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Depression Detection by Social Media Analyzing (YouTube)

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Abstract - *Depression is a important mental health proceeding for people world-wide immaterial of their genders, ages and trail. In the age of 21-45 modern people feel more congenial for sharing their opinion on social media for every day. The main objective of our system is to detect depression of user. In this proposed system historical data is collected from the users' watch video and keywords that they used for searching. Depression level of a user has been detected based on his searched data and watch video. The ordinary technology for depression detection of a user is a fully organized or a semi-organized detection method. In this techniques, machine learning is used to process the historical data collected from API history. Natural Language Processing (NLP), is a more convenient and efficient way to detect user are in depression or not*

Key Words: **YouTube Sentiment Analysis, Natural Language Processing, Depression Level, API, Social Media, Machine Learning**

1. INTRODUCTION

Social media is the great essential community for people to connect with others by sharing constant post. A significant number of users have already been done about interactivity of people in social media which can help to understand their mental health problem. Facebook, YouTube and Twitter are main popular social networking application. As of 2018, Twitter had more than 321 million monthly active users, YouTube had 3.50 billion active user monthly and Facebook had more than 2.13 billion monthly active users. These users like to share their life related post, thoughts, sadness, happiness in social media. By scraping the data from the users' information, an overview of a user's nature can be discovered. These behavioral attributes can significantly help to detect if the person has anxiety or not.

In India, the National Mental Health Survey 2015-16 disclose that nearly 15 percent of Indian adults need active intervention for one or more mental health problem and one in 20 Indians agonize from depression. The 10th adaptation of International Classification of Diseases ICD-10, which is the basis for determine mental disorders in the Czech Republic, classifies depression as an affective disorder (mood disorder). The disorder can have three forms: mild, moderate and severe forms of depression. One of the first feature is a change in mood toward the negative post: the seprate feels sad, needless, and/or unimportant. To the best of our mastery, there is no existing work investigating this issue on user-watched videos, which have more diversified contents with little quality control and post-editing. One major issue that has narrow the needed potentially helpful clues for emotion detection on this dataset, which are important for the design of a good computational imitation.

In proposed system we used YouTube API for watch video. In our system we uses natural language processing to detect depression level on the basis of keyword search by user and watch video. For dataset we use historical data as keywords search by user and video id title.

1.1 Motivation

In India most of the users share there everything on social media sites to express their thought, happiness and sadness. Sometime user are in depression mode and due to this some user loss their life. Due to these problem we are motivated to develop these type of application.

1.2 Objective

To detect depression level of user with the help of YouTube historical data. To provide social media support for user to expelled out from depression. To reduce death rate among youngster due to depression.

2. Literature Survey

Over the last some years, social media has been used to survey mental health by many authors. Social media manifesto can reflect the users' personal life on many levels. They proposed appropriate supervised machine learning approaches such as deep neural networks. Their central objective was to detect depression using the most functional deep neural architecture from two of the most popular deep learning detain in the field of natural language processing: Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs), given the limited amount (i.e. in collation to most of the deep neural network architectures) of unstructured data. Choudhury used crowdsourcing to assemble assessments from assorted hundred Twitter users who are already identify with clinical depression.

Differentiation between of behavior between normal user and depressed user has been shown by them which shows a lot of differences. They also proposed to build an MDD (Major Depressive Disorder) grouping to predict whether an individual is vulnerable to depression. The model had an precision of 70% and a accuracy of 0.74. Different methods of different algorithms are being used by many authors to classify the user-generated contents (UGC) from SNS. Such as, Aldarwish and Ahmed used Support Vector Machine, Naïve Bayes Classifier. They proposed a web application that can differentiate SNS user into one out of four depression levels.

A Machine Learning-based human reaction examination approach is represented by Riyadh. During this research work, the write use sadness, happiness, disgust, and surprise for his or her allocated task. They serene tweets from Sentiment140, docket them manually, abolish tweets with no emotion, and created a balanced dataset accommodate 3,750 tweets. 3,500 tweets were selected because of their training dataset and 250 tweets as the testing dataset.

A novel salute for depression divine was initiate by Suhara, using RNN. The authors developed the LSTM-RNN based deep learning algorithm. They used their dummy to elaborate embedding layers regarding every absolute parameter, which also assimilate a day-of-the-week fitful to work out the day-of-the-week consequences in their echoing. They combined depressing data from 2,382 self-state depressed persons, covering 22 months' time span, via an android application. Their system was successfully ready to forecast 84.6%, 82.1%, and 80.0% severe depression occurrence in 1, 3, and 7 days beforehand, respectively.

Wang et al. direct an investigation on Sina microblog, a Chinese micro-blog, which is one among the most usable influential social media system in China. They combine both Psychological and Machine Learning techniques for their proposed system. From the technical point of view, ML, Decision Tree, Naive Bayes, and Rule-based classifiers were used. Their discuss method obtain mainly three types, namely, polarity calculation of sub-sentences, sentence and word classification, and polarity calculation of sentences. Their model was ready to achieve 80% precision.

3. PROPOSED SYSTEM

Our proposed system is designed using latest technology flutter using dart language, with the help of flutter we can create attractive graphical user interface. Our proposed system is used by regular user. First upon user should register in our system and then user can sign up, where we create home page with two sub part first is dashboard for search a video and second is history that is used for calculate the depression level of user on their search and watched video.

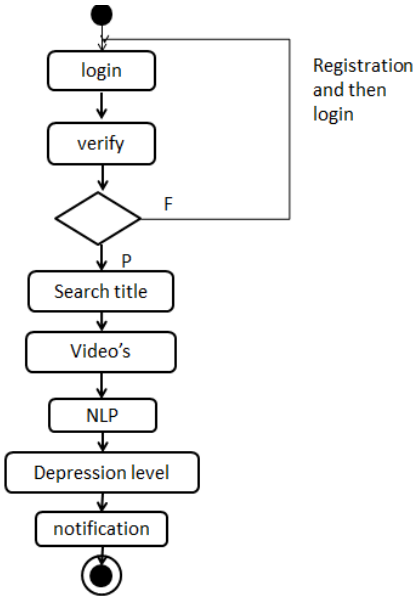

Fig: activity diagram.

The proposed methodology is shown in fig. 1: Proposed system work is shown in above fig.

A user should register in our application if user already registered then they directly login to our system, for verification we uses email and password that enter by user at the time of registration. When user sign up to our system they can search anything as per there knowledge or per there mental health condition. For videos preference we use YouTube API. YouTube API show a videos list as per user search keywords. If user watch the video or check for another keywords that time there all data save in database. On the basis of keywords search by user and watch video depression will be calculated using Natural Language Processing (NLP). Where NLP works on keyword and title of video they classified the keywords as positive neutral and negative. If user always watch negative video or search negative keywords then their polarity of depression is high is shown on depression factor. If user crosses depression set depression factor that time system send the mail on given guardian mail id as per user guardian mail id save at the time of registration. System methodology are shown in below fig:

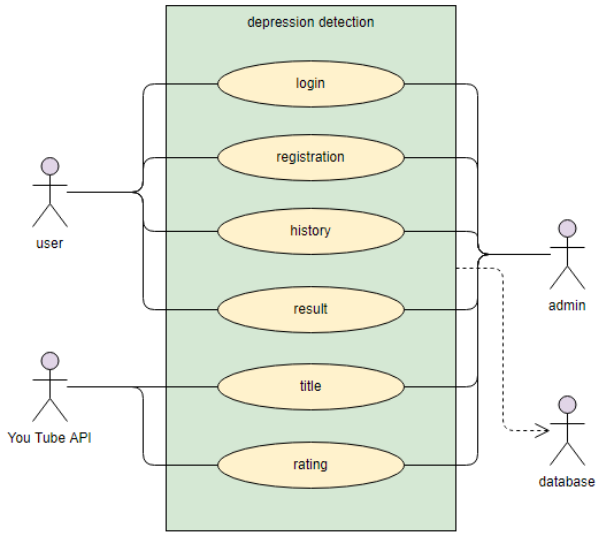

Fig: Use case diagram for proposed system

Natural language processing (NLP):

Natural language processing (NLP) algorithm are mainly used to make detection about peoples' mental states from what they search on YouTube or other social media sites. With the help of these detection we can calculate the polarity of user mental health condition. This technology provides a taxonomy of knowledge provenance and system that are used for psychological state support and intercession. Precisely, we review how social media and other data sources are used to detect emotions and identify people mentality that could also be in need of psychological assistance; the computerized techniques utilized in labeling and problem solving system; and eventually, we discuss ways to get and personalize psychological state arbitration.

Sentiment analysis or opinion mining is a natural language processing system used to detect whether data is positive, negative or neutral. Sentiment analysis is mainly work on narrative data to help product monitor brand and product sentiment in customer review, and understand client needs. Sentiment analysis is the program in execution of detecting positive, neutral or negative sentiment in search data. It is mainly used by product to detect sentiment in social data, gauge brand notority, and understand user. Sentiment analysis is used to detect search keyword or video title is positive or negative sentiment in text and gives there rating as for positive +1 and for negative -1. For better understand we used below fig

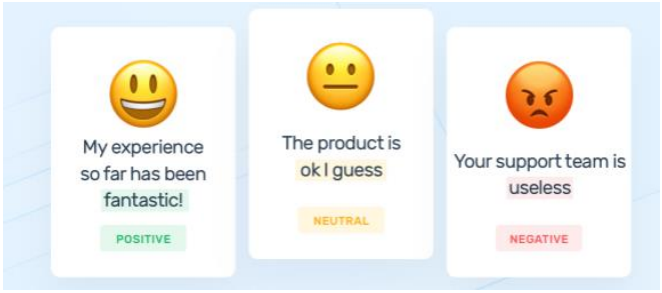

Fig: Sentiment analysis classification

4. CONCLUSION

In this research, we established a NLP based depression detection technique by analyzing video search data collected from YouTube. It's been exhibit that depression can lead a private to severe mental disease, even to the trail of suicide and also how a machine learning approach can detect depression of social media users. Micro-blogging social networking sites such as: YouTube, twitter and Facebook provide users to precise their day to day thoughts and activities which reflect users' behavioral attributes and personality traits. In internship program we proposed that depression detection on the basis of title or keywords search by user on our application. For video's we use YouTube API to show related video on application, to detect depression NLP algorithm is used. On the collected history data as to show user as depressed or non-depressed.

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