MACHINE LEARNING BASED HEALTHCARE SYSTEM FOR INVESTIGATING THE ASSOCIATION BETWEEN DEPRESSION AND QUALITY OF LIFE

G.Ananthasayana,

Student,
Department of Computer Science and Engineering,
Bharath Institute Of Higher Education and Research,

D. Revanth Kumar,

Student,
Department of Computer Science and Engineering,
Bharath Institute Of Higher Education and Research,

M.Bala Sai Babu,

Student,
Department of Computer Science and Engineering,
Bharath Institute Of Higher Education and Research,

J.Madhu Nivas,

Student,
Department of Computer Science
and Engineering,
Bharath Institute Of Higher
Education and Research,

K.Amutha

Student,
Department of Computer Science
and Engineering,
Bharath Institute Of Higher
Education and Research,

Abstract
An increasing number of social network mental disorders (SNMD's), such as Cyber-Relationship Addiction, Information Overload, and Net Compulsion, have been recently noted. Symptoms of these mental disorders are usually observed passively today, resulting in delayed clinical intervention. In this study, we can agree that mining online social behavior provides an opportunity to actively identify SNMDs at an early stage. It is challenging to detect SNSD's because the mental factors considered in standard diagnostic criteria (questionnaire) cannot be observed from online social activity logs. Hence, we propose a Machine Learning framework called Social Network Mental Disorder Detection (SNMDD), that utilizes features extracted from social network data to identify potential cases of SNMDs. We use the multi-source learning in SNMPD and introduced a new SNMP based Tensor Model (STM) to improve the performance. The strength of the proposed SNMDD framework is proved through a user study with 3126 online social network users. A feature analysis has been conducted and the characteristics of the three SNMD types are analyzed. The experimental results reveal that the proposed SNMP framework has shown a remarkable performance in identifying online social network users with potential SNMDs.

KEYWORDS:Depression, Quality of life, Health Care

OBJECTIVE

❖ To introduce an efficient SNMPframework to classify or to detect people with potential SNMD

❖ To classify people with SNSD into three respective classes :

     1.Cyber Relationship Addiction,

     2.Information overload &

     3.Net Compulsion respectively

❖ To achieve a better classification performance using the proposed SNMD Framework

INTRODUCTION

.Healthcare is one of the major problems faced by the entire world regardless of the situation whether the country is developing or developed. As a leading interest worldwide, smart, efficient, and secure healthcare systems are developed to improve the quality of life. The early studies of human behavior have attracted the researchers of different fields to work in the discipline of psychology and Neuroscience.The same is the case with the growing field of research in computer science and machine learning. Identifying the mental health issues of a patient is an enduring challenge to doctors and healthcare organizations and especially among younger people, is not a new phenomenon. Recent advances in the field of machine learning and deep learning have shown its power to identify the psychological disorders of individuals as well as recognize the impact of such disorders on their lifestyle. All over the world, the most important growth-related change among people is a change in mental health. That is why depression and anxiety are considered the two most important disorders related to the age factor. Both badly affect the quality of life (QoL) in patients and weaken the decision-making system which in result causes a high level of distress.

ALGORITHM

We use three algorithms to put into effect this mission, as it's miles recognised:

• A LOGISTIC ALGORITHM for the investigation of photographs analyzing defects.

• Licensed Forest as a prediction

• SIMPLE BAYES for mission evaluation

LITERATURE SURVEY

1. Suicide Analysis and Prevention Application using Machine Learning Classifiers

Suicide is the second main purpose of loss of life, causing over eight,000 deaths in keeping with year and greater tried suicides. The phenomenon while someone has unfavorable thoughts is known as adverse thoughts, and finding and supporting is the detection of unfavorable thoughts. Although many research were conducted to evaluate and treat the chance of suicide in people, these research lack real-time evaluation and therefore can't provide medical or mental assist. We are going to address each of those troubles by first increasing the data coming in and gathering statistics from the environment, which is extra efficient than other trucks. This is how we arise to search for symptoms of virtual suicide. This brings us to a platform like Reddit, which creates the same nameless region wherein the person can explicit his opinion without any hostility. In this task we will use gadget gaining knowledge of under classifiers for suicide detection which includes TF-IDF and JOS. This article uses the TFIDF-Comital multinomial vector Bayesian version to research the facts, with a median value of ninety two% and an F1 of ninety six%

2.Depression Detection on Social Media using Machine Learning Techniques

Depression is a commonplace however critical mental ailment. But the majority with despair do not see a health practitioner about this hassle. On the alternative hand, using social networking websites like Twitter is expanding very swiftly. Today, human beings have a tendency to depend on those social media to share their emotions and emotions. So, this effortlessly accessible content proved beneficial for us to expand the intellectual health of such customers. We can practice various device learning techniques to social media facts to extract facts about the intellectual health repute of a depressed-targeted person. Identifying poor textual content in statistics is the nice manner to discover depression. This article mentioned the trouble of detecting depression in social media and diverse machine studying algorithms that can be used to come across despair. A learning synthesis method to make clear this question. We try to discover and implement the most suitable approach and algorithm to resolve this problem.

3.Detecting and Analyzing Suicidal Ideation on Social Media Using Deep Learning and Machine Learning Model

People suffering from harmful thoughts frequently express their thoughts and ideas on social media. Thus, several studies have shown that folks that are considering suicide can be diagnosed via the analysis of social media. But locating and expertise styles of destructive mind is tough paintings. Therefore, it is vital to broaden a machine mastering system for automatic early detection of unfavorable mind or any sudden changes in person behavior by way of analyzing their social media posts. In this text, we endorse an experimental studies technique primarily based at the idea of making a unfavorable idea detection machine the use of public datasets, phrase embedding procedures inclusive of TF-IDF and Word2Vec for textual illustration, and hybrid deep learning and gadget gaining knowledge of algorithms. Partition A Convolutional Neural Network and Bidirectional Long Short Term Memory Model (CNN-BiLSTM) and XGBoost machine gaining knowledge of version had been used to identify social messages as fatal or fatal the use of text and LIWC-22 primarily based features with the aid of strolling two experiments. To verify the overall performance of the models, we used measures of accuracy, precision, do not forget, and F1 rankings. A evaluation of the take a look at outcomes suggests that once using the textual feature, the CNN-BiLSTM XGBoost version achieved, reaching ninety five%

accuracy for detrimental devices, as compared to the latter's ninety one.5% accuracy. Conversely, whilst the usage of LIWC features, XGBoost indicates higher performance than CNN-BiLSTM.

4.Suicidal Thoughts Prediction from Social Media Posts using Machine Learning and Deep Learning

While good sized advances have been made within the analysis and remedy of mental issues, suicide stays a primary public fitness trouble. Professional people may be found for their behavior. Today, many people use social media structures to share their mind and also discuss their troubles. This social media analysis, taking note of language alternatives and topical descriptions, can assist in the early detection of unfavorable dispositions leading to suicide prevention. The proposed work tries to address this hassle with the aid of the use of gadget gaining knowledge of and deep gaining knowledge of methodologies to refer to social media messages, so that it is possible to stumble on the presence of greater unfavorable thoughts. Natural language processing is used as an antecedent of uncooked text statistics for social networks. For the challenge of text class, machine getting to know strategies which include Support Vector Machine (SVM), Naive Bayes Bernoulli (NB), Decision Tree Classifier (DT), Random Forest (RF), Extreme Gradient Boost (XG Boost), Stochastic Gradient Descent (SGD) and K-Nearest (K-NN) algorithms. Additional deep studying neural networks along with long-time period memory (LSTM), convolutional neural networks (CNN), bidirectional LSTM, and attentional mechanisms are explored to improve overall performance. The experimental results display that BI-LSTM with the Operation engine achieves a higher accuracy of ninety three.75% with the Twitter dataset.

5.Depression Detection Using Sentiment Analysis of Tweets

At gift, the chance of untimely death due to mental contamination is growing, the reason of that's melancholy. Depression reasons negative thoughts, inflicting extreme disruptions in day by day life. Sentiment evaluation is a hot subject matter that has been researched for many years, the purpose of which is to find the character of the textual content and divide it into tremendous, negative and neutral. In state-of-the-art digital world, there's an abundance of information available for sentiment analysis, both image and textual content. The purpose of this text is to use natural language processing on Twitter fans to behavior affective evaluation with a focus on melancholy. Based on a carefully curated listing of phrases, tweets are categorised as positive or negative. Simple bay and aid vector gadget algorithms are used to encode the text facts obtained from the feed. The outcomes are supplied the use of a category

EXISTING SYSTEM

- Many real time practices have been introduced to deal with SNMDs. For example, in 2021, Kim et al. have investigated the association of sleep quality and suicide attempt of Internet addicts. On the other hand, recent research in Psychology and Sociology has reported a wide number of mental factors related to social network mental disorders.

- An NLP-based approach has been utilized to collect and extract linguistic and content-based features from online social media to identify Borderline Personality Disorder and Bipolar Disorder patients.

- In another research study, the topical and linguistic features have been extracted from online social media for patients' depression to analyze their patterns.

- Also, Choudhury et al. analyze emotion and linguistic styles of social media data for Major Depressive Disorder (MDD).

- However, most previous research focuses on individual behaviors and their generated textual contents, but do not carefully examine the structure of social networks and potential Psychological features.

DISADVANTAGES OF THE EXISTING SYSTEM

• Although preceding paintings in psychology has recognized some essential psychiatric elements related to SNMD, they're commonly taken into consideration trendy diagnostic criteria within the questionnaire.
• The advanced schemes are not designed to handle scattered records from a couple of OSNs.
• SNMD facts from exceptional OSNs may be incomplete because of heterogeneity

severity of social media messages using learning algorithms in the fields of system studying and deep studying to decide if a message includes any malicious reason.

PROPOSED SYSTEM

- In this project, an efficient SNMDD framework has been proposed to detect people with potential SNMD and introduced a new SNMD based Tensor Model (STM) to improve the performance.

- Further, SNMD characteristics are analyzed and classified them further into the following three types:

  1) Cyber-Relationship (CR) Addiction, which includes addiction to social networking, checking and messaging to the point where social relationships to virtual and online friends become more important than real-life ones with friends and families

2) Net Compulsion (NC), which includes compulsive online social gaming or gambling, often resulting in financial and job-related problems.

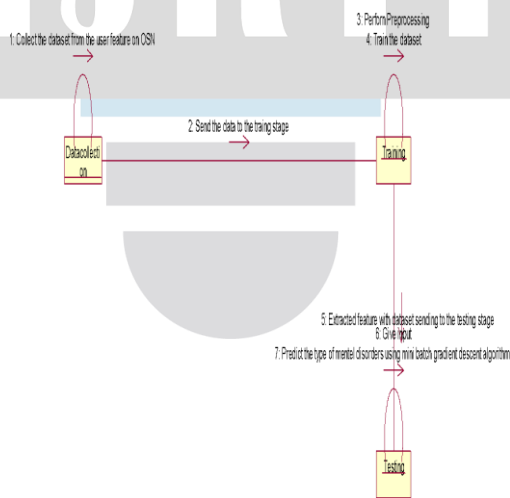3) Information Overload (IO), which includes addictive surfing of user
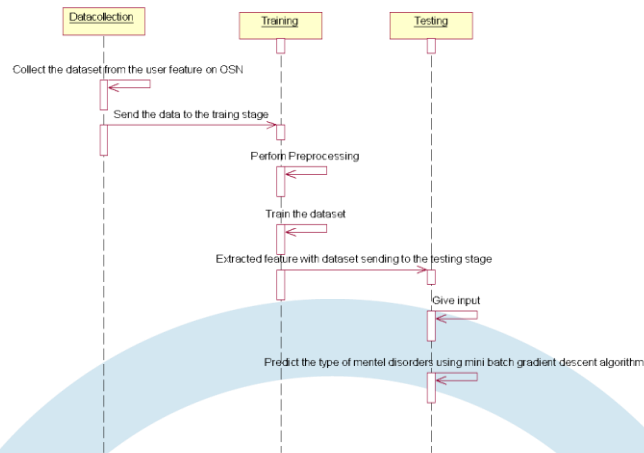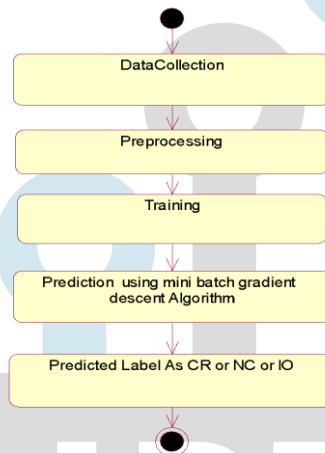
DATA FLOW DIAGRAM
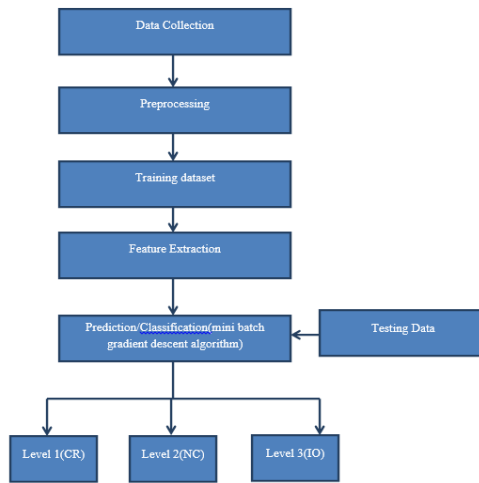
USE CASE DIAGRAM
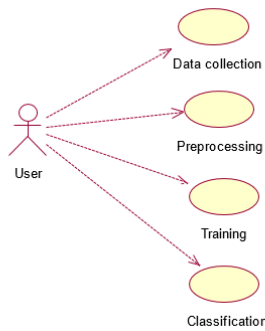
COLLABORATION DIAGRAM

SEQUENCE DIAGRAM

ACTIVITY DIAGRAM

CONCLUSION

We used decision trees and random forests to analyse some depression-related issues in this project. In the future, we can update our project to incorporate new techniques and algorithms.

REFERENCES

[1] K. Young, M. Pistner, J. O'Mara, and J. Buchanan. Cyber-disorders: The mental health concern for the new millennium. Cyberpsychol. Behav., 1999.

[2] J. Block. Issues of DSM-V: internet addiction. American Journal of Psychiatry, 2008.

[3] K. Young. Internet addiction: the emergence of a new clinical disorder, Cyberpsychol. Behav., 1998. [4] I.-H. Lin, C.-H. Ko, Y.-P. Chang, T.-L. Liu, P.-W. Wang, H.-C. Lin, M.-F. Huang, Y.-C. Yeh, W.-J. Chou, and C.-F. Yen. The association between suicidality and Internet addiction and activities in Taiwanese adolescents. Compr. Psychiat., 2014.

[5] Y. Baek, Y. Bae, and H. Jang. Social and parasocial relationships on social network sites and their differential relationships with users' psychological well-being. Cyberpsychol. Behav. Soc. Netw., 2013.

[6] D. La Barbera, F. La Paglia, and R. Valsavoia. Social network and addiction. Cyberpsychol. Behav., 2009.

[7] K. Chak and L. Leung. Shyness and locus of control as predictors of internet addiction and internet use. Cyberpsychol. Behav., 2004.

[8] K. Caballero and R. Akella. Dynamically modeling patients health state from electronic medical records: a time series approach. KDD, 2016.

[9] L. Zhao and J. Ye and F. Chen and C.-T. Lu and N. Ramakrishnan. Hierarchical Incomplete multi-source feature learning for Spatiotemporal Event Forecasting. KDD, 2016.

[10] E. Baumer, P. Adams, V. Khovanskaya, T. Liao, M. Smith, V. Sosik, and K. Williams. Limiting, leaving, and (re)lapsing: an exploration of Facebook non-use practices and experiences. CHI, 2013.