

Political Inclination Classification Based on Users' Twitter

Yixue Zhang, Zhengyang Tang, Jiarui Jin, Zhangming cheng

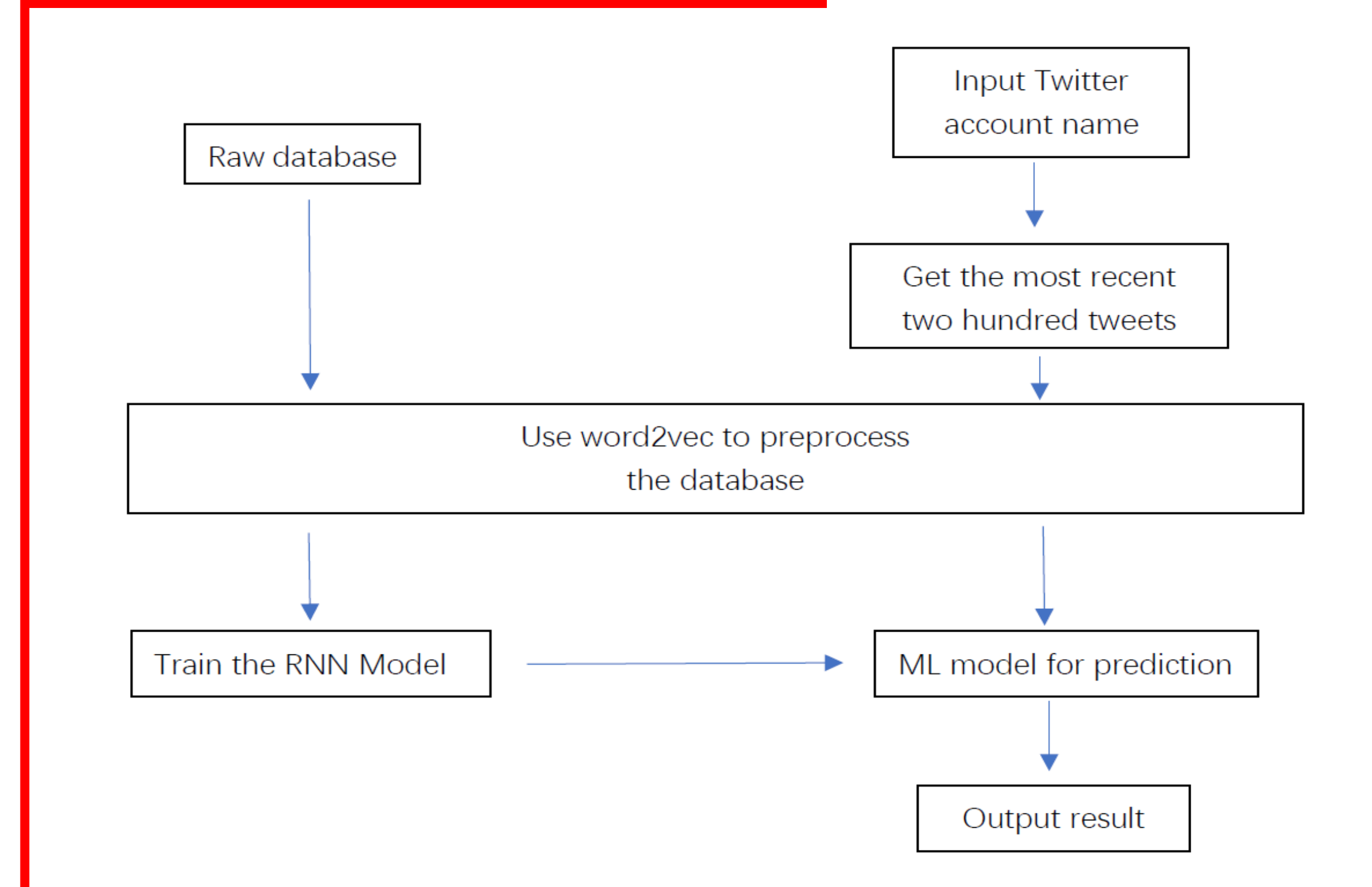


BOSTON
UNIVERSITY

Background

- What we did is to predict one's political inclination based on the Twitter.
- A dataset which provides the content of some politicians' Twitters is used to train our machine learning model.
- A recurrent neural network (RNN) is a class of artificial neural network where connections between nodes form a directed graph along a sequence which is used as our machine learning model.

System Architechure



Results

Webpage:



Search results:

Analysis result Analysis result Analysis result

account: gop
number of tweets: 200
Democrat: 0.375
Republican: 0.55
Neutral: 0.075
Political bias: Republican
overall result: Republican

account: nba
number of tweets: 200
Democrat: 0.085
Republican: 0.22
Neutral: 0.695
Political bias: Republican
overall result: Neutral

account: thedemocrats
number of tweets: 200
Democrat: 0.675
Republican: 0.16
Neutral: 0.165
Political bias: Democrat
overall result: Democrat

Front End

- The webpage is like a search engine where you can input a name of the Twitter account and get the prediction result.
- Connect front webpage with python and ML model files by using Django, which is a python-based free and open source web framework.
- Use HTML, CSS and JavaScript to build the webpage.



Back End

- Word2vec models: shallow, two-layer neural networks that are trained to reconstruct linguistic contexts of words. What we use is a google-trained word2vec model which contains 300 features.
- LSTM networks are well-suited to classifying, processing and making predictions based on time series data. Since the connection between different words is important, we decide to use this model to deal with this problem.
- An article bot is built to download articles from mainstream media websites and use machine learning model to predict the author's political inclinations. And a dashboard is built using Pygame package to provide a better illustration.

Conclusions

- We compared different machine learning model including NN, CNN and RNN. We found out the RNN model provides the best accuracy among the others.
- At present, our model can reach the accuracy of 80%.
- In the future, we can adjust the model further by adding more layers to the current RNN model in order to improve the accuracy.