

Sentiments for Trump

The screenshot shows a Scala IDE interface. On the left, there are two open files: `mapr.scala` and `earth.scala`. The `mapr.scala` file contains Scala code for processing a stream of tweets. A yellow box highlights the line of code that filters tweets starting with the word "Trump". An arrow points from this highlighted line to the right margin, where the text "Trump' Keyword" is written. Below the code editor is a toolbar with various icons. The main workspace displays the output of the Scala interpreter, which includes the command `<terminated> mapr$ [Scala Application] /usr/lib/jvm/java-8-openjdk-i386/bin/java (09-Feb-2017, 6:06:24 PM)`, the execution time `Time: 1486645210000 ms`, and a list of tweets with their sentiment scores. A legend on the right maps colors to sentiment categories: green for Positive, blue for Neutral, and red for Negative.

Code snippet from `mapr.scala`:

```
58     val tags = t.getText.split(" ").filter(_.startsWith("#")).map(_.toLowerCase)
59     tags.contains("#obama") && tags.contains("#NYC")
60   }
61 */
62 val tweets = stream.filter { t =>
63   val tags = t.getText.split(" ").filter(_.startsWith("Trump")).map(_.toLowerCase)
64   tags.exists { x => true }
65 }
66
67
68 val data = tweets.map { status =>
69   val sentiment = SentimentAnalysisUtils.detectSentiment(status.getText)
70 }
```

Output from Scala Interpreter:

```
<terminated> mapr$ [Scala Application] /usr/lib/jvm/java-8-openjdk-i386/bin/java (09-Feb-2017, 6:06:24 PM)
ueuug: weighted: 3.0
-----
Time: 1486645210000 ms
-----
(#USA Trump Suggests That Supreme Court Nominee's Criticism of Him Misrepresented: Trump questioned whether...
https://t.co/1ZCtok4P43 #News, NEGATIVE, [Ljava.lang.String;@10f96b1)
( RT @WorldStarLaugh: Compilation of Donald Trump's greatest accomplishments as president https://t.co/
Got6efwiMH, POSITIVE, [Ljava.lang.String;@e5a4fe)
( BBCNewsnight: Should the UK roll out the red carpet for President Trump? Here's what Hillary Clinton's
campaign ma... https://t.co/hjKNuJJu3s, NEUTRAL, [Ljava.lang.String;@146dc81)
( RT @Jdxthompson: Ellen DeGeneres response to Donald Trump screening "Finding Dory" at The White House is
everything https://t.co/koQcPuH.., NEGATIVE, [Ljava.lang.String;@116c5fd)
( RT @calilelia: Trump: Ivanka "always pushing me to do the right thing." He needs a push to do the right
thing? @ananavarro @VanJones68 @Ch.., NEUTRAL, [Ljava.lang.String;@129dc11)
```

Legend:

- Positive
- Neutral
- Negative

Figure: Performing Sentiment Analysis on Tweets with 'Trump' Keyword

Applying sentiment analysis

- ❑ As we have seen from our Sentiment Analysis demonstration, we can extract sentiments of particular topics just like we did for 'Trump'.
- ❑ Hence Sentiment Analytics can be used in **crisis management**, **service adjusting** and **target marketing** by companies around the world.



Companies using **Spark Streaming** for Sentiment Analysis have applied the same approach to achieve the following:

1. Enhancing the customer experience
2. Gaining competitive advantage
3. Gaining Business Intelligence
4. Revitalizing a losing brand



References

- Zaharia, Matei, et al. "Discretized streams: an efficient and fault-tolerant model for stream processing on large clusters." *Presented as part of the*. 2012.
- Armbrust, Michael, et al. "Structured streaming: A declarative API for real-time applications in apache spark." *Proceedings of the 2018 International Conference on Management of Data*. 2018.



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