

Text Emotion Classifier

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Natural Language Processing Laboratory
for
Fourth Year of Computer Engineering

By

Bhumi Avhad - 20102B2002

Sapana Survase - 20102B2005

Amey Thorat - 19102B0049

Ansika Jaiswal - 19102B0036

Under the Guidance of

Prof.Suja Jayachandran

Department of Computer Engineering



Vidyalankar Institute of Technology
Wadala(E), Mumbai-400437

University of Mumbai

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Abstract

This model presents the enhanced emotion recognition in text and its classification. Emotion detection plays an important role and can be used in wide range of health, business and security applications. The recent research in text mining is mostly based on bipolar approach wherein the emotions are being classified as anger, disgust, joy, sadness, fear, surprise, neutral and shame. In this model, keyword based approach has been adopted to classify the text into further four emotional categories, i.e. joy, sadness, anger and other. The proposed model processes the special linguistic cases like conjunctions and contradictory conjunctions or contrast sentences or its parts to enhance the efficiency of emotion classification. This model results in two fold advantage: firstly, by considerably enhancing the accuracy of emotion classification and secondly, providing a complete road map to this new area of research. The proposed technique removes emotion stimulus in the text and adjusts the sense of the sentence which improves the accuracy of the classifier.

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Technologies Used

Pandas - Pandas is a software library written for the Python programming language for data manipulation and analysis. In particular, it offers data structures and operations for manipulating numerical tables and time series.

Numpy - NumPy is a library for the Python programming language, adding support for large, multi-dimensional arrays and matrices, along with a large collection of high-level mathematical functions to operate on these arrays.

Seaborn - Seaborn is a Python data visualization library based on matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics.

NFX - NeatText: a simple NLP package for cleaning textual data and text preprocessing. Simplifying Text Cleaning For NLP & ML.

SKlearn - Scikit-learn is a free software machine learning library for the Python programming language. It features various classification, regression and clustering algorithms including support-vector machines,

Joblib - Joblib is a set of tools to provide lightweight pipelining in Python. In particular ; transparent disk-caching of functions and lazy re-evaluation and easy simple parallel computing.

Streamlit - Streamlit is an open source app framework in Python language. It helps us create web apps for data science and machine learning in a short time

Plotly - Plotly provides online graphing, analytics, and statistics tools for individuals and collaboration, as well as scientific graphing libraries for Python, R, MATLAB, Perl, Julia, Arduino, and REST.

Altair - Altair is a statistical visualization library in Python. It is a declarative in nature and is based on Vega and Vega-Lite visualization grammars.

Proposed System

Emotion analysis plays a part in understanding the feelings of human beings. People's actions and speech express various feelings, behaviors and emotions which can have various impacts. Emotion and sentiment analysis is a broad research area for finding emotion which helps getting useful insight through text and speech. In most of previous work, nearly all projects have focused on analyzing the expression based on positive, negative and neutral classification. This model analyzes the proposed system by categorizing the text into emotion classes called joy, sadness, anger, fear, love and surprise. This work helps us to label text emotions into multiple classes and categorize the text for better accuracy. This will also summarize the previous works done on textual emotional classification.

Implementation/Output

Github link - <https://github.com/thoratamey/Text-Emotion-Classifier>

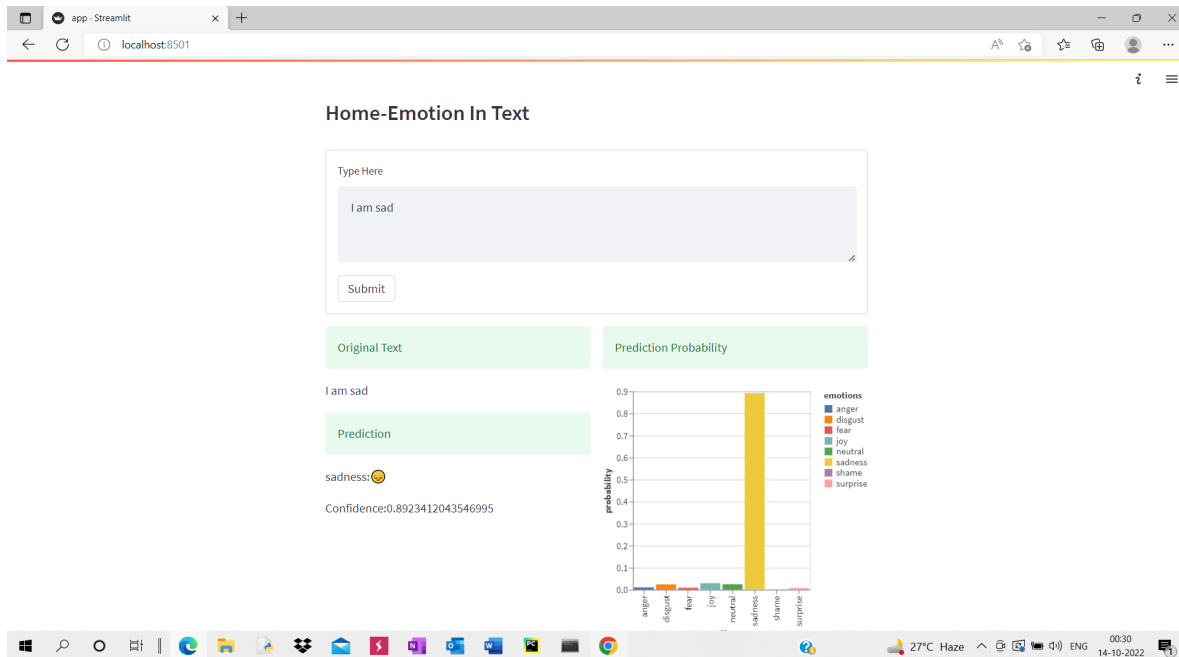


fig. 1.1 - Frontend

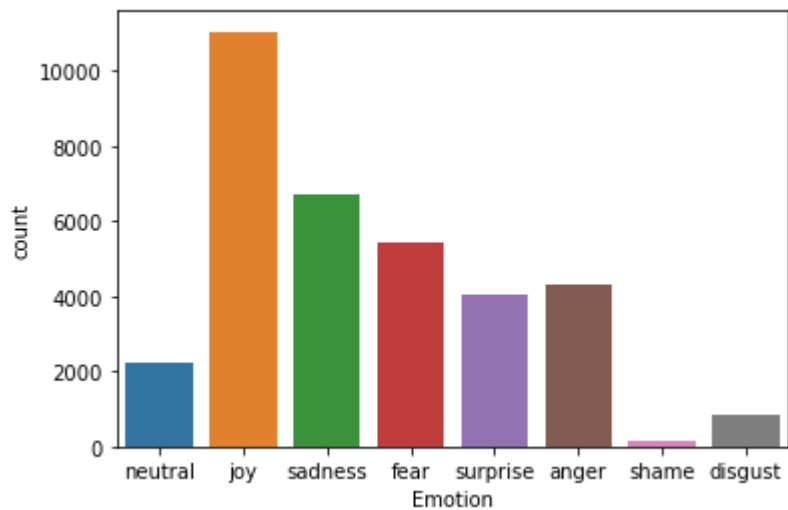


fig.1.2 - Emotion Statistics

```
In [24]: # Check Accuracy  
pipe_lr.score(x_test,y_test)
```

```
Out[24]: 0.6200421536692853
```

fig.1.3 - Prediction

```
In [27]: # Prediction Prob  
pipe_lr.predict_proba([ex1])
```

```
Out[27]: array([[1.60399658e-03, 7.06105420e-03, 6.95870469e-03, 9.43791096e-01,  
                1.00434004e-04, 2.63453313e-02, 6.64728252e-05, 1.40729109e-02]])
```

fig.1.4. - Prediction Probability

Conclusion

Text is most common way to interact with computer, while people may interact by updating video and audio. So, affect detection from text is an important research issue in affective computing. In this model we proposed an affect detection system which is partially base on both keyword-based approach and learning based approach. Because results from using any one approach either key word base or learning based are not according to prediction. Results obtain from our approach prove the success of algorithm.

