**ReadMe**

**Overview:**

Due to the tremendous growth in online marketplaces over the last several decades, online vendors and merchants now invite their customers to give their thoughts on the things they have purchased. As a result, millions of evaluations are generated every day, making it difficult for a potential customer to decide whether or not to purchase a product. For product manufacturers, analyzing such a large number of reviews and comments is challenging and time-consuming. Therefore, they use Sentiment analysis to make this task efficient and easygoing. The ability of algorithms to analyze text has greatly increased as a result of recent developments in deep learning.

We have developed an LSTM model for sentiment analysis and compared it with different machine learning models. And we got better accuracy with LSTM deep learning models.

We have used the LSTM model for real-time review analysis and emoji and emoticons analysis. For a better user experience, we have made a graphical user interface that can get input and predict the output.

**Installation:**

We have completed our whole project in jupyter which is available on the internet and anyone can run this project in jupyter.

**For the installation of the jupyter notebook** [**click here**](https://test-jupyter.readthedocs.io/en/latest/install.html) **and follow the instruction stated below:**

Installing jupyter by anaconda

Download Anaconda

Install anaconda

**Run the notebook in the command line:**

jupyter notebook

Installing jupyter by pip

**For existing python users jupyter can be installed by pip. Firstly, upgrade pip by the following command:**

pip3 install --upgrade pip

Install jupyter notebook

pip3 install jupyter

**Libraries:**

import numpy as np

import pandas as pd

import os

import string

import re

import nltk

import tkinter

from tkinter import \*

from nltk.corpus import stopwords

from nltk.stem.porter import PorterStemmer

from nltk.tokenize import word\_tokenize, sent\_tokenize

from nltk.stem.wordnet import WordNetLemmatizer

import matplotlib.pyplot as plt

import seaborn as sns

from wordcloud import WordCloud, STOPWORDS

from tensorflow.keras.models import Sequential

from tensorflow.keras.layers import Dense

from tensorflow.keras.layers import Flatten

from tensorflow.keras.layers import Conv1D, GlobalMaxPool1D

from tensorflow.keras.layers import MaxPooling1D

from tensorflow.keras.layers import Embedding

from tensorflow.keras.preprocessing.text import Tokenizer

from tensorflow.keras.preprocessing import sequence

from sklearn.preprocessing import LabelEncoder

from tensorflow.keras.layers import LSTM,Dense, Dropout, SpatialDropout1D

from sklearn.model\_selection import train\_test\_split

from sklearn.model\_selection import cross\_val\_score, GridSearchCV

from sklearn.metrics import confusion\_matrix, classification\_report, accuracy\_score, f1\_score

from sklearn.naive\_bayes import MultinomialNB

from sklearn.tree import DecisionTreeClassifier

from sklearn.linear\_model import LogisticRegression

**Dataset:**

We have considered the Kaggle dataset which is available openly for all so that anyone can download from there.

[**Amazon Reviews for Sentiment Analysis:**](https://www.kaggle.com/datasets/bittlingmayer/amazonreviews)

* 4,00,000 data
* Balanced dataset
* Better result in Real-Time review analysis

**Run:**

1. Open the code file into jupyter notebook.

2. Change the path of the dataset.

3. Import the necessary libraries.

4. And run all the cells.