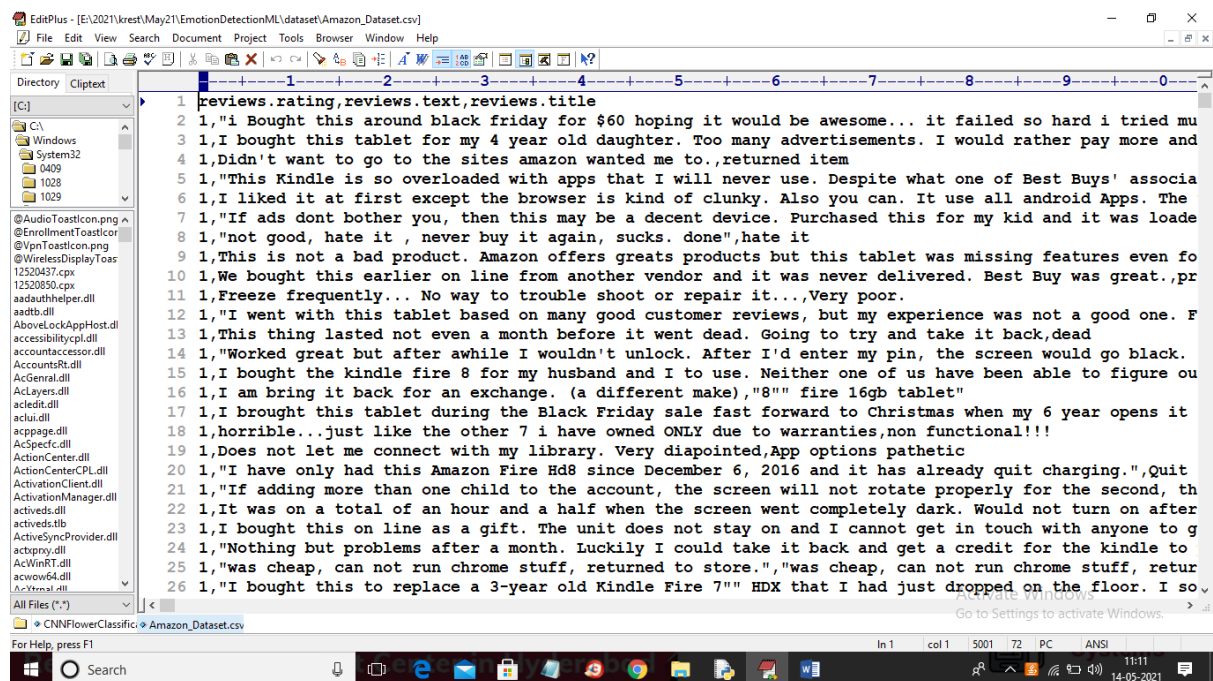


IMPLEMENTATION

Emotion Detection using Machine Learning

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.

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.

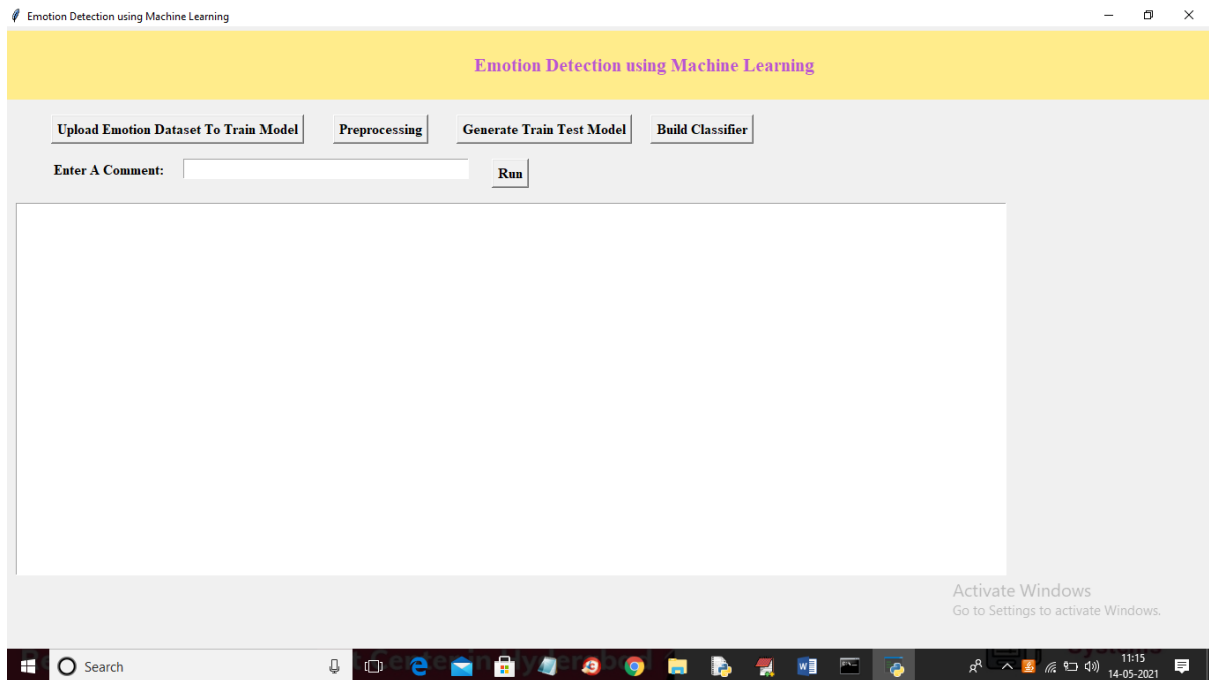


```
1 reviews, rating, reviews.text, reviews.title
2 1,"i Bought this around black friday for $60 hoping it would be awesome... it failed so hard i tried mu
3 1,I bought this tablet for my 4 year old daughter. Too many advertisements. I would rather pay more and
4 1,Didn't want to go to the sites amazon wanted me to.,returned item
5 1,"This Kindle is so overloaded with apps that I will never use. Despite what one of Best Buys' associa
6 1,I liked it at first except the browser is kind of clunky. Also you can. It use all android Apps. The
7 1,"If ads dont bother you, then this may be a decent device. Purchased this for my kid and it was load
8 1,"not good, hate it , never buy it again, sucks. done",hate it
9 1,"This is not a bad product. Amazon offers greats products but this tablet was missing features even fo
10 1,We bought this earlier on line from another vendor and it was never delivered. Best Buy was great.,pr
11 1,Freeze frequently... No way to trouble shoot or repair it...,Very poor.
12 1,"I went with this tablet based on many good customer reviews, but my experience was not a good one. F
13 1,"This thing lasted not even a month before it went dead. Going to try and take it back,dead
14 1,"Worked great but after awhile I wouldn't unlock. After I'd enter my pin, the screen would go black.
15 1,I bought the kindle fire 8 for my husband and I to use. Neither one of us have been able to figure ou
16 1,I am bring it back for an exchange. (a different make),"8"" fire 16gb tablet"
17 1,I brought this tablet during the Black Friday sale fast forward to Christmas when my 6 year opens it
18 1,horrible...just like the other 7 i have owned ONLY due to warranties,non functional!!!
19 1,Does not let me connect with my library. Very diappointed,App options pathetic
20 1,"I have only had this Amazon Fire Hd8 since December 6, 2016 and it has already quit charging.",Quit
21 1,"If adding more than one child to the account, the screen will not rotate properly for the second, th
22 1,It was on a total of an hour and a half when the screen went completely dark. Would not turn on after
23 1,I bought this on line as a gift. The unit does not stay on and I cannot get in touch with anyone to g
24 1,"Nothing but problems after a month. Luckily I could take it back and get a credit for the kindle to
25 1,"was cheap, can not run chrome stuff, returned to store.",,"was cheap, can not run chrome stuff, retur
26 1,"I bought this to replace a 3-year old Kindle Fire 7"" HDX that I had just dropped on the floor. I so
```

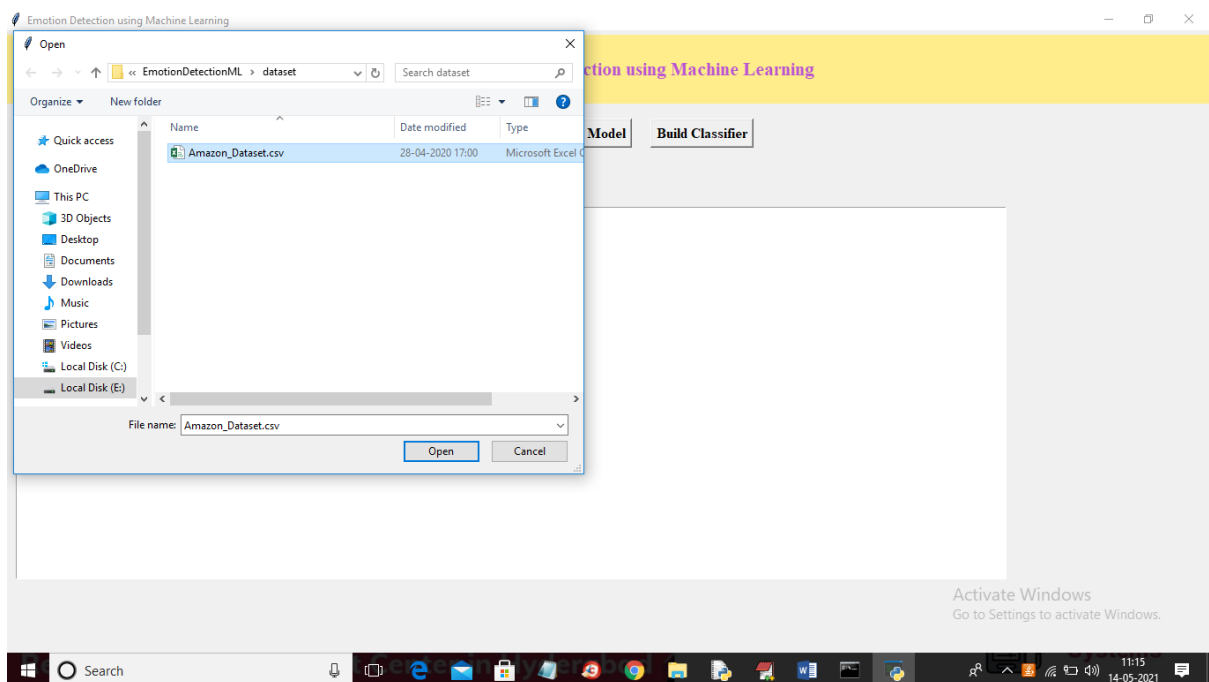
In above dataset we have reviews text and ratings where rating 5 indicate emotion is positive and rating <3 indicate emotion is negative. So we will used above dataset to train machine learning algorithm.

SCREEN SHOTS

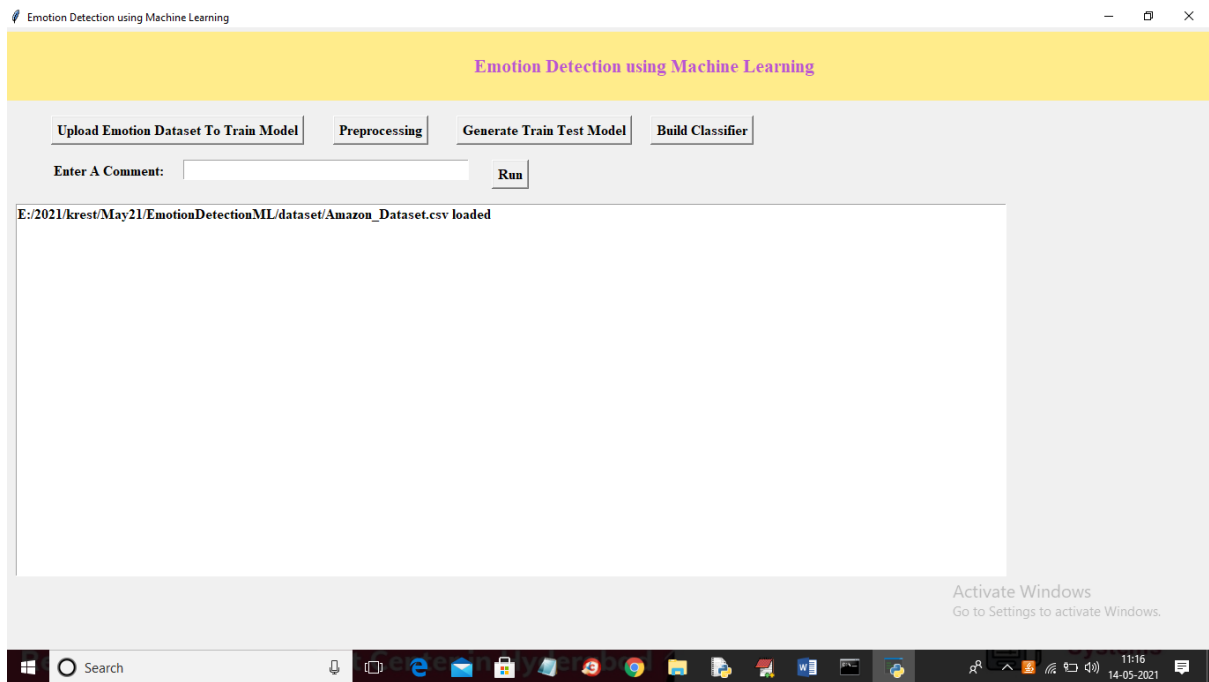
To run project double click on 'run.bat' file to get below screen



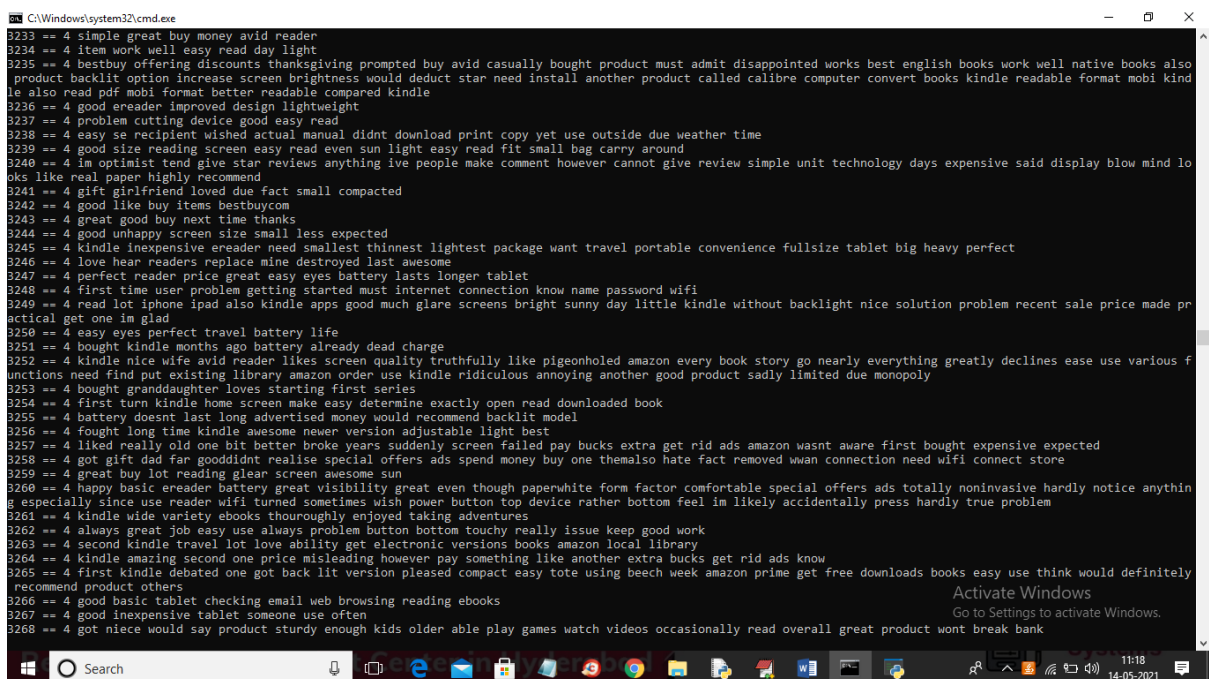
In above screen click on 'Upload Emotion Dataset To Train Model' button to upload Amazon reviews dataset



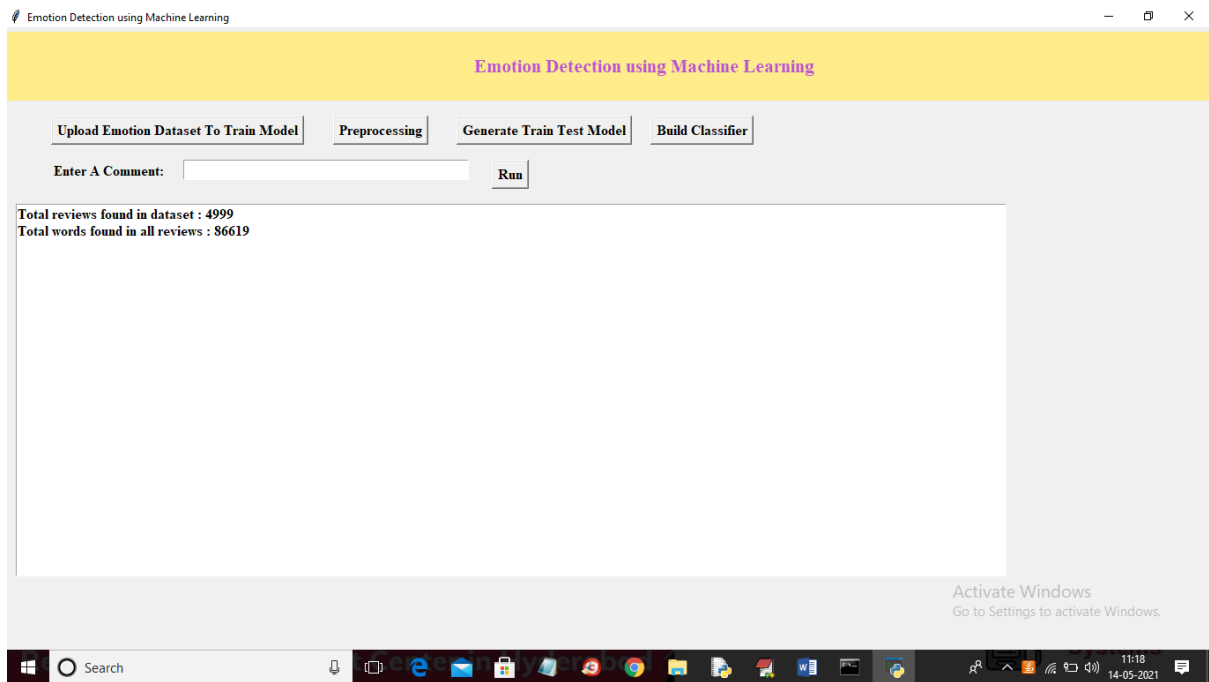
In above screen selecting and uploading 'Amazon_Dataset.csv' file and then click on "open" button to load dataset and to get below screen



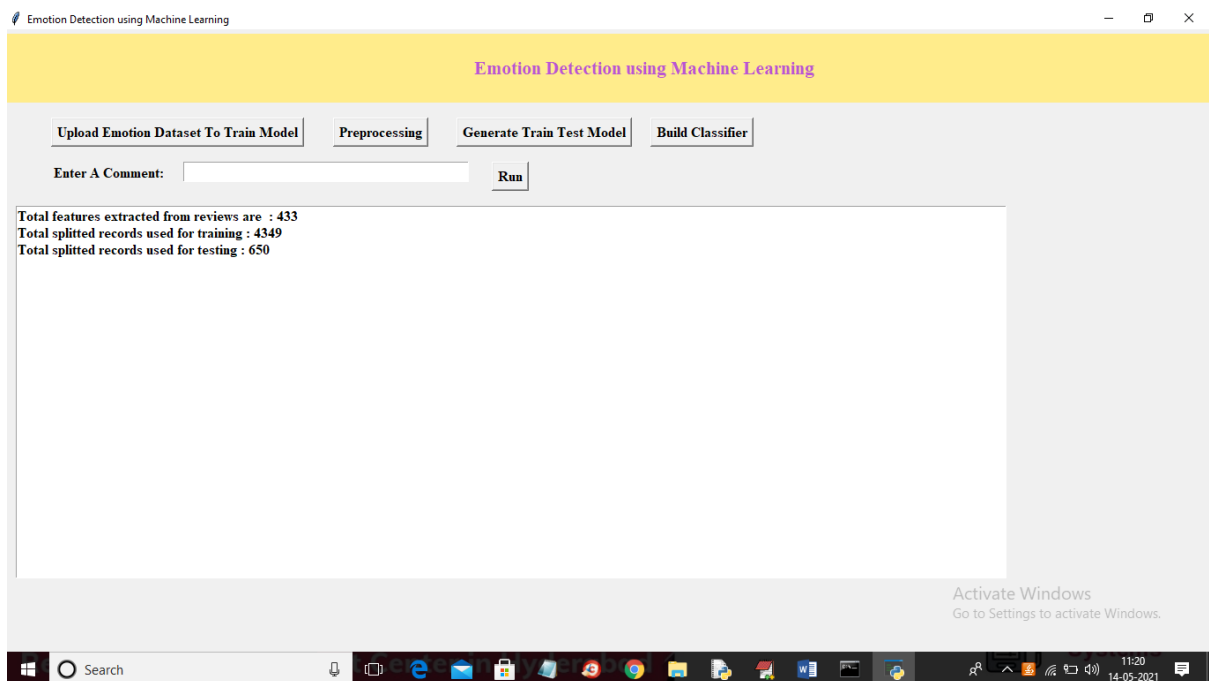
In above screen dataset loaded and now click on 'Preprocessing' button to read all reviews from dataset and then remove stop words, special symbols and make all reviews as clean text



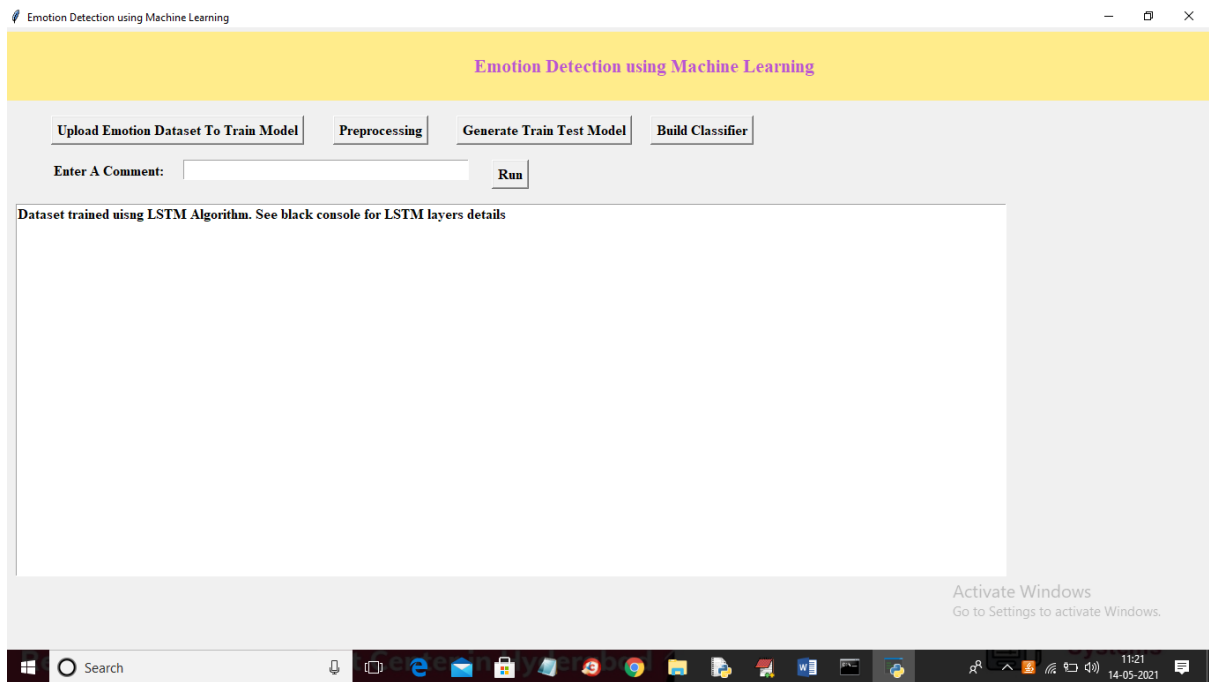
In above screen in black console we can see all reviews are reading processing



In above screen we can see dataset contains total 4999 reviews and all reviews contains 86619 words and now click on 'Generate Train Test Model' button to split dataset into train and test model where application used 80% dataset to train ML and 20% to test ML



In above screen we can see application using 4349 reviews to train ML and 650 reviews to test ML and now train and test data is ready and now click on 'Build Classifier' button to build ML model



In above screen LSTM model is trained on above dataset and in below console we can see LSTM layer details

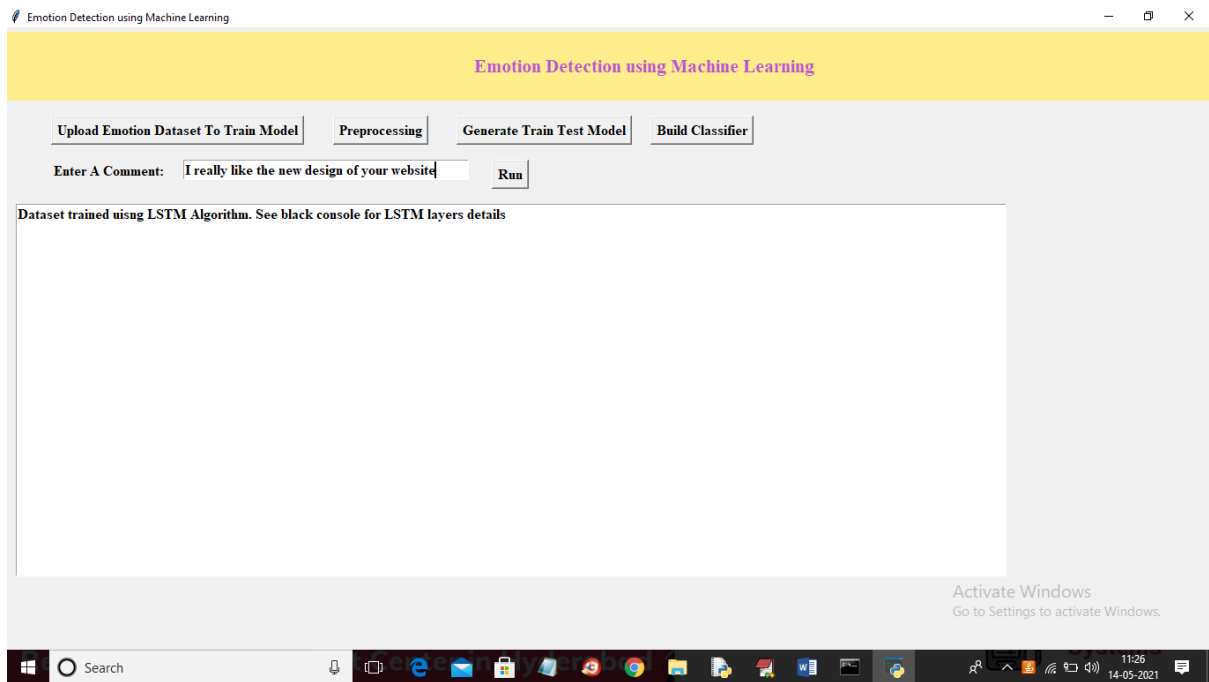
```

C:\Windows\system32\cmd.exe
[0. 0. 0. 0. 1.]
(4999, 433)
[[0. 0. 1. 0. 0.]
 [0. 1. 0. 0. 0.]
 [0. 0. 1. 0. 0.]
 ...
 [0. 0. 0. 0. 1.]
 [0. 0. 0. 1. 0.]
 [1. 0. 0. 0. 0.]]
WARNING:tensorflow:From C:\Users\Admin\AppData\Local\Programs\Python\Python37\lib\site-packages\keras\backend\tensorflow_backend.py:422: The name tf.global_variables is
deprecated. Please use tf.compat.v1.global_variables instead.

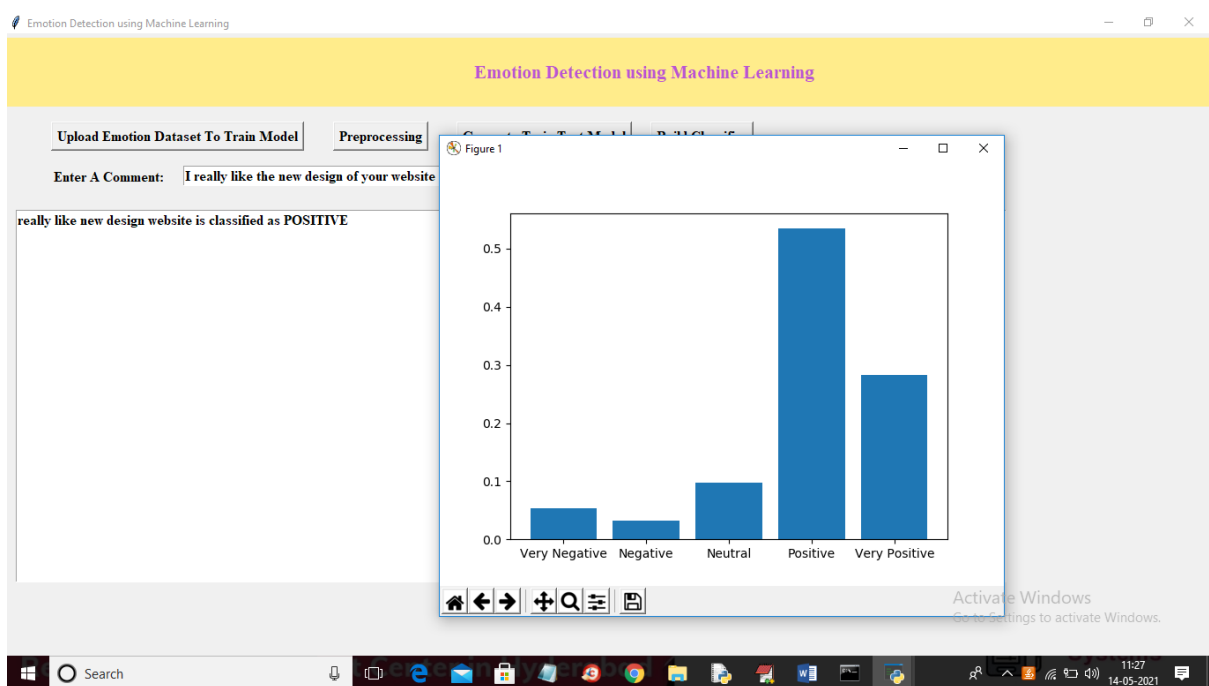
Model: "sequential_1"
Layer (type)                 Output Shape              Param #
-----
embedding_1 (Embedding)      (None, 433, 70)          35000
spatial_dropout1d_1 (Spatial (None, 433, 70)          0
lstm_1 (LSTM)                 (None, 70)                39480
dense_1 (Dense)              (None, 5)                  355
-----
Total params: 74,835
Trainable params: 74,835
Non-trainable params: 0
None

```

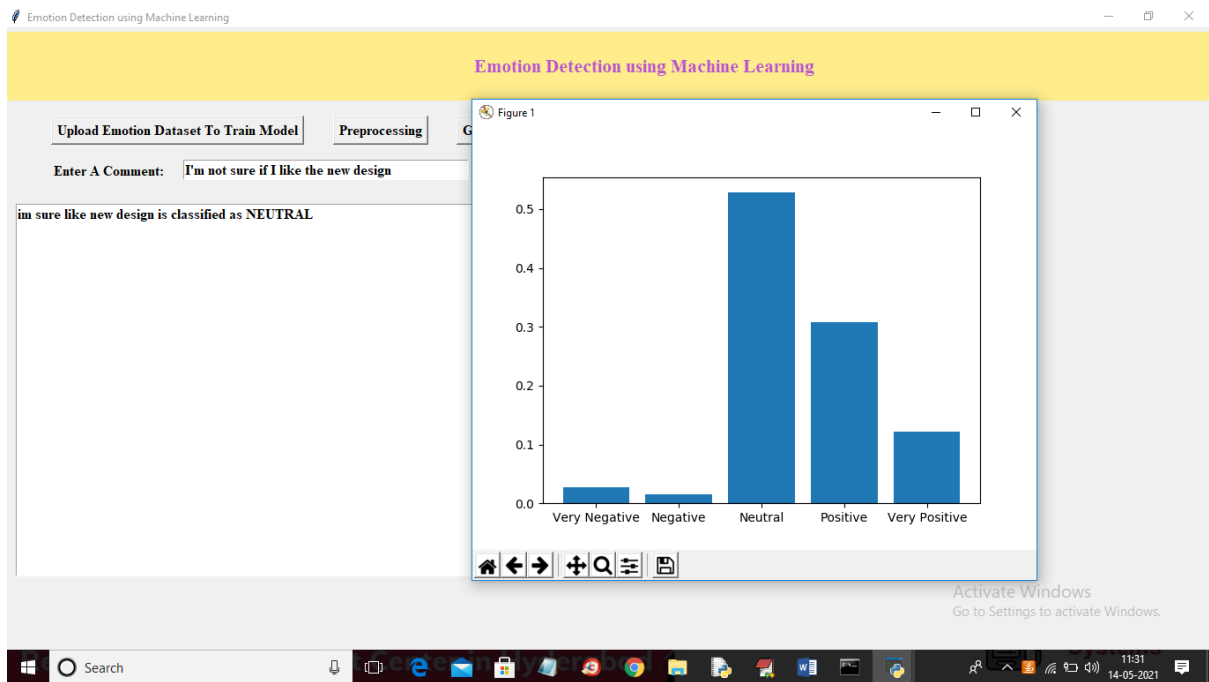
In above screen we trained LSTM with multiple layers and in first layer application using 433 X 70 features to train ML and 70 features to perform prediction. Now LSTM model is ready and now you can enter any TEXT data to predict emotion



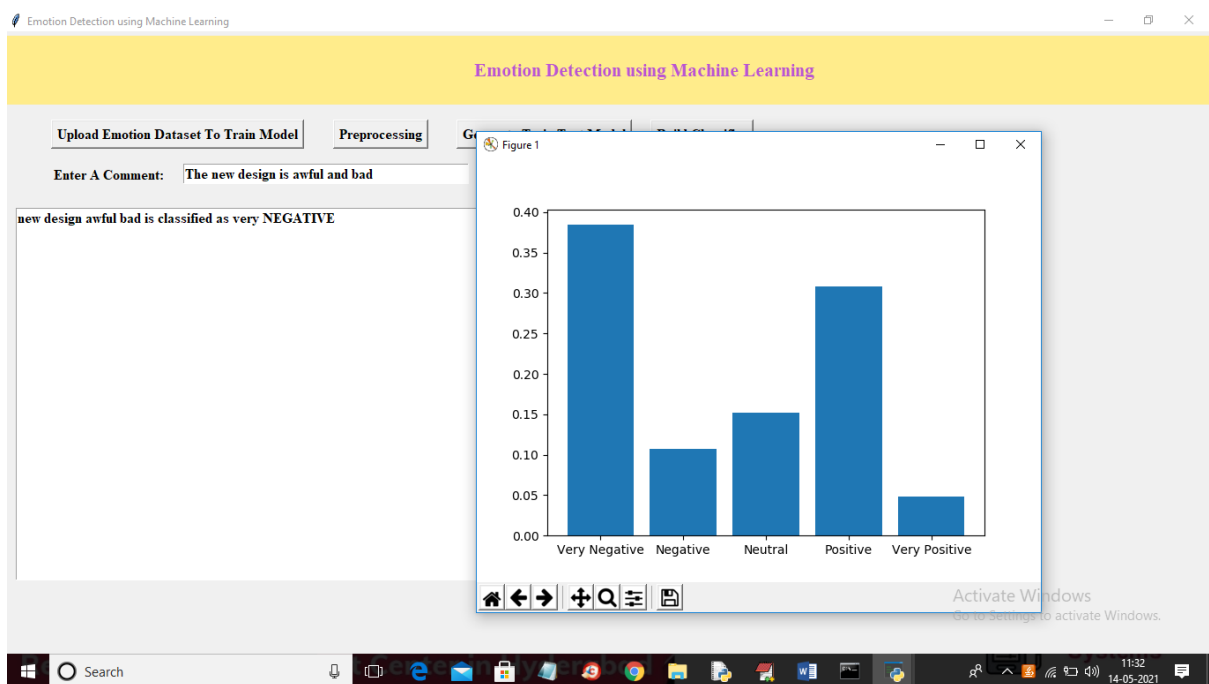
In above screen in COMMENT field I entered some text and then click on 'Run' button to detect emotion from sentiment

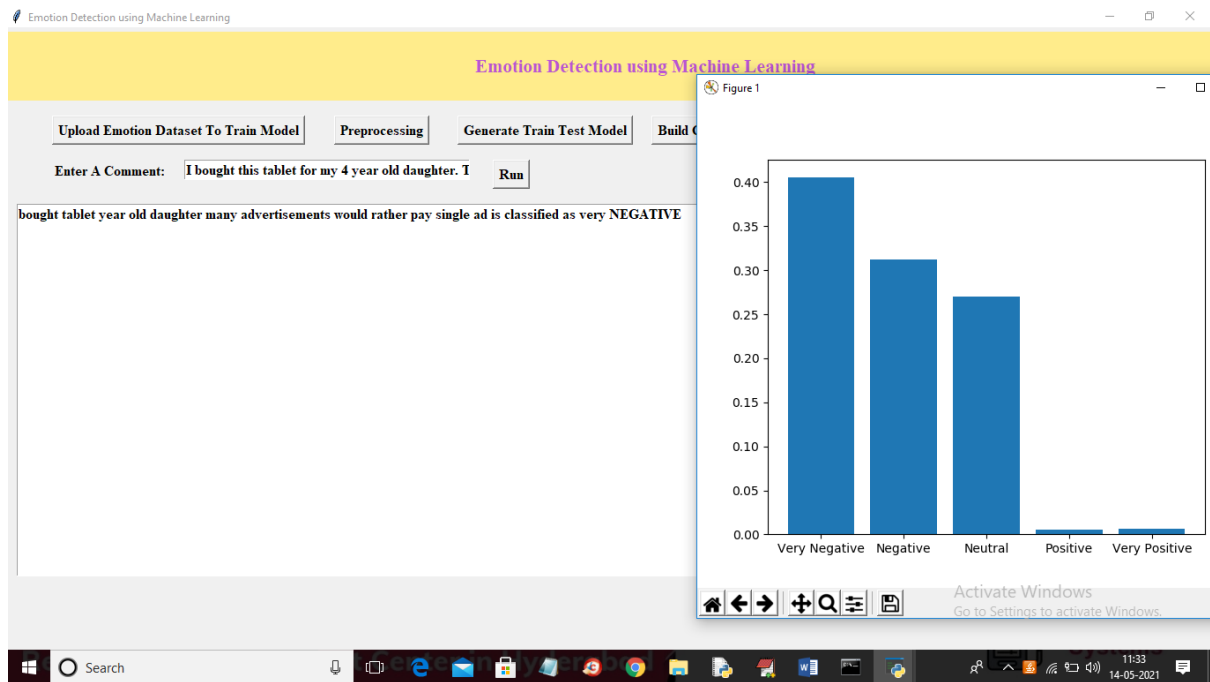


In above screen in text area we can see given sentence predicted as 'POSITIVE' and in graph we can see polarity detection for given TEXT such as how much negativity, neutral and positivity detected and in graph we can see Positive has got highest polarity so TEXT classified as positive. Now test with other sentence



In above screen for new sentence we can see the prediction emotion and now test with other sentence





In above screen given sentence emotion detected as 'very negative'. Similarly you test for other sentences and this application can predict 8 times correctly out of 10 times testing as this is a computer program so we cannot make 100% accurate prediction.