DEPRESSION DETECTION USING SOCIAL MEDIA

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Abstract: Depression detection from Social Networking sites has been studied broadly in previous years. These sites provide a platform for their users to share their life events, emotions, and everyday routine. Many researchers demonstrated that content generated by the users is an efficient way to know about their mental state. By mining user-generated content, depression can be predicted. By collecting all the necessary and relevant information from the social networking sites from the posts, we can predict the person's mood or negativity. This survey paper focuses on prior research done regarding detecting depression levels based on content from social network sites.

Index Terms – **Machine learning, Naive Bayes algorithm and Depression Detection using Social Media.**

I.   Introduction

Depression is a major issue which is increasing day by day. Worldwide mental ill- ness is primary cause of depression. Millions of people each year suffered from depression and only fraction of them undergoes adequate treatment. It is serious medical illness which corresponds to user's ability to work, study, participation in social activities and having fun. Depression is serious challenge in personal and public health. One of the major solutions to this problem is detailed study of individual's behavior attributes. These attributes are available on various social net- working sites such as Facebook, twitter, Instagram etc. Social networking platform is best way to know person behavior, thinking style, mood, egoistic networks, opinions etc. The use of social networking sites is increasing especially by young generation. The people on social media express their feelings, daily activities, opinions about various topics etc. So social networking sites are used as screening tool to predict depression levels. These social networking platforms gives person's experiences, opinions, socialization, personality. People feelings could be positive, negative or neutral. In order to determine depression levels, person's negative response is important because it tells us about the negativism. Earlier method of diagnosis of patient is not so relevant but by using user generated content on social media such as Facebook definitely helps to predict mental health levels and depression of particular individual. Our project aim is to extract information from social media posts and by having clear understanding of person's behavioral attributes and attempted questionnaires, depression levels of user is predicted.

- **Objectives**
Minimize the rate of suicide attempts by depressed people. Detect and Motivate depressed people. Improve the mental condition of depressed people.

- **Motivation**
  Mental health has become a very important, it is observed that people are not express emotion to their relatives and friends instead of these they are expressed through social media. Existing approaches useful for analyzing common sentiments such as positive/negative/neutral expressions. However, depression is very critical and sometimes almost impossible to analyze using existing systems.

- **Problem Statement**
  Human emotions like depression are inner sentiments of human beings which expose actual behaviors of a person. Analyzing and determining these type of emotions from people's social activities in virtual world can be very helpful to understand their behaviors. Existing approaches may be useful for analyzing common sentiments, such as positive, negative or neutral expressions. However, human emotions, such as depression, are very critical and sometimes almost impossible to analyze using these approaches. So far we have many social media site through which users interact among their friends and share their thoughts & feelings, but till now there is no system implemented which will help the admin to identify if someone is depressed.

II.   Literature Survey:

A. Depression Analysis from Social Media Data in Bangla Language using Long Short Term Memory (LSTM) Recurrent Neural Network Technique

- **Author:** Abdul Hasib Uddin; Durjoy Bapery; Abu Shamim Mohammad Arif
- **Description:**

Analyzing and determining these type of emotions from people's social activities in virtual world can be very helpful to understand their behaviors. Existing approaches may be useful for analyzing common sentiments, such as positive, negative or neutral expressions. However, human emotions, such as depression, are very critical and sometimes almost impossible to analyze using these approaches. In this work, we deployed Long Short Term Memory (LSTM) Deep Recurrent Network for depression analysis on Bangla social media data.

B.   Survey of depression detection using social networking sites via data mining

- **Author**: Dr. Sanjay Chitnis; Aqsa Zafar; Mannudeep K. Kalra;
- **Description:**

Depression detection from Social Networking sites has been studied broadly in previous years. These sites provide a platform for their users to share their life events, emotions, and everyday routine. Many researchers demonstrated that content generated by the users is an efficient way to know about their mental state. By mining user-generated content, depression can be predicted. By collecting all the necessary and relevant information from the social networking sites from the posts, we can predict the person's mood or negativity. This survey paper focuses on prior research done regarding detecting depression levels based on content from social network sites.

C. Depression Detection by Analyzing Social Media Posts of User

- **Author:** Nafiz Al Asad, Md. Appel Mahmud Pranto;
- **Description:**

Depression is a serious mental health issue for people world-wide irrelevant of their ages, genders and races. In this age of modern communication and technology, people feel more comfortable sharing their thoughts in social networking sites (SNS) almost every day. The objective of this paper is to propose a data-analytic based model to detect depression of any human being. In this proposed model data is collected from the users' posts of two popular social media websites: twitter and face book. Depression level of a user has been detected based on his posts in social media. The standard method of detecting depression of a person is a fully structured or a semi-structured interview method (SDI).

D. Facebook Social Media for Depression Detection in the Thai Community

- **Author:** Kantinee Katchapakirin; Konlakorn Wongpati kaseree
- **Description:**

Depression is one of the leading mental health problems. It is a cause of psycho- logical disability and economic burden to a country. Around 1.5 Thai people suffer from depression and its prevalence has been growing up fast. Although it is a serious psychological problem, less than a half of those who have this emotional problem gained access to mental health service. This could be a result of many factors including having lack awareness about the disease. One of the solutions would be providing a tool that depression could be easily and early detected. This would help people to be aware of their emotional states and seek help from professional services. Given Facebook is the most popular social network platform in Thailand, it could be a largescale resource to develop a depression detection tool. This research employs Natural Language Processing (NLP) techniques to develop a depression detection algorithm for the Thai language on Facebook where people use it as a tool for sharing opinions, feelings, and life events.

III.   Methodology used for problem solving

The single problem can be solved by different solutions. This considers the performance parameters for each approach. Thus considers the efficiency issues. Use of divide and conquer strategies to exploit distributed/parallel/concurrent processing of the above to identify objects, morphisms, overloading in functions and functional relations and any other dependency.

- **Application**

Application will be used by almost all type of people. The person who is fond of making new friends and love to be social will be most attracted by our application. As it will have all the functionality similar to Facebook or any other social media platform.

- **Hardware Resources Required**

Sr. No.	Parameter	Minimum Requirement
1	Processor	Core I7
2	RAM	GB.

- **Software Resources Required**

Sr. No.	Parameter	Minimum Requirement
1	OPERATING SYSTEM	Windows 7/8.
2	CODING LANGUAGE	JAVA/J2EE
3	IDE	Eclipse Kepler
4	DATABASE	SQL Yog community/XAMPP Server.
5	Web Server	Apache Tomcat.

- **Architecture**
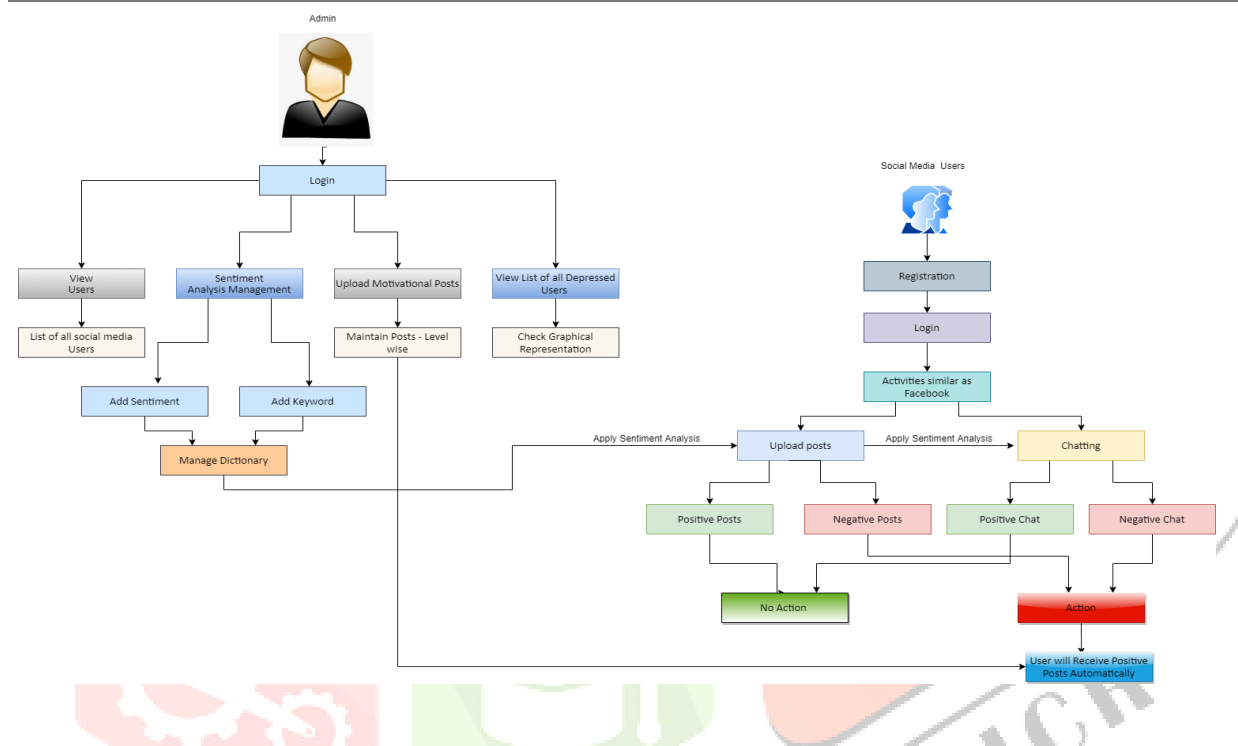
- **Architecture Description:**

o **System has 2 main modules:**
1. **Admin**
2. **Social Media User**

1. **Admin:**
a) **View Users:**

Admin can view all the users registered in system

b) **Sentiment Analysis Management:**

Admin add the sentiments and keyword to dataset in the form of key value pair.

c) **Manage Dictionary:**

System itself monitors all the posts, chats etc. of the social media user and apply sentiment analysis

d) **Upload Motivational Post:**

Admin uploads best motivational post, so that system can send those post on users wall based on sentiment analysis.

e) **Maintain Post Level Wise:**

Post are classified based on the level of depressed the end user is.

f) View List of all depressed Users:

Admin can view all the depressed users in graphical design.

2. Social Media User:

a) Registration:

This module takes care of registration part of new user.

b) Login:

Once the user gets registered, he/she login with the credentials.

c) Activities like Facebook:

- Once the user logins the system, he/she will come across the features and functionalities like upload posts,

- System will continuously keep on monitoring:

System will continuously keep on monitoring the posts and chats of users. And if it detects the negative thought kind of behaviour then system will automatically post the positive post on his/her wall based on the level of depression.

IV. Advantages

➢ Life of human can be saved.
➢ It will automatically send the motivational post to depressed users.
➢ Will detect in advance if user is depressed so that necessary action can be taken. It will be first system in market, that will identify the depression on social media site.

V. Future Scope

Our future work would to inform their family members or relatives regarding the situation or depressed the person is doing through. So that family or friend circle will help person to come out of depression.

VI. Conclusion

We have proposed the system that will help suspected user to save his/her life, by knowing in advance whether the user is depressed and even system will send some motivational post to the user based on the level of depressed he is. We conclude that system will be very useful in today's world where most of us don't have time to meet ours friends & share their thoughts and feelings like we used have in older days due busy schedules. So our system plays a very vital role over here to avoid any unwanted human loss.

VII. References

1. Survey of depression detection using social networking sites via data mining,
   [Online]. Available: https://ieeexplore.ieee.org/abstract/document/9058189

2. Depression Analysis from Social Media Data in Bangla Language using Long Short Term Memory (LSTM) Recurrent   Neural Network Technique
   [Online]. Available: https://ieeexplore.ieee.org/document/9036528

3. Depression Detection by Analyzing Social Media Posts of User
   [Online]. Available: https://ieeexplore.ieee.org/document/9065101

4. A Comprehensive Study on Social Network Mental Disorders Detection via Online Social Media Mining
   [Online]. Available: https://ieeexplore.ieee.org/document/8239661

5. Twitter Analysis for Depression on Social Networks based on Sentiment and Stress
[Online]. Available: https://ieeexplore.ieee.org/document/8963550

6. F. Chang, C.-Y. Goo, X.-R. Lin, and C.-J. "Lu Tree decomposition for largescale SVM problems." JLMR, 2010.

7. Lijiang Nie, Member IEEE, Yi-Liang Zhao, "Bridging the vocabulary gap be- tween health Seekers and Healthcare Knowledge," August 2013.

8. Chi Wang, Jie Tang, Jimeng Sun, Jiawei Han, "Dynamic social Inuence Analysis through time dependant factor graph," IBM TJ Waston Research center, USA.