

PROJECT DOCUMENTATION

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Project: Predict mental health using machine learning

OBJECTIVES:

To build an html web page for prediction mental health

THEORY:

The increase of mental health problems and the need for effective medical health care have led to an investigation of machine learning that can be applied in mental health problems. This paper presents a recent systematic review of machine learning approaches in predicting mental health problems. Furthermore, we will discuss the challenges, limitations, and future directions for the application of machine learning in the mental health field. We collect research articles and studies that are related to the machine learning approaches in predicting mental health problems by searching reliable databases. Moreover, we adhere to the PRISMA methodology in conducting this systematic review. We include a total of 30 research articles in this review after the screening and identification processes.



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Then, we categorize the collected research articles based on the mental health problems such as schizophrenia, bipolar disorder, anxiety and depression, posttraumatic stress disorder, and mental health problems among children. Discussing the findings, we reflect on the challenges and limitations faced by the researchers on machine learning in mental health problems. Additionally, we provide concrete recommendations on the potential future research and development of applying machine learning in the mental health field.

Mental illness is a health problem that undoubtedly impacts emotions, reasoning, and social interaction of a person. These issues have shown that mental illness gives serious consequences across societies and demands new strategies for prevention and intervention. To accomplish these strategies, early detection of mental health is an essential procedure. Medical predictive analytics will reform the

healthcare field broadly as discussed by Miner et al. Mental illness is usually diagnosed based on the individual self-report that requires questionnaires designed for the detection of the specific patterns of feeling or social interactions. With proper care and treatment, many individuals will hopefully be able to recover from mental illness or emotional disorder .

Machine learning is a technique that aims to construct systems that can improve through experience by using advanced statistical and probabilistic techniques. It is believed to be a significantly useful tool to help in predicting mental health. It is allowing many researchers to acquire important information from the data, provide personalized experiences, and develop automated intelligent systems . The widely used algorithms in the field of machine learning such as support vector machine, random forest, and artificial neural networks have been utilized to forecast and categorize the future events .

Supervised learning in machine learning is the most widely applied approach in many types of research, studies, and experiments, especially in predicting illness in the medical field. In supervised learning, the terms, attributes, and values should be reflected in all data instances . More precisely, supervised learning is a classification

technique using structured training data .



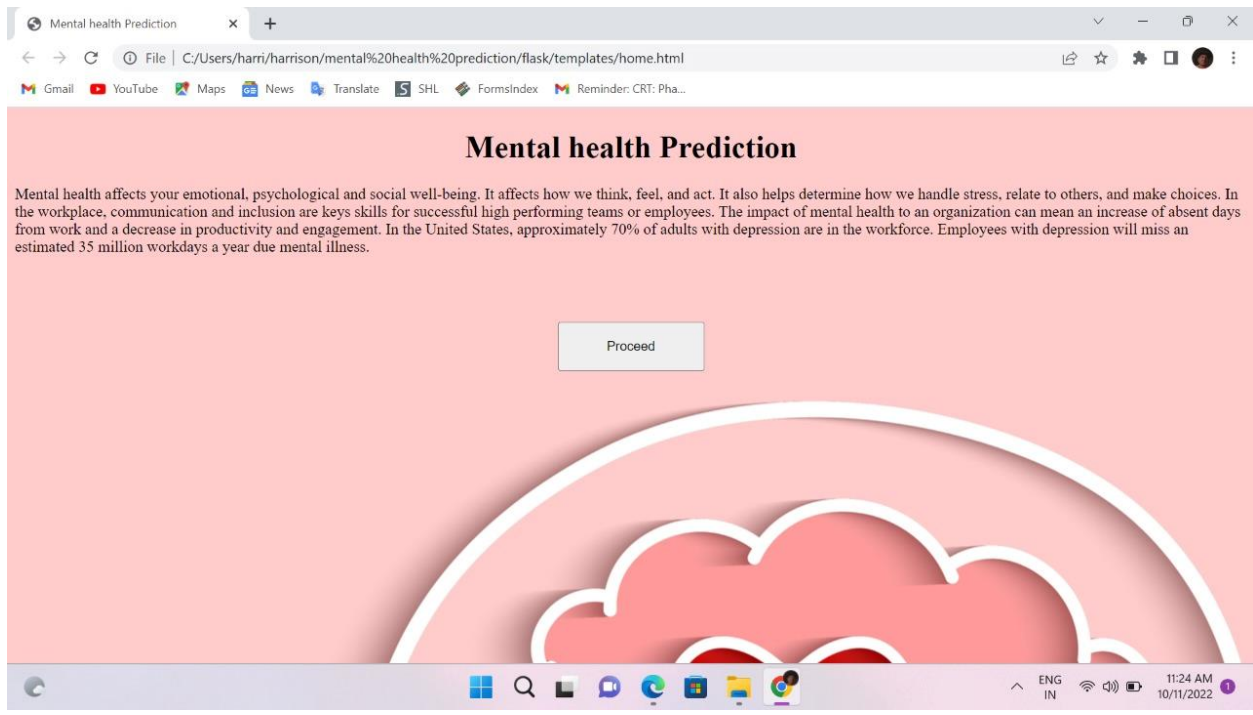
Meanwhile, unsupervised learning does not need supervision to predict. The main goal of unsupervised learning is handling data without supervision. It is very limited for the researchers to apply unsupervised learning methods in the clinical field

PROJECT-prediction of mental health using machine learning

Overview:

The Html web page where the mental health is predicted by evaluating the mental stability status. the convolutional neural network achieved the highest accuracy of 96% for anxiety and 96.8% for depression. The support vector machine showed a great result and was able to obtain an accuracy of 95% for anxiety and 95.8% for depression.

Screen Shots:



This screenshot shows the 'Mental health Prediction' index page, which contains a form for user input. The form is set against the same light pink background with the cloud and rainbow graphic. The title 'Mental health Prediction' is at the top. The form includes several input fields and dropdown menus for collecting user data.

Mental health Prediction

Age
18

Gender
Male

Are you self employed?
Yes

Do you have a family history of mental illness?
Yes

If you have a mental health condition, do you feel that it interferes with your work?
Never

How many employees does your company or organization have?
1-25

