



KALASALINGAM
ACADEMY OF RESEARCH & EDUCATION
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Human Text Emotion Detection

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Abstract:

To create a text classifier program, first install our EDA (Exploratory Data Analysis) tools, and then import packages such as pandas for data analysis and numpy for numerical computations in Python. Load visualizations of data. Import seaborn to visualise data. Load text cleaning software such as neattext to clean your text. We'll be utilising two sklearn programmes. We are using linear regression to build our model, so from naive bayes we import MultinomialNB, from feature extraction we import countvectorizer, from model selection we import train test split for testing, testing and splitting the dataset, and from metrics we import accuracy score, classification report, and confusion matrix.

We're importing a dataset, so let's verify the value count and then display the graph using sns to show the likelihood of the graph, which has different sorts of emotions.

We have finished data collection and data preparation and are now moving on to future engineering. We are cleaning user handles and stopping words by utilising the nfx directory and then cleaning text with the nfx function. We are leveraging features from our tests, thus we are specifying our features and labelling them using a pipeline to make our work easier. X features will be my clean text, and y labels will be my Emotion column. We're not vectorising anything, so let's divide our data into test and train variables with sizes of 0.3 and random states of 42. Let us create our model using the sklearn import pipeline, and for the linear regression pipeline, we will use our vectorizers as well as estimators. We will utilise cv, which stands for count vectorizer and lr, which stands for limit riser, to train and fit data. Let us make a prediction: we will say something like, "This book was engaging, and it made me happy." By predicting from a pipeline for a given text. We now forecast the probability for it using the predict_proba function, and we obtain an array of numbers. To learn about values, use the values function. To learn about classes, use the classes function. We determine that "joy" has the highest value. To save our model and pipeline, we utilise joblib to serialise it. We will construct a basic app process. We develop two separate pages: the main page, which will feature our test section where you may input our remarks, phrases, and anything else. It will transmit it to the pipeline the model that we constructed, and they will analyse our

original text and then forecast the likelihood of the result. Then, whatever the outcome is, it will be saved in a database. You're heading to another portion of the programme, and we should try to keep track of all the forecasts and visualise them. Let's start by building our app and importing our core packages. Import the nlp packages pandas and numpy, as well as joblib from the preceding code. Let's start with the basics. Menu. We have HOME, MONITOR, and ABOUT choices in the menu. We have Emotions in text at home, and we have Monitor app in Monitor. Now we'll make a key that's an emotion clf form. We construct a text field and a submit button to allow us to submit the content we write. We make two columns for the submit text: column1 and column2. Column 1 has the original text and prediction. We have prediction probability in column 2.

So, based on our work flow, we must be able to communicate a result to the pipeline model. With the help of the model aspect, we will develop a function. Let's load our pipeline using joblib, which will open a certain model. Following that, we develop a function to read the emotion. Function The function predict-emotion is used to predict emotion, and another function get predict proba is created to calculate the likelihood of the outcome. We are creating an emoji icon dictionary and will give it to prediction. It will forecast with an emoji. When we execute the code, we obtain the original text, the prediction, and the probability prediction, as well as the proportion of all emotions in the text and the confidence percentage in the text. Now, import Altair, a declarative statistical visualisation toolkit for Python, and draw the graph for emotions in the supplied text. As a consequence of including graph, we receive coloured chart and percentages of prediction value.

Introduction:

Text Emotion Detection is one of the Emerging Areas of Research , where the given user text will be Detected using emotion .Emotion Detection works with combination of Machine Learning and Major Application Concepts of Natural Language Processing. It gives emotion of the user input or text and also converts the text to speech and also returns the output

Human Text Emotion is one of the current emerging Researches being done , to find the user Emotion and also His feeling when using a product When User Gives Reviews , based on that text it will detect the emotions .Text Emotion Detection is Built using Machine Learning and Natural Language Processing .This Model will also Convert the text into Speech .We can also find Prediction Probability , Probability Graph and User Emotions based on his / her text

Literature Survey:

S.No / Published Year	Paper Title	Objective	Method	Advantage	Disadvantage
1 / 2022	Multi Label Emotion Classification in Text Using Transfer Learning	To find Multi class Labelled emotions for given user text It Uses Previously Acquired Knowledge and implements it	<ul style="list-style-type: none"> ● Recurrent Neural Networks ● LSTM ● 3)XLNet 	<ul style="list-style-type: none"> ● For given User Text it classifies Labels ● It gives prediction probabiality 	1) It Mis Understands with Disambigious Statements 2) The Emotions for The actual Text will be Wrong in Few Context
2 / 2022	A Data Augmentation and Channel Selection Technique for Grading Human Emotions on DEAP Dataset	Data augmentation to create more samples of data using signal processing methods. To classify the emotional intensities	<ul style="list-style-type: none"> ● LSTM ● GA ● Grey Wolf Optimizati on(GSA) 	<ul style="list-style-type: none"> ● Signal Processing techniques can be used to ● Metaheuristics algorithms can be applied for channel analysis 	1) All the channels are not important in channel analysis 2) Small Size of training set
3/ 2022	Recommend or not? The influence of emotions on Passengers intention of Airline Recommendation During COVID-19	This is to identify the airline flight recommendation , wheather a a person can be recommended or not To predict the emotions of users after experience with an airline	<ul style="list-style-type: none"> ● Deep Neural Networks ● Artificial Neural Networks 	<ul style="list-style-type: none"> ● It helps People make better decisions and choose airline based on emotions ● It also shows the emotion beside the airlines , becomes easy to choose 	Because of the subjective nature of emotions, emotional AI is especially prone to bias Recommending the airline based on emotions is very difficult and cannot cover all the aspects
4 / 2022	Learning Multi-Scale Features for Speech Emotions Recognition with Connection Attention Mechanisms	1) The proposed method is evaluated on two open datasets and achieve good performance. 2) We need to Detect the emotions for the speech using attention Mechanisms	<ul style="list-style-type: none"> ● FRLM ● URLM ● SCNN ● AMSNET 	<ul style="list-style-type: none"> ● An independent training method is proposed for speech feature training. ● It also works for feature fusion and detects the emotion 	1) Connection attention mechanism is designed only for speech feature fusion. 2) Detecting the Emotions from noisy data is very difficult
5/ 2016	Emotion Detection Through Text	1) Emotion Detection Through text where the model will analyze the text and give the emotions 2) Also Based on Textual Data this model will detect emotions and gives prediction graph	<ul style="list-style-type: none"> ● Multinomi al NB ● Emotion Word Ontology 	<ul style="list-style-type: none"> ● Detecting the emotion is easy for structured data rather than speech ● This Model also takes user input through speech and converts into text 	1) Some Context have no proper Meaning so Model Confuses and gives wrong emotion 2) Conscious or unconscious emotional bias can perpetuate stereotypes and assumptions at an unprecedented scale
7 / 2018	Emotion Detection in a Text: a Review	identifying emotion expressions in text precise types of information on the nature of human emotions indicate poten-tial uses of emotion detection	<ul style="list-style-type: none"> ● LIWC lexicon, MPQA lexicon, WordNet-Affect, and POS 	<ul style="list-style-type: none"> ● emotion detection can be used in human computer interaction and recommender systems to produce interactions or recommendations based on the emotional state of the user ● Results of emotion detection systems can also be used as input to other systems 	complexity of human emotions, and the use of implicit and metaphorical language in expressing it linguistic complexity of this task for detecting emotions
8 / 2021	A Review on Sentiment Analysis and Emotion Detection Through Text	Emotion detection is a means of identifying distinct human emotion types such as furious, cheerful, or depressed many users give feedbacks and reviews various products and services on various e-commerce sites. User's ratings and reviews on multiple platforms encourage vendors and service providers to enhance their current systems, goods, or services.	<ul style="list-style-type: none"> ● Ekman Model ● Word NET ● NRC 	<ul style="list-style-type: none"> ● emotion models are dimensional and categorical ● The emotional states defined by the models make up the set of labels used to annotate the sentences or documents 	spelling mistakes, new slang, and incorrect use of grammar. These challenges make it difficult for machines to perform senti-ment and emotion analysis Sometimes individuals do not express their emotions clearly.
9 / 2018	Emotion Recognition from Text a Survey	Sentence Emotion Analysis and Recognition Based on Emotion Words Learning to Identify Emotions in Text	<ul style="list-style-type: none"> ● Learning-based detection ● Hybrid detection 	<ul style="list-style-type: none"> ● research for recognizing from the textual data is valuable Classification of Emotions in Multi Language Texts 	One of the challenges faced during emotion recognition and sentiment analysis is the lack of resources People usually express their anger or disappointment in sarcastic and irony sentences, which is hard to detect
10 / 2019	From Sentiment Analysis to Emotion Recognition: A NLP Story	task is to identify the emotions from a tweet Common Classisfer can be used for detecting any kind of emotion based on text	<ul style="list-style-type: none"> ● GRU ● Embeddin g ● Max Pooling 	<ul style="list-style-type: none"> ● process to build an emotion labeled dataset ● new kind of a review system, giving a more detailed version than a simple sentiment analysis 	Need for text normalization to handle negation emotional state of a person may be inferred under different situations

Research Gap:

Many Researches has used Single Classification Algorithms , But this research method has used both classification Algorithms Like Naive Bayes and Logistic Regression . There are Very low attributes in data set , we have augmented different Data Modules and Created New Emotion Dataset and Also we have used Many Natural Language Processing and enhanced the confidenced Level.

Problem Statement :

To create a text classifier program, first install our EDA (Exploratory Data Analysis) tools, and then import packages such as pandas for data analysis and numpy for numerical computations in Python. We're importing a dataset, so let's verify the value count and then display the graph using sns to show the likelihood of the graph, which has different sorts of emotions. Let us create our model using the sklearn import pipeline, and for the linear regression pipeline, we will use our vectorizers as well as estimators . " By predicting from a pipeline for a given text.

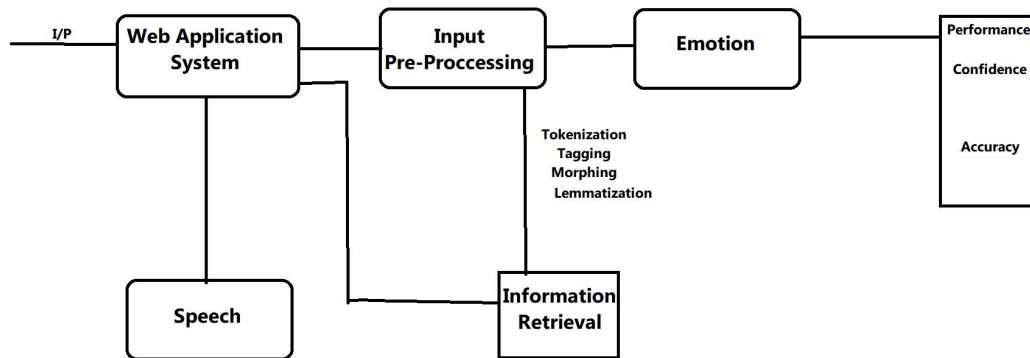
We now forecast the probability for it using the predict_proba function, and we obtain an array of numbers. It will transmit it to the pipeline the model that we constructed, and they will analyse our original test and then forecast the likelihood of the result. Let's start by building our app and importing our core packages. Column 1 has the original test and prediction.

Objective:

To create a software that helps people make better decisions, improve their focus and performance in the workplace, manage stress, and also help them adopt healthier and more productive working styles.

It provides benefits to many institutions and aspects of life. It is useful and important for security and healthcare purposes. Also, it is crucial for easy and simple detection of human feelings at a specific moment without actually asking them.

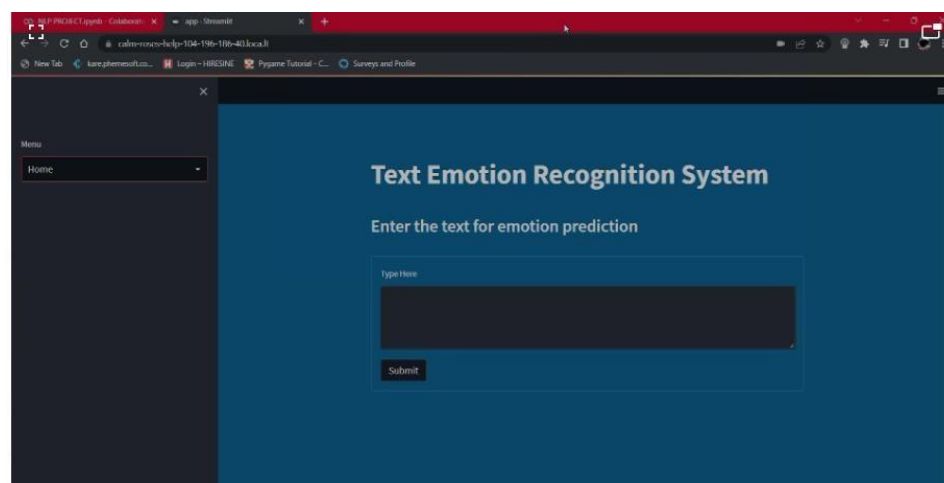
System Architecture:



Proposed Methodology:

Naïve Bayes algorithm is a supervised learning algorithm, which is based on Bayes theorem and used for solving classification problems. It is mainly used in text classification that includes a high-dimensional training dataset. Naïve Bayes Classifier is one of the simple and most effective Classification algorithms which helps in building the fast machine learning models that can make quick predictions. We have also used logistic regression. It is used for predicting the categorical dependent variable using a given set of independent variables. Logistic regression predicts the output of a categorical dependent variable. Therefore the outcome must be a categorical or discrete value. It can be either Yes or No, 0 or 1, true or False, etc. but instead of giving the exact value as 0 and 1, it gives the probabilistic values which lie between 0 and 1.

Results and Discussion:

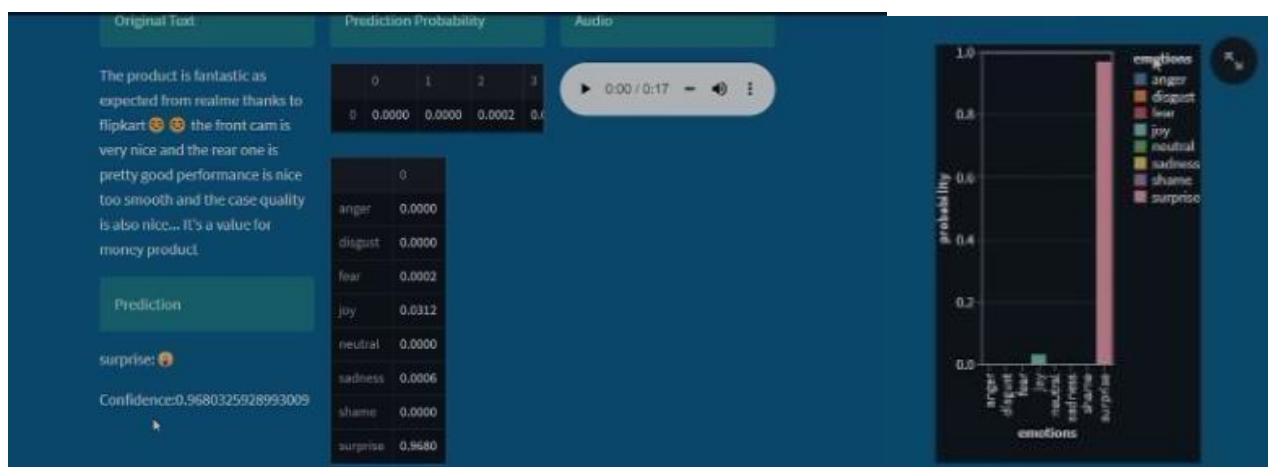


Enter the text for emotion prediction

Type Here

The product is fantastic as expected from realme thanks to flipkart 😊😊 the front cam is very nice and the rear one is pretty good performance is nice too smooth and the case quality is also nice... It's a value for money product

Submit



Conclusion:

When User Gives Reviews , based on that text it will detect the emotions. In our Research Project , we found emotions for User Given Texts and also We are going to Convert Text to Speech .We have used Classification Machine Learning Algorithms like Naïve Bayes and Logistics Regression for Predicting the emotions. We have Achieved 90.5% Accuracy , for Linear Model We have Used Logistic Regression.

We Have also got prediction Classes for the given user text and also it finds the prediction probability graphs for texts .Finally it returns the class like Happy , Sad , Anger , Disgust for Given User Text .

Future Scope:

Text Emotion Detection Currently Focuses on detecting Emotions based on text given by user , in Future Update we will try to use Speech and Detect Emotions

from the text .In this research work we implemented using Machine Learning Algorithms like Naïve Bayes and Logistic Regression , in future implementation we will use Deep Learning Algorithms , Which gives much more better classification and Gives better Accuracy compared to Machine Learning .In the current model we have used Stream lit as frontend and in Future Work we will use both front and backend and We will Deploy the Model and we will use docker , Kubernetes