Emotion Detection using Machine Learning

Emotion detection is the process of recognizing or identifying different human emotions to include happiness, sadness, surprise, disgust, fear, anger, neutral, and more. With changes in the emotional state, a person's body-language changes altogether. There are visible changes in facial expressions, speech, gestures, movements, etc. These parameters or body language traits are leveraged for automatic emotion detection by machine learning.

How Does ML Help in Emotion Detection?

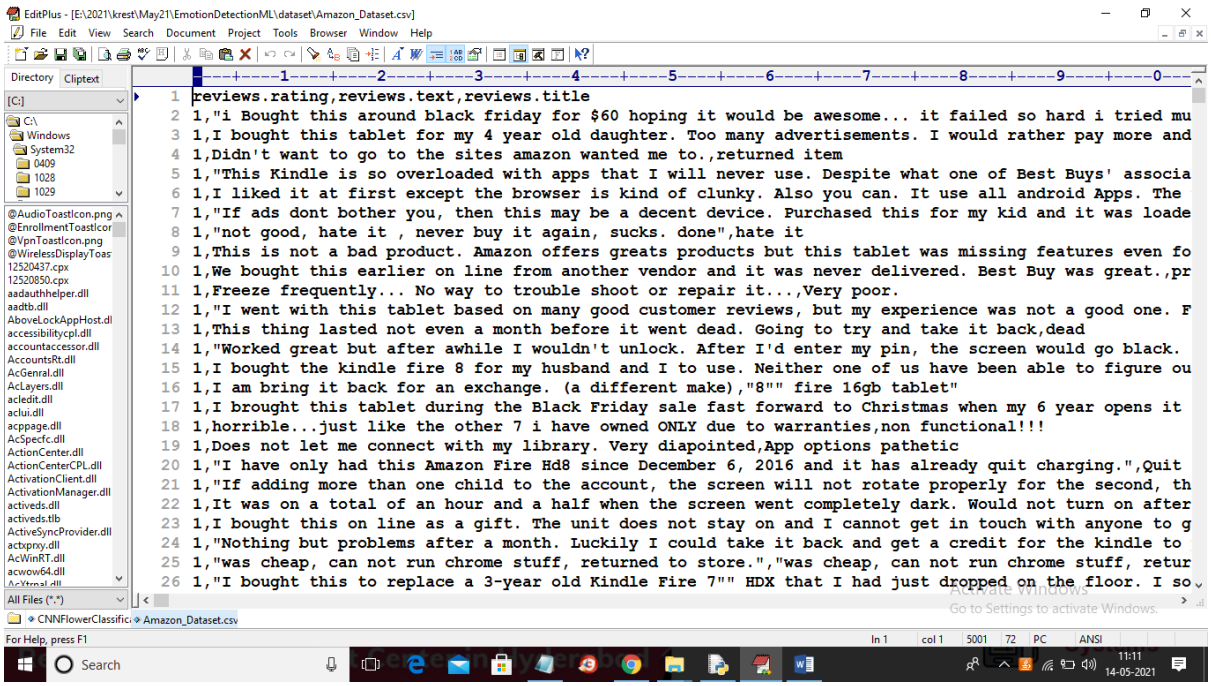
ML-based applications can detect emotions by learning what these body language traits (facial features, speech features, biosignals, posture, body gestures/movement, etc.) mean and apply this knowledge to the new set of data and information provided. This is how machine learning helps in emotion detection!

Concept:

Peoples often express their feelings via post, messages or text and we detect their feelings emotion using machine learning algorithms such as SVM, Naïve Bayes, Random Forest but this are the traditional algorithms whose sentiment detection accuracy may not be perfect so in this project we are using advance machine learning algorithms such as deep learning neural networks and this algorithm has the capability of filtering dataset multiple times which can help in better prediction result.

Dataset:

To train deep learning neural network we have used LSTM (long short term memory) algorithm and this algorithm is trained by using 'Amazon Reviews' dataset and after training LSTM we can use this object to detect emotion from new text, post or review. Below screen shots showing dataset details and this dataset is available inside 'dataset' folder.



In above dataset we have reviews text and ratings where rating 5 indicate emotion is positive and rating <3 indicate emotion is negative. So we will used above dataset to train machine learning algorithm.

Packages:

We need to install some packages for this project those are written below:

Pip install numpy

Def: NumPy aims to provide an array object that is up to 50x faster than traditional Python lists. The array object in NumPy is called ndarray , it provides a lot of supporting functions that make working with ndarray very easy. Arrays are very frequently used in data science, where speed and resources are very important.

Pip install keras

Def: Keras is a powerful and easy-to-use free open source Python library for developing and evaluating deep learning models. It wraps the efficient numerical computation libraries Theano and TensorFlow and allows you to define and train neural network models in just a few lines of code.

Pip install sklearn

Def: Scikit-learn is probably the most useful library for machine learning in Python. The sklearn library contains a lot of efficient tools for machine learning and statistical modeling including classification, regression, clustering and dimensionality reduction.

Pip install Matplotlib

Def: Matplotlib is a plotting library for the Python programming language and its numerical mathematics extension NumPy. It provides an object-oriented API for embedding plots into applications using general-purpose GUI toolkits like Tkinter, wxPython, Qt, or GTK.

Pip install nltk

Def: The Natural Language Toolkit (NLTK) is a platform used for building Python programs that work with human language data for applying in statistical natural language processing (NLP). It contains text processing libraries for tokenization, parsing, classification, stemming, tagging and semantic reasoning. NLTK is a leading platform for building Python programs to work with human language data. Written by the creators of NLTK, it guides the reader through the fundamentals of writing Python programs, working with corpora, categorizing text, analyzing linguistic structure, and more. ...

Pip install pandas

Def: Pandas is an open source Python package that is most widely used for data science/data analysis and machine learning tasks. It is built on top of another package named Numpy, which provides support for multi-dimensional arrays.

Install these all supported packages before going to execute the program

After this open code double click on run file it will open home sceeen

Follow screenshots execute the project.