IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 6, June 2021

DOI 10.17148/IJARCCE.2021.10688

Depression Detection From Social Network Users

Basheer Abbas Shaik[1], Maheswararao P[2], Lakshmi Srinivas V[3], Nagur Babu Sk[4], G.HARANADHA BABU, M. TECH (Ph. D) [5]

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING KKR & KSR INSTITUTE OF TECHNOLOGY AND SCIENCES

Abstract: Social networks have been developed as a great point for its users to communicate with their interested friends and share their opinions, photos, and videos reflecting their moods, feelings and sentiments. This creates an opportunity to analyse social network data for user's feelings and sentiments to investigate their moods and attitudes when they are communicating via these online tools. Mental health issues are widely accepted as one of the most prominent health challenges in the world, with over 300 million people currently suffering from depression alone. With massive volumes of user-generated data on social networking platforms, researchers are increasingly using machine learning to determine whether this content can be used to detect mental health problems in users. This study aims to develop a model to classify users with depression via machine learning techniques, which can learn from user-level labels to identify post-level labels .By combining every possibility of posts label category, it can generate temporal data which can then be used to classify users with depression. This project shows that there are clear differences in posting patterns between users with depression and non-depression, which is represented through the combined likelihood of posts label category.

Keywords: Depression, Social Network, Feelings, Analyse, Detection.

INTRODUCTION

Social Medias have turned into a piece of our lives. The broad utilization of social Medias may expedite an adverse effect in individuals' lives. In any case, our dependence via web-based networking media can detrimentally affect our psychological well-being. An expanding number of social media depression disorders have been observed recently. Mining on the social media gives a chance to effectively recognize depression at a beginning period. In order to precisely recognize potential instances of depression a machine learning framework is proposed, which exploits features extracted from social network data. The proliferation of internet and communication technologies especially online social networks have rejuvenated how people interact and communicate with each other electronically. The applications such as Facebook, Twitter, Instagram and alike not only host the written and multimedia contents but also offer their users to express their feelings, emotions, and sentiments about a topic, subject or an issue online. On one hand, this is great for users of social networking site to openly and freely contribute and respond to any topic online, on the other hand, it creates opportunities for people working in the health sector to get insight of what might be happening at mental state of someone who reacted to a topic in a specific manner. To provide such insight, machine learning techniques could potentially offer some unique features that can assist in examining the unique patterns hidden in online communication and process them to reveal the mental state (such as 'happiness', 'sadness', 'anger', 'anxiety', depression) among social networks' users. Moreover, there is a growing body of literature addressing the role of social networks on the structure of social relationships such as break up relationship, mental illness ('depression', 'anxiety', 'bipolar' etc.), smoking and drinking relapse, sexual harassment and for suicide ideation

EXISTING SYSTEM

There are no exact existing applications of our project

PROBLEMS OF THE EXISTING SYSTEM

- Inaccurate.
- Misclassification rate is high.
- To avoid this problem we came up with a solution.

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 6, June 2021

DOI 10.17148/IJARCCE.2021.10688

PROPOSED SYSTEM

The content and posting behaviour of the users are analysed to find out the characteristics of the depressed users. Users having stress and depression show similar emotions and they post contents related to death, anger and anxiety, failure, suicide.

BENEFITS OF THE PROPOSED SYSTEM

- Accurate.
- Misclassification rate is low.

METHODS

Software Requirements: Pandas, Matplotlib, Numpy, NLTK, Anaconda, Jupiter, Windows 10 or windows 8.
Hardware Requirements: Computer or Laptop, 64-bit operating system, x-64-bit processor, 8 GB RAM, Processor: Intel i5 or i7.

LITERATURE SURVEY

Zhao proposed a progressive learning strategy for occasion discovery furthermore, determining by first removing the highlights from diverse information sources and after that learning through the topographical staggering show.
Major Depressive Disorder is observed by Choudhury while analysing emotion and linguistic styles of social media data. De Choudhury achieved 70% accuracy in an experiment that compared scores found on the centre for Epidemiologic Studies Depression Scale and BDI with Twitter users engagement patterns and linguistic markers preceding a recent episode of depression to devise a tool for predicting and measuring MDD in individuals.
Ophir examined signals of depression among adolescent facebook users to ultimately apply their coding scheme to early detection methods, although no methods are proposed by the authors .Zhang have shown that if individuals with a high danger of suicide can be recognized through online networking like a micro blog, it is conceivable to actualize a dynamic intervention system to save their lives. Nguyen utilized machine learning and statistical strategies to separate online messages amongst depression and control groups utilizing temperament, psycholinguistic procedures and substance subjects removed from the posts created by individuals from these groups. Bachrach studied how user's activity on facebook identifies with their identity, as measured by the standard Five Factor Model. They analysed relationships between user's identity and the properties of their Facebook profiles. For instance, the size and thickness of their friendship network, number of transferred photographs, and number of occasions went to, number of gathering enrolment's, and number of times the user has been tagged in photographs. Ortigosa have exhibited a new strategy for sentiment examine in Facebook that suggests that starting from messages composed by users, as to extract data about the users' assessment extremity (positive, unbiased or negative), as transmitted in the messages they write; and to show the users' standard conclusion extremity and to distinguish huge passionate changes.

MODULE SPECIFICATION

We have divided our project into 4 modules. They are:
1. Pre-processing
2. Future Extraction
3. Train and Evaluate Model
4. Performance Measurement Pre-processing Module

Pre-processing is the process of cleaning and filtering the data to make it suitable for the feature extraction.
.Future Extraction Module
"Coming up with features is difficult, time-consuming, requires expert knowledge. Applied machine learning is basically feature engineering" Feature engineering is the process of transforming data into features to act as inputs for machine learning models such that good quality features help in improving the model performance. When dealing with text data, there are several ways of obtaining features that represent the data.
Train and Evaluate Model
This module consists of train-test split, predictive modelling, performance measurement. Performance Measurement
After performing the hyper parameter tuning process with the training data via cross validation and fitting the model to this training data, we need to evaluate its performance on totally unseen data (the test set). When dealing with classification problems, there are several metrics that can be used to gain insights on how the model is performing. Some of them are:
- Accuracy: the accuracy metric measures the ratio of correct predictions over the total number of instances evaluated.

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 6, June 2021

DOI 10.17148/IJARCCE.2021.10688

- Precision: precision is used to measure the positive patterns that are correctly predicted from the total predicted patterns in a positive class.
- Recall: recall is used to measure the fraction of positive patterns that are correctly classified.
- F1-Score: this metric represents the harmonic mean between recall and precision values.

ARCHITECTURAL DESIGN

Requirements of the software should be transformed into an architecture that describes the software's top-level structure and identifies its components This is accomplished through architectural design (also called system design), which acts as a preliminary 'blueprint' from which software can be developed IEEE defines architectural design as 'the process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system' This framework is established by examining the software requirements document and designing a model for providing implementation details These details are used to specify the components of the system along with their inputs, outputs, functions, and the interaction between them An architectural design performs the following functions:

1. It defines an abstraction level at which the designers can specify the functional and performance behaviour of the system
2. It acts as a guideline for enhancing the system (whenever required) by describing those features of the system that can be modified easily without affecting the system integrity
3. It evaluates all top-level designs
4. It develops and documents top-level design for the external and internal interfaces
5. It develops preliminary versions of user documentation
6. It defines and documents preliminary test requirements and the schedule for software integration
7. The sources of architectural design are listed below
8. Information regarding the application domain for the software to be developed
9. Using data-flow diagrams
10. Availability of architectural patterns and architectural styles.

Architectural design is of crucial importance in software engineering during which the essential requirements like reliability, cost, and performance are dealt with This task is cumbersome as the softwJare engineering paradigm is shifting from monolithic, stand-alone, built-from-scratch systems to componentized, evolvable, standards-based, and product line oriented systems Also, a key challenge for designers is to know precisely how to proceed from requirements to architectural design To avoid these problems, designers adopt strategies such as reusability, componentization, platform-based, standards-based, and so on. Though the architectural design is the responsibility of developers, some other people like user representatives, systems engineers, hardware engineers, and operations personnel are also involved. All these stakeholders must also be consulted while reviewing the architectural design in order to minimize the risks and errors.

Design Concepts for Our Project:

Abstraction:

Environment at the highest level abstraction, the lower level of abstraction provides a more detail description of the solution, a sequence of instruction that contain a specific and limited function refers in a procedural abstraction.

Architecture:

The complete structure of the software is known as software architecture. Structure provides conceptual integrity for a system in a number of ways. The architecture is the structure of program modules where they interact with each other in a specialized way. The aim of the software design is to obtain an architectural framework of a system.

Modularity:

A software is separately divided into name and addressable components, they are called as modules which makes design easy. Modularity is the single attribute of a software that permits a program to be managed easily.

Information hiding:

Modules must be specified and designed so that the information like algorithm and data presented in a module is not accessible for other modules which do not require that information.

Functional independence:

The functional independence is the concept of separation and related to the concept of modularity, abstraction and information hiding. The functional independence is accessed using two criteria ie, Cohesion and coupling.

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

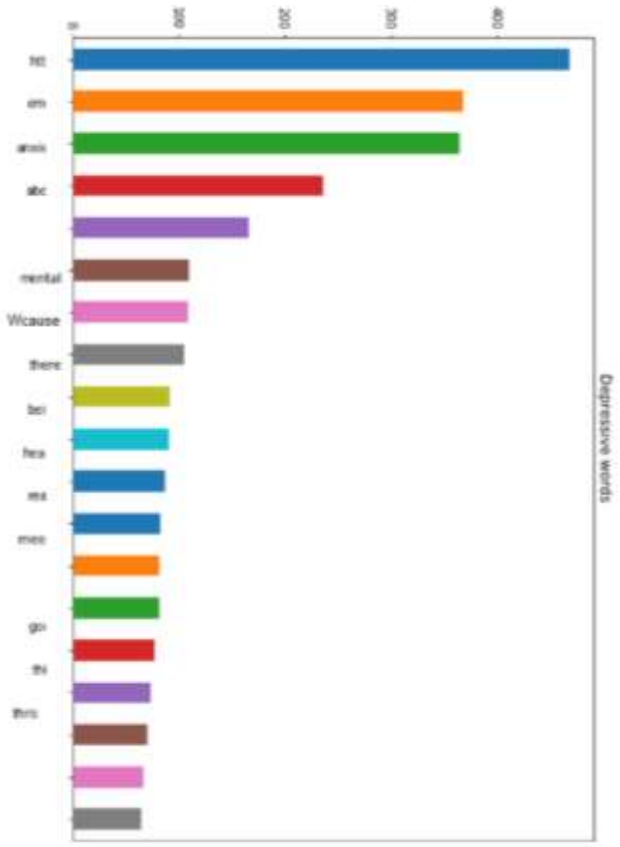
International Journal of Advanced Research in Computer and Communication Engineering

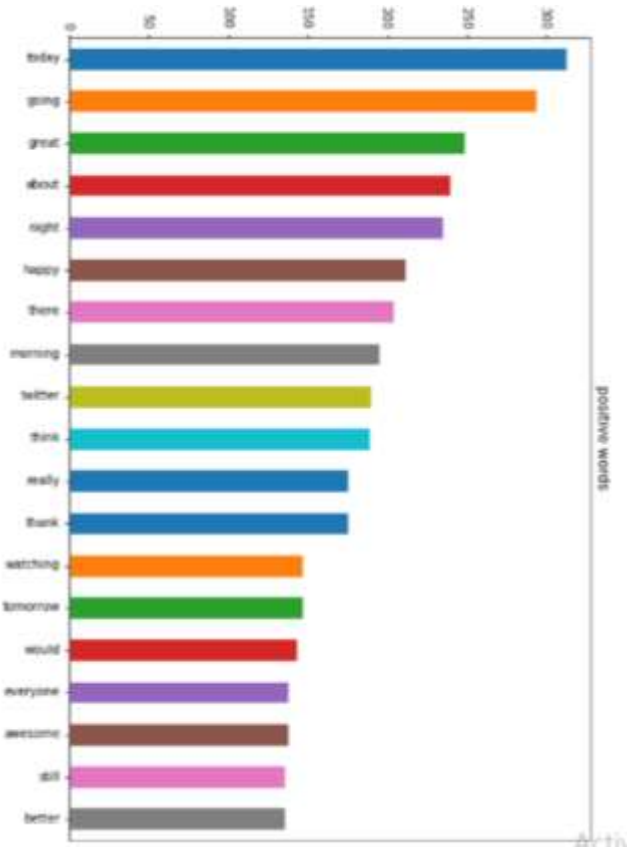
Vol. 10, Issue 6, June 2021

DOI 10.17148/IJARCCE.2021.10688

RESULTS

OUTPUT





CONCLUSION

Social media has revolutionized the way we interact with the world, allowing us all to stay connected and self- express. Mixed anxiety depression and social media seem to exist in a vicious cycle with one problem often stimulate the other. A supervised learning-based prediction model is proposed in this research, where the first 100 followers of MS India student forum are analysed using various linguistic, semantic and activity features to detect anxious depression disorder. The

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319-5940

International Journal of Advanced Research in Computer and Communication Engineering

Vol. 10, Issue 6, June 2021

DOI 10.17148/IJARCCE.2021.10688

presence of anxiety-related words was considered as linguistic markers whereas count of negative comments and polarity contrast of facebook related to semantic marker. In this project, we have exhibited the capability of using Facebook comments as an input for measuring and detecting major depression among social networking users. The analytics performed on the selected dataset provide some insight. Below is the summary of our findings: What depression is and what are the common factors contributing to depression. While we feel moody, sad or low from time to time, few people encounter these emotions seriously, for drawn out stretches of time (weeks, months or even years) and in some cases with no apparent reason. Despondency is something other than a low state of mind it's a genuine condition that influence someone's physical and emotional feelings. Depression can influence any of us anytime. However, some phrases or events make us more vulnerable to depression. Physical and emotional changes associated with growing- up, losing a loved one, beginning a family, retirement may trigger some emotional influx that could lead toward depression for few people.

ACKNOWLEDGEMENT

Our Sincere thanks to Department of Computer Science and Engineering, KKR and KSR Institute of Technology and Sciences. We express our Gratitude to A. Suneetha, M. Tech (Ph. D), Assistant Professor, Dept. of Computer Science and Engineering for the guidance provided.

REFERENCES

1. Beck AT, Steer RA, Brown GK. (1996) Beck depression inventory II: manual. San Antonio, Texas, USA: Psychological Corporation.
2. Breiman L. (2001) Random forests. Mach Learn; 45(1):5-32. [CrossRef]
3. Colineau N, Paris C. (2010) Talking about your health to strangers: understanding the use of online social networks by patients. New Rev Hypermedia M Apr;16(1-2):141-160. [CrossRef]
4. De Choudhury M, Gamon M, Counts S, Horvitz E. (2013) Predicting depression via social media. 2013 Jul Presented at: Proceedings of the Seventh International AAAI Conference on Weblogs and Social Media; July; Cambridge, Massachusetts, USA p. 128-137.
5. Guntuku SC, Yaden DB, Kern ML, Ungar LH, Eichstaedt JC. (2017) etecting depression and mental illness on social media: an integrative review. Curr Opin Behav Sci. [CrossRef]
6. Halfin A. (2007) Depression: the benefits of early and appropriate treatment. Am J Manag Care; 13(4 Suppl):S92-S97 [FREE Full text] [Medline]
7. Le HN, Boyd RC. (2006) Prevention of major depression: early detection and early intervention in the general population. Clin Neuropsychiatry; 3(1):6-22 [FREE Full text].
8. Ophir Y, Asterhan CS, Schwarz BB. (2017) Unfolding the notes from the walls: adolescents' depression manifestations on Facebook. Comput Hum Behav; 72:96-107. [CrossRef].
9. Picardi A, Lega I, Tarsitani L, Caredda M, Matteucci G, Zerella MP, SET DEP Group. (2016) A randomised controlled trial of the effectiveness of a program for early detection and treatment of depression in primary care. J Affect Disord; 198:96-101. [CrossRef] [Medline].
10. Radloff LS. (1977) The CES-D scale: a self-report depression scale for research in the general population. Appl Psychol Meas; 1(3):385-401. [CrossRef]