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Mental Health Tracker

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Abstract: *According to the World Health Organization, previous year 14% of India's population suffered from mental health disease, which included 45.7 million suffering from clinical depression and 49 million from anxiety disorders. Mostly during covid-19 pandemic, when most of the countries choose to go into lockdown, it became obvious for people to feel unmotivated, alienated and stressed which when coupled with overthinking, irritation and anxiety have led few to self-harm with some even losing their lives to mental health. The project focuses on building a mental health tracker for the user and find out if they are suffering from any kind of mental stress and then suggest measures, they can take to get out of their present condition. A user answers some questions and based on the answers that they provide, we will suggest tasks to them. We have also included Doctors module as a professional help if needed.*

I. INTRODUCTION

- Mental health is a term used to describe psychological, emotional and social well-being. The quality of a person's mental health is often measured by how adaptively they can cope with everyday stresses. Mental health allows people to use their abilities, be productive, make decisions and also play an active role in their communities.
- Having poor mental health is generally confused with having a mental illness. But mental health actually refers to an individual's state of mental well-being whether or not they have a psychiatric condition.
- A paper in the World Psychiatry journal states that mental health officially came out as its own field of study in 1946 during the International Health Conference. The World Health Organization Constitutions stated that mental "well-being" is an essential part of overall health, even in the absence of mental illness.
- Before to mental health, "mental hygiene" was a term used in the 20th and 19th centuries to refer to the impact that mental processes have on overall health. In the United States in 1908 a mental hygiene movement had formed. Its goal was to support for people who were "mentally sick," or people who had psychiatric conditions, in a kinder way as historically, people with mental illnesses were abused, neglected, and lacked adequate care.
- Though disgrace surrounding mental illness still exists, more and more people have realized the importance of receiving treatment like psychotherapy for maintenance of their mental wellbeing, regardless of whether they have a mental illness.
- Moreover, an ample of research has found that positive mental health is linked with improved quality of life, including better productivity, higher educational achievement, closer social connections, and improved relationships.

II. LITERATURE REVIEW

In this paper based on comparison of different machine learning algorithms. Machine learning were applied to determine five different severity levels of anxiety, stress, and depression. Data were collected using standard questionnaires measuring the common symptoms of anxiety, depression, and stress. The accuracy of naive Bayes was found to be the highest, although Random Forest was identified as the best model.[1]

In this model, mental screening questions were there for tracking individual's mood and mental condition. This model helps rationalize negative thoughts, meditation guide and have activities and games for improving attention, memory etc. The technology has been used in this model wasMachine Learning and AI. The programming language used was python.[2]

Location, Time, and Activity logic(LTA)is used in SituMan logic. The location, time and activity were directly obtained from the device and a notification were sent by the mood Buster. This notification typically requests patients

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to rate their levels of mood, anxiety, and sleep quality. From these situation aware notifications, the mood buster may be able to correlate the patient's status with their situations. The technology used for this model was Machine learning.[3]

In this model aims to identify, analyze and characterize the current state of person by mood tracker, Chat conversation, test was provided. Machine learning and Python technology was used for this model.[4]

In this model develops various systems for mental health monitoring virtual counseling, precision therapy and diagnostic systems by reviewing of Chat conversation and virtual counseling. The technology used was AI, Machine Learning and Neural Processing Language for text analysis.[5]

In this paper in order to assist clinicians in identifying the characteristics and classifying depressed people, different types of data modalities and machine learning techniques have been incorporated by researchers in this field. Find the answers to some important questions related to the trend of publications, machine learning models, data modality, dataset usage, pre-processing techniques and feature extraction and selection techniques that are prevalent and guide the direction of future research on depression diagnosis.[6]

In this paper, Machine learning (ML) techniques such as artificial intelligence (AI) and natural language processing used to provide an overview of the existing research on ML applications and harness their potential in health promotion and behavioral change interventions.[7]

In this paper, they study passively sensed data from adolescents with depression and investigate the predictive capabilities of 2 machine learning approaches to predict depression scores and change in depression levels in adolescents. Linear and nonlinear machine learning algorithms were trained to model the data.[8]

In this paper, they have used machine learning algorithm for healthy habit development through gamification. Game elements to non-game environments in order to engage the audience and provide enthusiasm into mundane activities while also providing them with motivational and cognitive benefits.[9]

In user input was taken in the form of MCQ or speak. Then that text was passed to personality insights API which generates a JSON file. Then a chart was prepared according to the input given by the user and a critical value was set by doctor and if the critical value falls below the range the doctor were notified via SMS. The OS used for this model was Linux/Windows. The programming language used was python 3.6. Framework was Flask0.12.2, Pygal2.4.0. The database used was sqllite3.8.2 and mangoDB3.6.0.[10]

III. EXISTING SYSTEM

There are lots of datasets available to predict the stress, mental depression, mental problem, etc. The same approach in existing system can be implemented with the help of sentimental analysis by providing dataset as comments provided in the social media about metal depression. In our proposed system we had conducted a survey with multiple students and based upon the survey we had created our own dataset. So that our dataset doesn't have any false results which can affect the machine learning prediction results.

IV. PROPOSED SYSTEM

Our system which we are proposing will be based on machine learning technique which will take the input as dataset which have multiple questions which was answered by millions of people as part of survey. The dataset is pre-processed and provided to the next level which is part of training with the help of Linear Regression Algorithm. The end user is listed with multiple choice questions which is needed to be answered by them and the answers are sent to the machine learning algorithm to predict the mental problem is not or there. If we found mental problem is there, we will list them as set of doctors to get suggestions from them.

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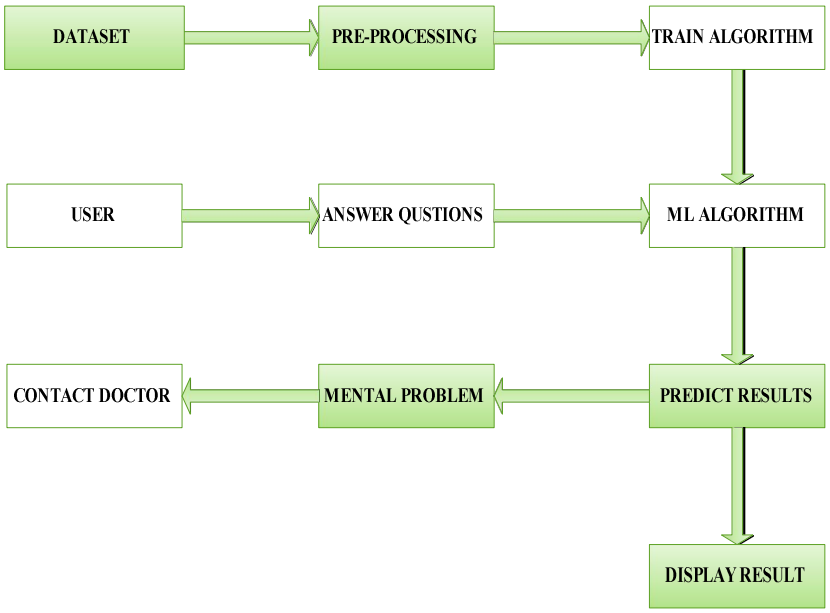
V. OBJECTIVES

- To get an idea of the mental state of the user and find out if they are suffering.
- To suggest measures they can take to get out of their present condition.
- To maintain a record of their mental state for displaying on a dashboard.

VI. ARCHITECTURE DIAGRAM



VII. PROBLEM STATEMENT

To design and develop a mental health tracker to keep track of teenager's mental health and help them to come out of anxiety, stress and mood swings.

VIII. CONCLUSION

Applying the suggested framework to a case study is used in experiments to determine the proposed framework's efficiency. The results of these studies are encouraging since they show that it is possible to predict the mental problem with the help of questioner mechanism entirety while still achieving an accuracy rate of 100% and doing it in less time. When the length of the tree traversal takes a lengthy time, the linear regression approach performs well. Because the degree of traversal standard automatically rises as the length of the traverse increases. Future improvements to the suggested work will expand in the direction of altering linear regression algorithm settings to make them acceptable for both private and hybrid cloud environments.

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