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Minor Project/Synopsis Report on

Mood Detection and Prediction using Twitter Analysis(NLP), Data Mining and Machine Learning Algorithms

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Problem Statement

Micro blogging services such as Twitter provide researches with a wealth of information on how individuals communicate with their social network. Unlike more formal methods of communication, micro-blogs posts frequently reflect the author's opinions and emotional states. Machine learning methods can be trained in order to automatically extract emotions from tweets. Such a system would be useful in understanding users' feeling towards particular products, services, or topics (e.g. companies could determine the distribution of emotions toward their latest product).

The second part of our project has the option of predicting user's mood based on the person's current mood and using certain other factors like sleep, stress, anxiety, personality traits, physical and mental health, academic performance, daily diary, social interactions, and activities.

Objective and Scope

Our objectives can be mainly classified as mood analysis and mood prediction. We want to analyse the subject's current mood. To achieve accurate results we are going to use the subject's twitter tweets. Tweets are a good source for determining ones sentiment.
These sentiments could further be well utilised to possibly predict how the subject would be feeling later in the day.

The scope of the project could be seen as fairly broad as the field of mood prediction is yet to be researched well and the application could be really useful. Knowing who how one would be feeling at a certain point of time in the future, can aid one to prevent terrible meetings, plan special occasions at a better time or even let a second user to find another better time to talk to their dear ones.

Methodology

We will be applying machine learning techniques/algorithms to analyze the sentiment of a tweet. While doing so we would be interested in analyzing the underlying polarity if the tweet or the user's current sentiment as a whole. We'll be training the machine using tweets gathered, and set it up for analysis and prediction.

This would further be well utilized to predict the upcoming state of emotions the user probably would go through. In order to better our prediction and improve the overall accuracy, a background of user's daily schedule could be gathered.

Once we are done with sentiment analysis and it's forecasting, we can them move on to suggesting ways to better/improved he user's emotional state. This can be achieved using a certain set playlists of songs, movies, or even suggesting certain activities. This list is endless.

How would the user interact with the application, one would ask? We would be using tweets to let the application's twitter account know of the user request. Once the user has tweeted to the application account, then the application could start with the analysis. For implementing this feature we would have to utilize a bit of Natural Language Processing techniques.

Operating Environment

2.1 Software Requirements

Platform: Windows XP or above, Macintosh, Linux
Language: Python, R
Browser with JavaScript enabled
Text Editor
Internet Connection: Min. bandwidth 100 Kbps

2.2 Hardware Requirements

- Processor : Pentium, Intel
- RAM : 2 GB
- Hard Disk : 20 GB
- Monitor : 15^n colour monitor
- Keyboard : 122 keys
- Internal Graphic Card

Testing Technologies

Our project can be tested on any computer with Internet connectivity. It can be tested on any operating system too. The pre requisite is that the person should have a twitter account.

Resources and Limitations

The main requirement of our project is a computer with Internet in it. Our project can run only on a device using an operating system. The user might also need constant access to Internet to work at full potential.

Conclusion

This project will help us to learn the various concepts of Machine Learning and implementation of the various algorithms associated with Sentiment Analysis. Our project will also help us to learn the various concepts of AI, NLP etc.