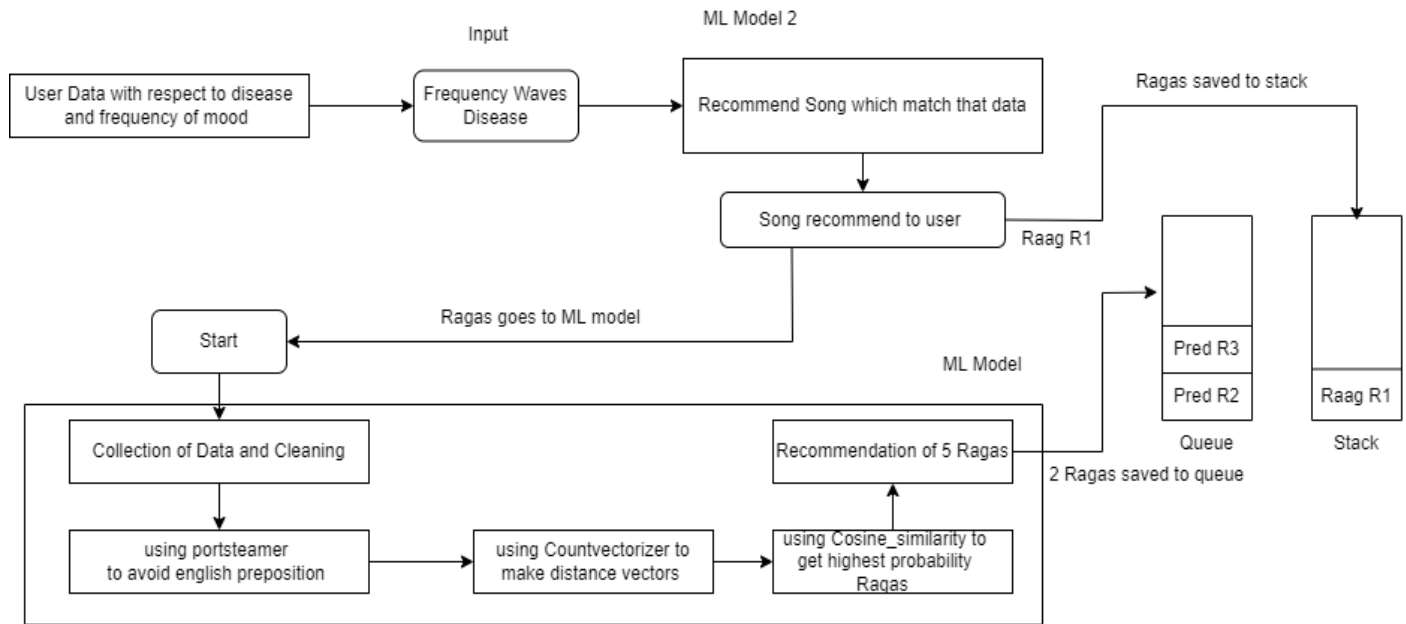

Fig.1 Flowchart

Fig.2 Application Architecture

V. RESULT

Three of the five ragas have cosine values above 0.4, indicating that they are most likely related to the input ragas. Tests of the total performance for each raga revealed that, out of 50, about 40 ragas accurately predicted three other ragas. The forecast is accurate compared to the data size, which is 55 ragas.

VI. CONCLUSION

By using MRS for those suffering from anxiety, depression, and stress-like behaviors. we will give them the best treatment to overcome this type of situation without giving them tablets, drugs, or anything this treatment is purely based on our culture. which has no side effects on the patients. It will help the patient to heal their disease without the intake of any type of chemicals in their body. That is very beneficial to the patient's health because we see the today's world everyone tries to be active in day-to-day life. Today's lifestyle is so fast that's why everyone tries to cure any disease in less time but that is not the correct way to cure it with the help of chemicals. Because in the future that will be harmful to our bodies. and that would affect our lifespan that's why we should move towards the traditional way of curing like music therapy it would be beneficial for our body as well as our mind.

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