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DEPRESSION ANALYSIS

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Abstract: In this, we set forward a clever methodology for distinguishing the online media posts that are demonstrative of sorrow with the assistance of Long Short-Term Memory and natural Language Processing system, word implanting, tokenization, and factorization to recognize the message that communicates sensation of despondency and its connected opinions. The methodology precisely predicts feeling in the text through Deep Learning, which eliminates bogus up-sides by thinking about the prompt setting of words. The information for this examination has been scratched from public discussions on Reddit-a well know web-based media site. Naming is made prior to breaking down the information, which permits posts about a typical subject to be assembled. Posts from various gatherings examining melancholy and self-hurt are taken as the positive class, while posts from different, arbitrary gatherings are taken as the negative class. Given the variety of the negative class, the dataset might be supposed to be delegate of a true situation. The model created has applications across a wide range of spaces, for example, sent via web-based media and correspondence gatherings regularly visited by youngsters to identify conceivable hurtful inclinations

Index Terms **– Natural Language Processing, Machine Learning, Python, Long Short Term-Memory.**

I. INTRODUCTION

With the arrival of social-media network as the most chosen platform for inter-person relationships such as content creation, content moderation, news, and even political mobilization has become very essential for social-media organizations. Content moderation is the method for identifying and escalating or removing the most probable or possible destructive or harmful content on social-media platforms, is a very important responsibility taken by the social-media companies or organization's these days.

Through the globe, there are many legal, judicial and legislative cells which are now interrogating the mislead activities which can be considered as the hot yet destructive topics in cybercrime and which is also the negative role of social-media in misleading news, illegal or anti-social activities, etc. One place or field where the content moderation is very essential at this point is to identify and flag social media uploads/tweets/comments/posts which depicts the symptoms of depression(phycological-illness) and self-harm. With the early detection and efficient flagging of such content can save from harm or injury and might be helpful. After the awareness of importance of mental health from the doctors, medical consultants, mental psychologist practitioner's, psychiatrists, celebrities. Depression is the most discussed, debated and essential at this hour. Depression and its symptoms vary from person to person, usually the depressive features are classified as anxiety, presence of sad emotion, feeling empty or alone, feeling left-out or ignored, irrigatable mood, insomnia or sleep disorder, restlessness, feeling negative for all the conversation, fear of being judged etc.

As the day is getting advanced with the technology everything is getting digitalized and people throughout the globe tend to exchange or discuss about their feelings with the social media posts, tweets, uploads, comments, etc. And people feel secured and they won't be having the fear of being judged, this is because of the like-wise thoughts or likeminded users or people in the groups, or community.

II. RESEARCH METHODOLOGY

1.1 Natural Language Processing

Natural Language Processing also known as NLP is an existing-emerging techno logy which is a sub domain of Machine Learning ML, again ML is a sub domain from Artificial Intelligence AI. Natural Language Processing is a mixture of algorithmic computations with the use of natural language, the communication between computers and human language (also known as natural language) exactly specifying the way to program computers to the particular process and survey the huge quantity of natural

language data. The main goal is to make the machine understand the content and concepts of reports, with the addition of the contextual variation within the language. The science or technology behind the process can efficiently extricate data which is included in the reports, and divide them into categories and arrange them. The drawbacks or challenges faced in the NLP are understanding the natural language, generation and creation of natural language, and speech recognition or speech to text conversion.

1.2 Machine Learning

Machine Learning also commonly known as ML is a sub-domain of Artificial Intelligence AI.ML is the research and study of algorithms that can enhance the involvement, by utilizing the information. ML's algorithms design a model-based test information, also known as parsing information or data, in order to make the analysis and decisions, choices without explicitly programming it. ML algorithms are applied in many different ways and domains by building applications. ML is used in medical industry, filtering e-mails, speech text recognition, etc. ML is used where it is complex or not feasible to build or develop conventional algorithms to exhibit the necessary tasks. A sub set of ML is almost near to computational statistics, which focuses on making estimates using computers: however not all ML tasks are not statistical learning.

1.3 Long Short-Term Memory

Long Short-Term Memory Network is a high-level Recurrent Neural Networks RNN, it is also called relating network or sequential network, as it permits data to go through. LSTM is fit for taking in consideration of the slope which is disappearing which is an issue to be rectified by RNN. RNN which is commonly known as Recurrent Neural Networks are utilized for persistent memory. Let us take an illustration, for example let's say that we are watching a movie, and suddenly we tend to recall or recollect the past scene to relate it to the next scene, or the upcoming scene in a periodic movie, or let's take an example of reading book we recollect what happened in the previous section. Recurrent Neural Networks or RNNs works in a similar pattern, they recollect the past data and apply it to handle the present input. The drawback or challenges of the RNNs are they can't recollect long-term dependency because of the vanishing gradience.

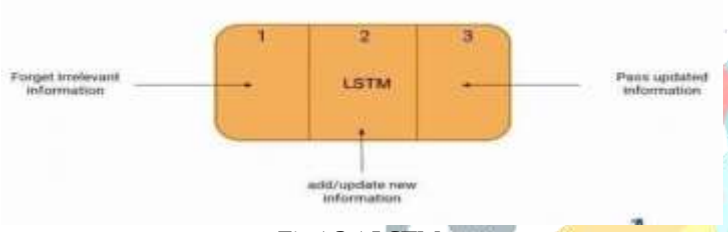

Fig 1.3.1 LSTM

Besides the Long Short-Term Memory Long Short-Term Memory Network LSTM are straight forwardly designed and intended to avoid long-term dependency problem. intended to avoid long-term dependency problems. Long Short-Term Memory networks - commonly known as "LSTMs" are an exceptional type of RNN, fit for learning long term dependencies. LSTMs function very well on huge varieties of complex problems and at present they are broadly utilized. Long Short-Term Memory Network LSTM are straight forwardly designed and intended to avoid long-term dependency problem. Recollecting the data to do a certain task, for extensive periods are their actual behavior. LSTMs have the chain like structure, the consecutive repeated model has an alternate design. Instead of having a single neural network layer, there are 4 neural networks, collaborating in an extremely exceptional way. The writing operations are directed by the input gate, the write-in operation is determined by the input modulating gate. The erase or remember operation is lead by the forget gate. The output procedure of the cell memory is figured by the output gate. To add the functioning of the gates, the progression of the input data to the memory cell is controlled by the input gate.

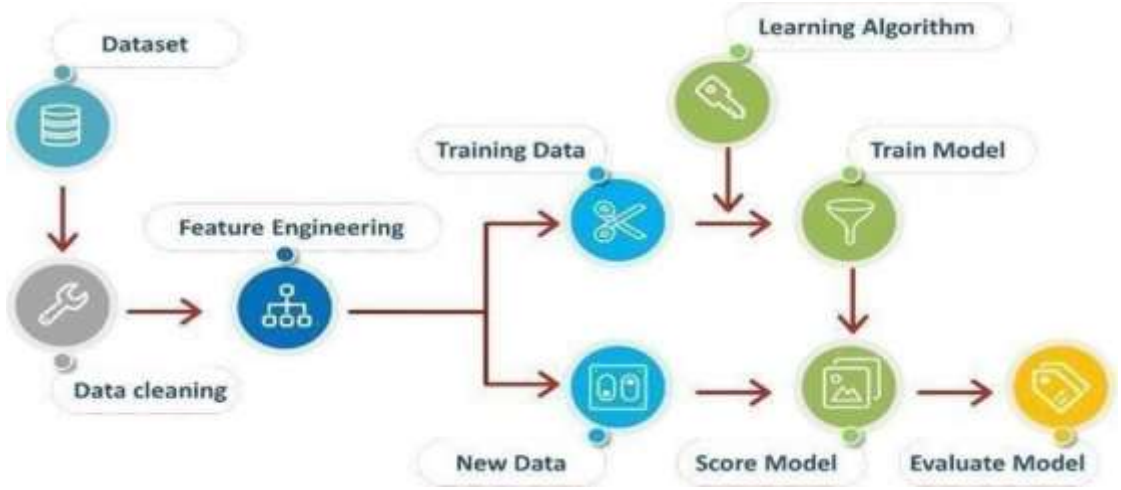

Fig 1.3.2 System Architecture

Beside We are Proposed system is a blue print of the steps or the procedures followed in the project. Here in this project, we are proposing long short-term memory network-based project. LSTM s are the repetitive neural networks which are capable of learning, ordered dependency in sequential predictions. The procedure of this conduction which is needed in the difficult problem domains such as speech-text recognition, machine translation, understanding natural language etc. LSTM s are the most discussed area of DL (Deep learning) LSTM s are very complex and very difficult to handle the problem-solving techniques. LSTM s are dual directional or bidirectional and sequence related as in sequence- to sequence approach. LSTM S use knowledge developed strategies and use it to solve complex issues. LSTM s investigate key enquires utilizing the statements from the research scientis

1. Hardware Requirements

- Processor: i3 / i5 core, AMD Ryzen series (recent generations)
- Hard Disk :500 GB 1 TB HDD,256GB SSD (Min to Max requirements)
- RAM: 4 GB (Min requirement).

2. Software Requirements

- Operating System – Window8/7/10 64 Bit
- Coding Language - Python
- Tools- Anaconda
- IDE - Jupiter Notebook

III. APPLICATION AND CONTRIBUTION TO SOCIETY AND ENVIRONMENT

In this project we will be using deep learning's LSTM and ANN for analysis of the user's posted-data. The basic approach in this project is to prepare a prototype model for detecting the user's mental state while posting a comment or a post. The challenges of this project is to decide what's the exact mood or sentiment of the user.

We add assuming somebody is under depression and they are having self-destructive musings and they take part in web-based media stage by commenting or remarking, we can identify the person's behavior and this model checks if the person has positive, negative or neutral emotions and depending upon that it takes the necessary required steps(actions).

- Depression analysis in clinical benefits licenses suppliers to classify patients' remarks into their past, present emotional well-being status.
- Depression Analysis model can be useful in identifying the user s mood almost on a real-time basis in order to suggest for a mental diagnosis, if in case required
- Depression Analysis is used in suicidal identification and prevention.

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