NLP assignment 3

**What is the research goal?**

The mental health of the individual is considered one of the most important internal factors for the continuity of life, and because of the great lack of attention directed to mental health, most people, even in developed nations, feel stigmatized when asking for psychological treatment and going to a psychiatrist, in addition to the high costs of treatment and sessions.

Due to this, many digital interfaces are developing feasible

additional services to fulfil various Artificial intelligence-based solutions and are being created in collaboration with healthcare experts to give support like conversational chatbots.

The chatbot can:

1. provide an effective way to communicate with a user and offer

helpful emotional support.

1. allow the user to make regular psychiatric visits

often require a fixed duration.

1. The application will have a self-healing kit suggesting various exercises, both mental and physical that the user may implement in his day-to-day life.

**What methods are being applied?**

An ML model, specifically the Logistic Regression Model was made use of to train a dataset of emotions/text.

Logistic Regression (LR) model was chosen as it was best at making predictions based on categories/groups of data.

Sentiment Analysis was performed to categorize the emotions as per the sentiment which will then be used to predict emotion in a more accurate way.

It was performed on each of the 8 emotions to further categorize them into “Positive”, “Negative” and “Neutral”

the user's input was passed into the “predict emotion” function designed to identify the most probable emotion out of the eight.

The function value that is returned from this was made use of to pick out appropriate responses with therapist replies.

This project that was built in python involved the use of the following libraries:

* pandas (for reading and updating the dataset),
* numpy (for basic array creation and use),
* neattext (for text cleaning),
* seaborn (to visualize data and plot graphs),
* textblob (for performing sentiment analysis on the dataset).

**Architecture image**

Will explain details of system

**Result**

* LR & NB Accuracies

**Claims**

* Sentiment analysis improved emotion classification
* LR gave best emotion classification
* Can replace human therapist

**Critique**

* No comparison was made with and without sentiment analysis.
* We found other Emotion classification models that gave higher accuracy
* No humans evaluated the chatbot
* User may not be able to express himself clearly, leading to chatbot misclassifying his emotion and providing inaccurate responses
* The data clearly unbalanced, yet no effort was done to balance it.

**Future Steps:**

* Authentication to protect user’s privacy

**Our Future Steps:**

* User other classification models for emotion classification such as Deep learning