Disaster Tweet Classification using Natural language Processing

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Problem:

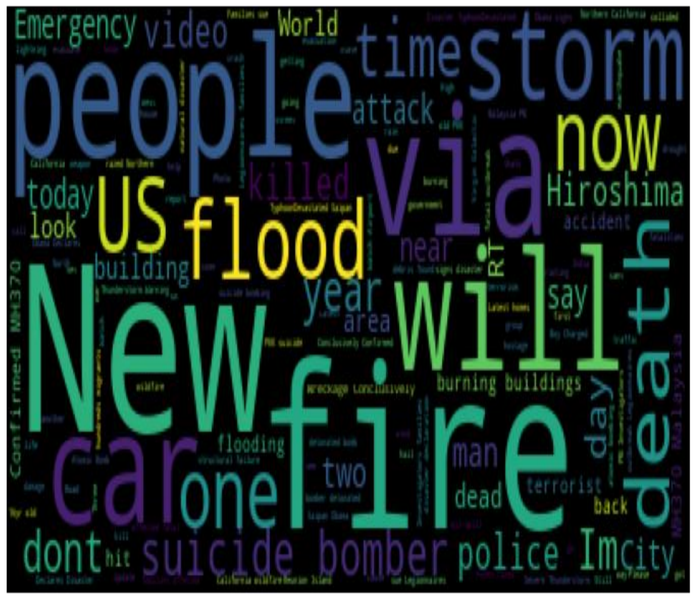
To identify whether a person's words are actually announcing a disaster or not

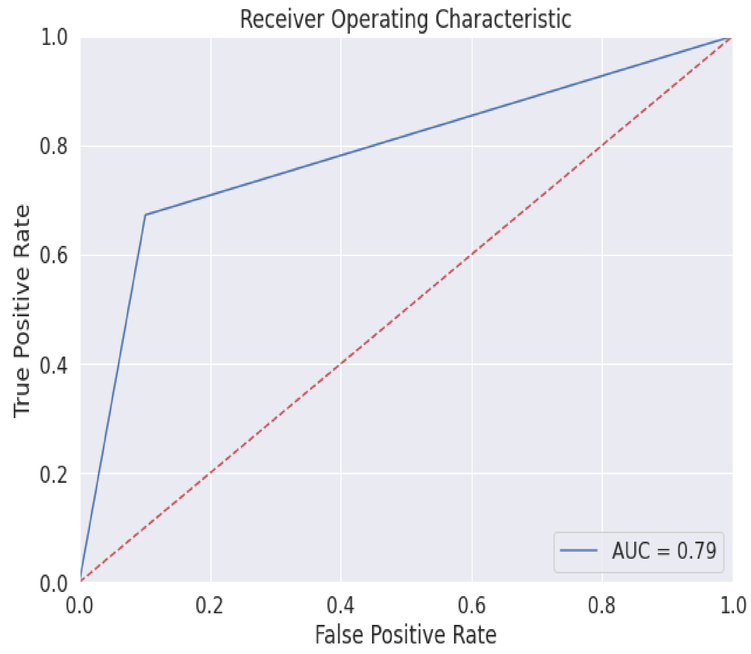
Data:

Sample tweets:
- I can see a fire in the woods...
- There's an emergency evacuation happening now
- What a wonderful day!

Analysis and graphs

Word cloud from disaster tweets





Methods /Approach

Two different approaches used in this project are:

Bag-of-words Method:

One hot encode text data and then apply traditional machine learning models (used Logistic Regression and XGBoost)

Word Embedding Method:

Generate word embedding from the training dataset

Using pretrained word embeddings

Apply Logistic Regression & Multi-Layer Perceptron on word vectors to classify

Results

Logistic Regression **f1_score: 0.75**
Logistic Regression **Accuracy: 0.81**
Logistic Regression Precision: 0.84
Logistic Regression **Recall: 0.69**

Using Logistic Regression, I was able to identify 69% of disaster tweets with 81% accuracy

Conclusions

This is a good starting point using vanilla text classification methods.

Implementing further text cleaning techniques like spelling correction and employing RNN may improve accuracy of the process.

Source code

Git hub link: https://github.com/var2019/Data-science-project--Varsha

References

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