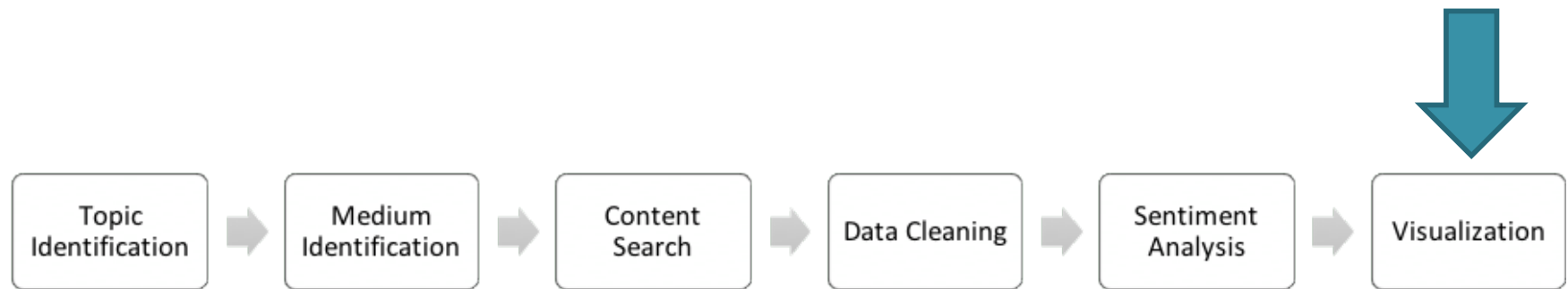




Βήμα 4 Dashboard

Παύλος Δ. Βασιλειάδης

Dashboard for **Visualization**



Visualization:

Once the sentiment analysis is completed,
data needs to be visualized
or put in an organized format
to make sense of it

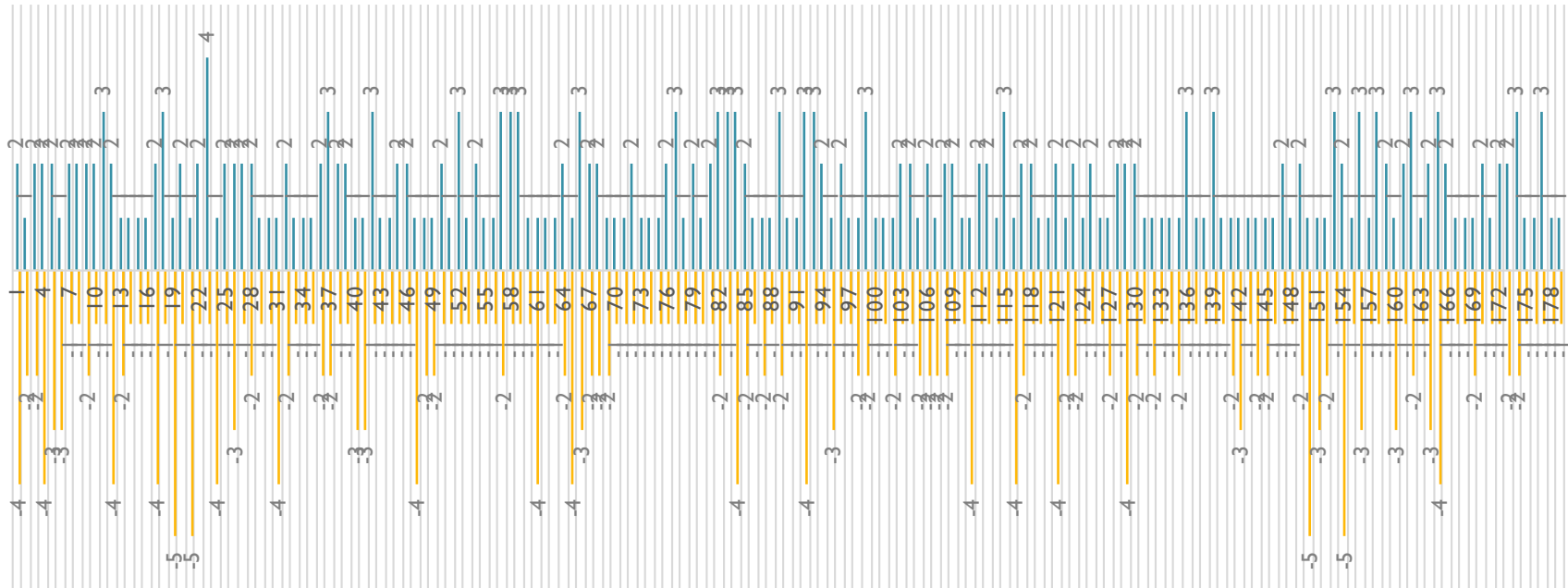
Source: <http://sentistrength.wlv.ac.uk>

Dashboard: MS Excel #2/2



SENTIMENT

■ Positive ■ Negative



Dashboard: Matplotlib #1/3



Matplotlib is:

- a Python 2D plotting library
- produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms
- can be used in Python scripts, the Python and IPython shells, the Jupyter notebook, web application servers, and four graphical user interface toolkits

Source: <https://matplotlib.org/>

Dashboard: Matplotlib #2/3



matplotlib.pyplot.plot

```
matplotlib.pyplot.plot(*args, scalex=True, scaley=True, data=None, **kwargs)
```

[\[source\]](#)

Plot y versus x as lines and/or markers.

Call signatures:

```
plot([x], y, [fmt], *, data=None, **kwargs)
plot([x], y, [fmt], [x2], y2, [fmt2], ..., **kwargs)
```

The coordinates of the points or line nodes are given by x, y.

The optional parameter *fmt* is a convenient way for defining basic formatting like color, marker and linestyle. It's a shortcut string notation described in the *Notes* section below.

```
>>> plot(x, y)           # plot x and y using default line style and color
>>> plot(x, y, 'bo')     # plot x and y using blue circle markers
>>> plot(y)              # plot y using x as index array 0..N-1
>>> plot(y, 'r+')        # ditto, but with red plusses
```

You can use [Line2D](#) properties as keyword arguments for more control on the appearance. Line properties and *fmt* can be mixed. The following two calls yield identical results:

```
>>> plot(x, y, 'go--', linewidth=2, markersize=12)
>>> plot(x, y, color='green', marker='o', linestyle='dashed',
...      linewidth=2, markersize=12)
```

When conflicting with *fmt*, keyword arguments take precedence.

Plotting labelled data

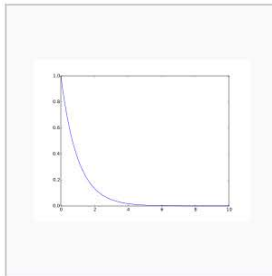
There's a convenient way for plotting objects with labelled data (i.e. data that can be accessed by index `obj['y']`). Instead of giving the data in x and y, you can provide the object in the *data* parameter and just give the labels for x and y:

```
>>> plot('xlabel', 'ylabel', data=obj)
```

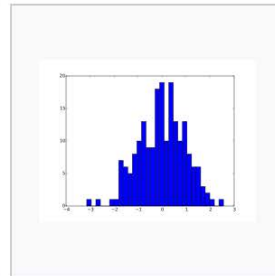
All indexable objects are supported. This could e.g. be a `dict`, a `pandas.DataFrame` or a structured numpy array.

Dashboard: Matplotlib #3/3

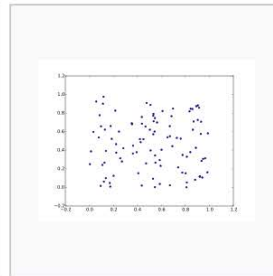
matplotlib



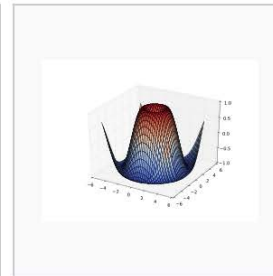
Line plot



Histogram



Scatter plot



3D plot

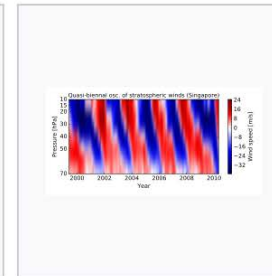
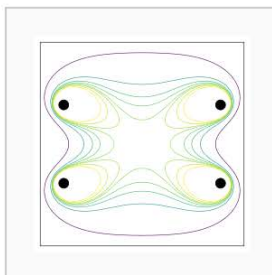
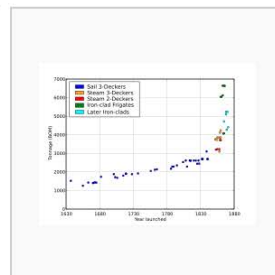


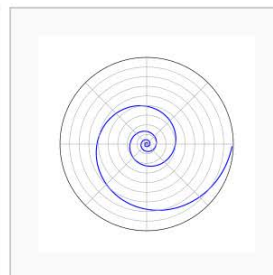
Image plot



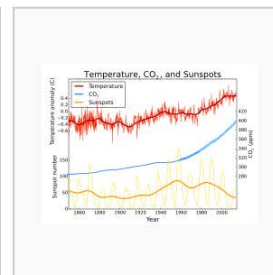
Contour plot



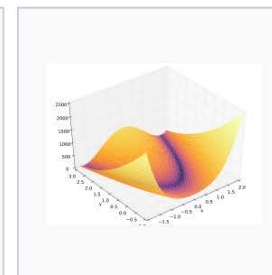
Scatter plot



Polar plot



Line plot



3-D plot

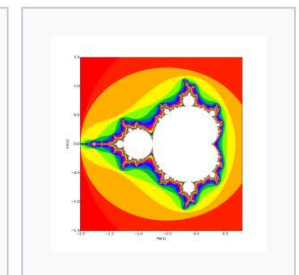


Image plot

Dashboard: **Bokeh** #1/2



Bokeh is

- an interactive visualization library for modern web browsers
- provides elegant, concise construction of versatile graphics, and affords high-performance interactivity over large or streaming datasets
- can help anyone who would like to quickly and easily make interactive plots, dashboards, and data applications

Source: <https://docs.bokeh.org>

Dashboard: Bokeh #2/2



Dashboard: Suggested bibliography

Sentiment Analysis and Visualization of Social Media Data

The #BostonMarathon #Bombings test case

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Abstract— This work aims a) to perform sentiment analysis on social media data using Machine Learning algorithms and b) to propose a user-friendly visualization of the results.

Keywords— sentiment analysis, data visualization, machine learning

I. INTRODUCTION

The target of this project is a) to perform sentiment analysis (SA) on social media text data (e.g., tweets) using machine learning algorithms and b) to propose a visualization summary of these data to the user.

Fig. 1. Overall system's architecture

Getting results

SentiView: Sentiment Analysis and Visualization for Internet Popular Topics

Changbo Wang, Zhao Xiao, Yuhua Liu, Yanru Xu, Aoying Zhou, and Kang Zhang

Abstract—There would be value to several domains in discovering and visualizing sentiments in online posts. This paper presents SentiView, an interactive visualization system that aims to analyze public sentiments for popular topics on the Internet. SentiView combines uncertainty modeling and model-driven adjustment. By searching and correlating frequent words in text data, it mines and models the changes of the sentiment on public topics. In addition, using a time-varying helix together with an attribute astrolabe to represent sentiments, it can visualize the changes of multiple attributes and relationships among demographics of interest and the sentiments of participants on popular topics. The relationships of interest among different participants are presented in a relationship map. Using a new evolution model that is based on cellular automata, it is able to compare the time-varying features for sentiment-driven forums on both simulated and real data. Adaptable for different social networking platforms, such as Twitter, blog and forum, the methods demonstrate the effectiveness of SentiView in analyzing and visualizing public sentiments on the Web.

Index Terms—Microblog, sentiment, social networks, visual analytics, web forums.

I. INTRODUCTION

WITH the rapid development of Web technologies, an increasing number of social networking platforms have been widely used, such as blogs, forums, and microblogs. They have become indispensable for public information sharing. As

thousand daily users on average,² and tens of thousands of new topics posted every day. There are 503 million of subscribers and

more and more of new information and news of popular topics. The SentiView system is designed to help people to understand the sentiment via network visualization. The system provides time-variant public sentiment study

Sentiment Analysis of Movie Reviews using Machine Learning Techniques

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ABSTRACT

Sentiment analysis is the analysis of emotions and opinions from any form of text. Sentiment analysis is also termed as opinion mining. Sentiment analysis of the data is very useful to express the opinion of the mass or group or any individual. This technique is used to find the sentiment of the person with respect to a given source of content. Social media and other online platforms contain a huge amount of the data in the form of tweets, blogs, and updates on the status, posts, etc. In this paper, we have analyzed the Movie reviews using various techniques like Naïve Bayes, K-Nearest Neighbour and Random Forest.

General Terms

Reviews, Classification, Weka, Artificial Intelligence, Machine Learning, Sentiments

of any commodity or service and can effortlessly compare the competing brands.

- **Quality Improvement in Product or Service:** By Opinion mining, the producers can collect the user's opinion whether favourable or not about their product or service and then they can enhance and upgrade the quality of their product or service.
- **Recommendation Systems:** By analyzing and categorizing the people's opinion according to their preferences and interests, the system can predict which item should be recommended and which one should not be recommended.
- **Decision Making:** People's sentiments, ideas, feelings are very important factor to make a decision. While buying any item be it a book or clothes or electronic items user's first to read the opinions and reviews of that

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