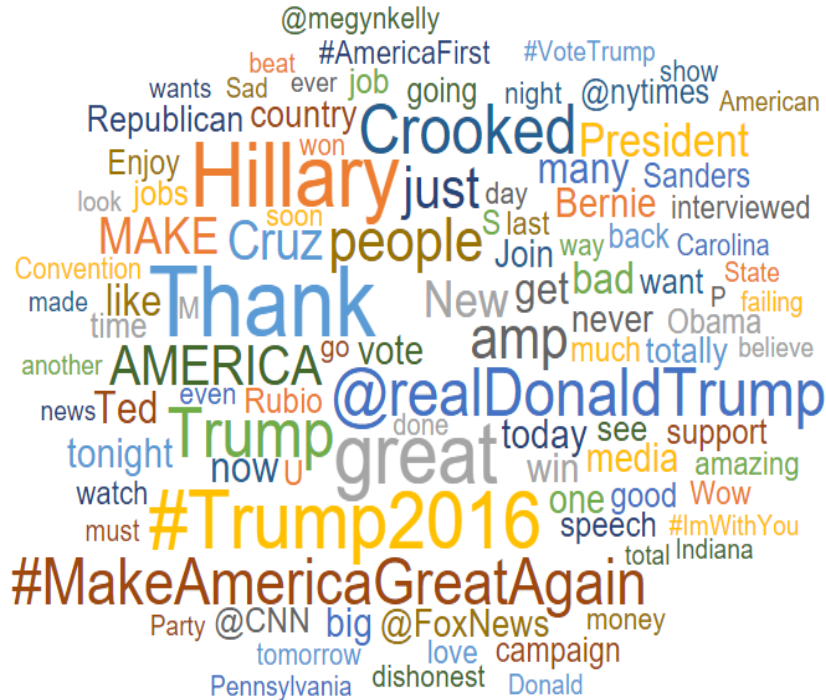


**CST8390**  
**BUSINESS**  
**INTELLIGENCE &**  
**DATA ANALYTICS**

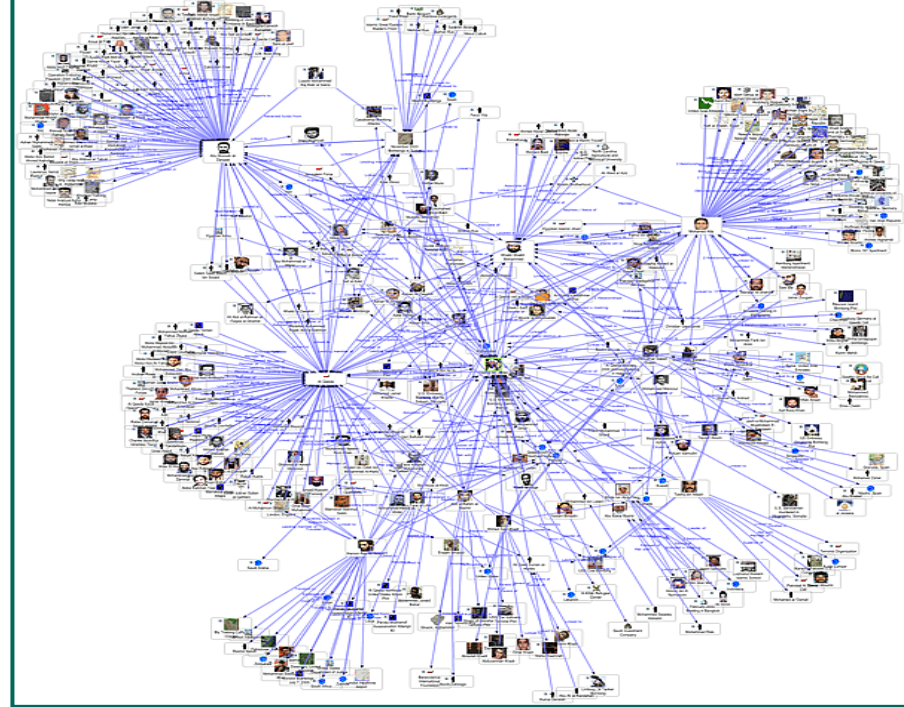
**Week 12**

**Trending Topics in Industry**

# Sentiment Analysis



# Link Analysis

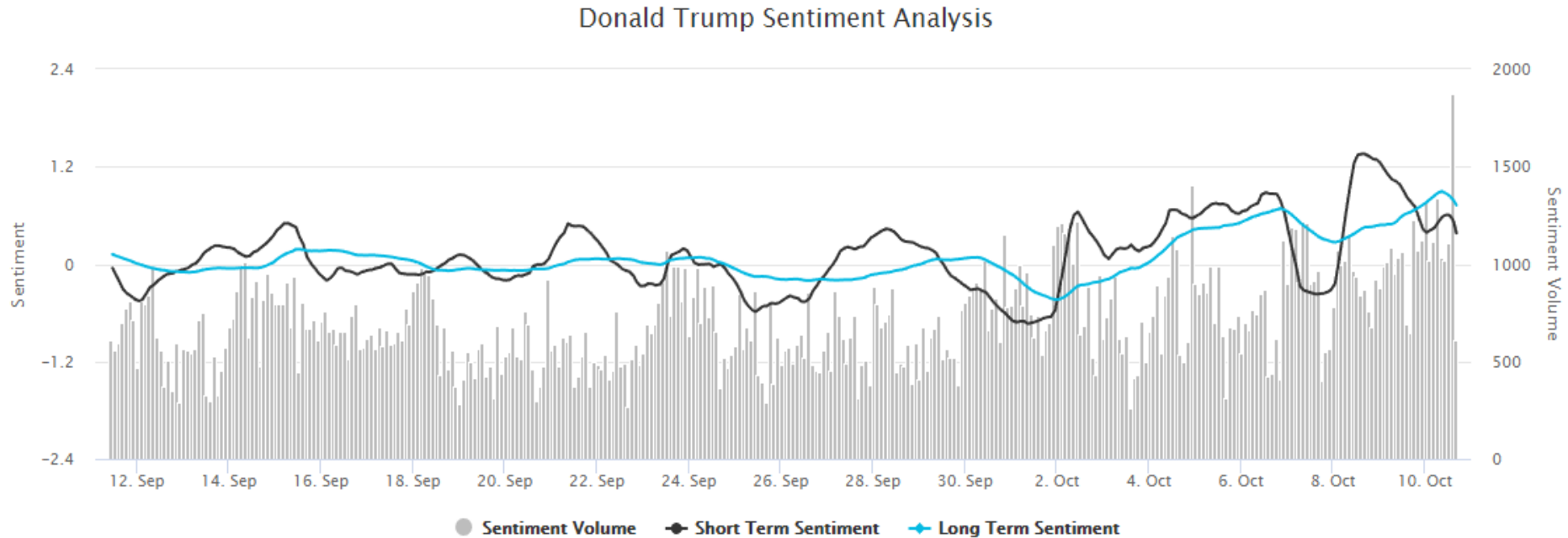


# Sentiment Analysis

- Sentiment analysis is contextual mining of text which identifies and extracts subjective information in source material and helping a business to understand the social sentiment of their brand, product or service while monitoring online conversations.
- Comes under Natural Language Processing (NLP)



# Example - Politicians



Taken from <http://sentdex.com/political-analysis/us-politicians/>

# Other names for Sentiment Analysis

- Opinion extraction
- Opinion mining
- Sentiment mining
- Subjectivity analysis



# Examples of Sentiment Analysis

- Movie: is this review positive or negative?
- Products: what do people think about the new iPhone?
- Public sentiment: how is consumer confidence?
- Politics: what do people think about this candidate or issue?
- Prediction: predict election outcomes or market trends from sentiment



# Data Sources - Examples

- Review sites
- Blogs
- News
- Social media



# Affective states

- **Emotion**: happy, sad, angry, proud, ashamed etc.
- **Mood**: cheerful, gloomy, irritable, depressed etc.
- **Interpersonal stances**: friendly, warm, supportive etc.
- **Attitudes**: liking, loving, hating, desiring etc.
- **Personality traits**: nervous, anxious, jealous, hostile etc





# Sentiment Analysis

- Is the detection of attitudes
  1. Holder (source) of attitude
  2. Target (aspect) of attitude
  3. Type of attitude
  4. Text containing the attitude
- Positive, negative, or neutral together with the strength
- Task is to identify whether the text is positive or negative



# Analysis

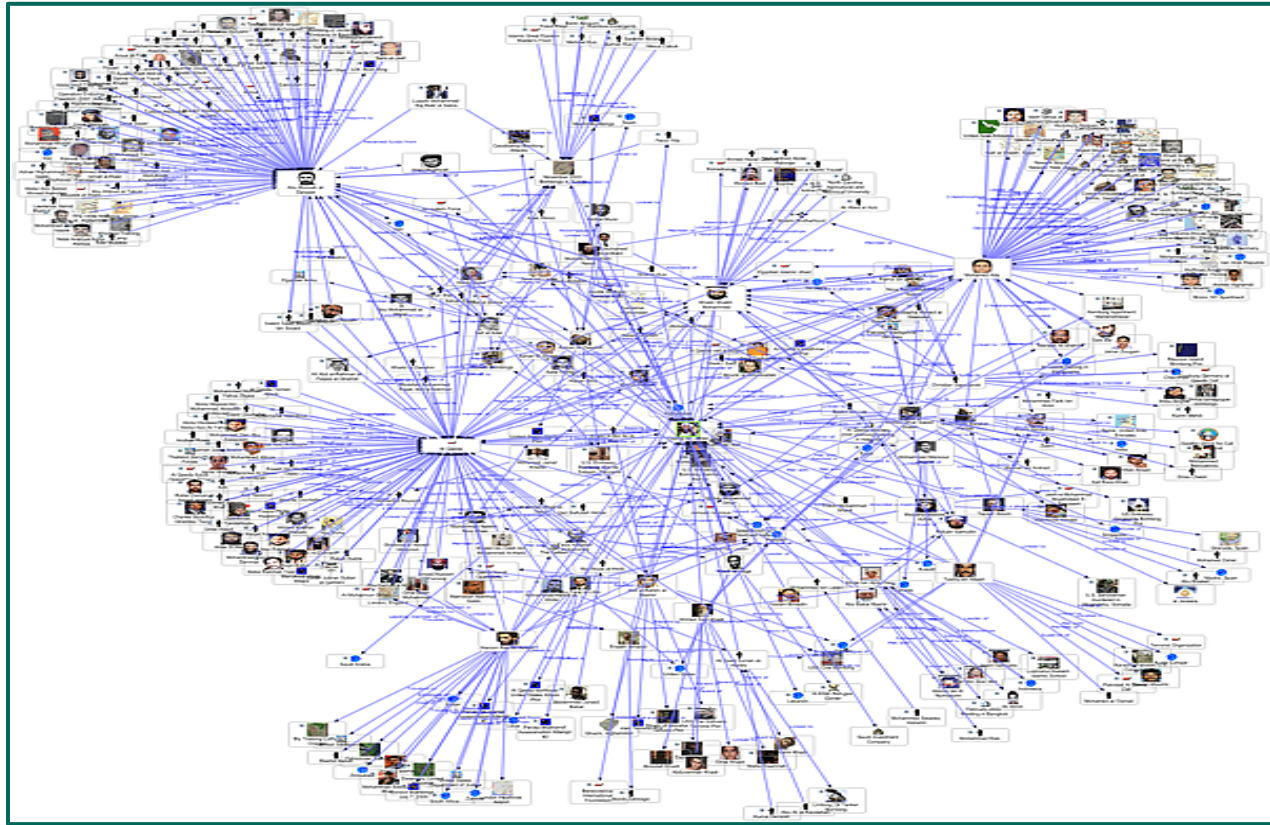
- Machine learning
  - Supervised
  - Unsupervised
- Lexicon-based
  - Dictionary
- Discourse analysis



# Demo



# Link Analysis

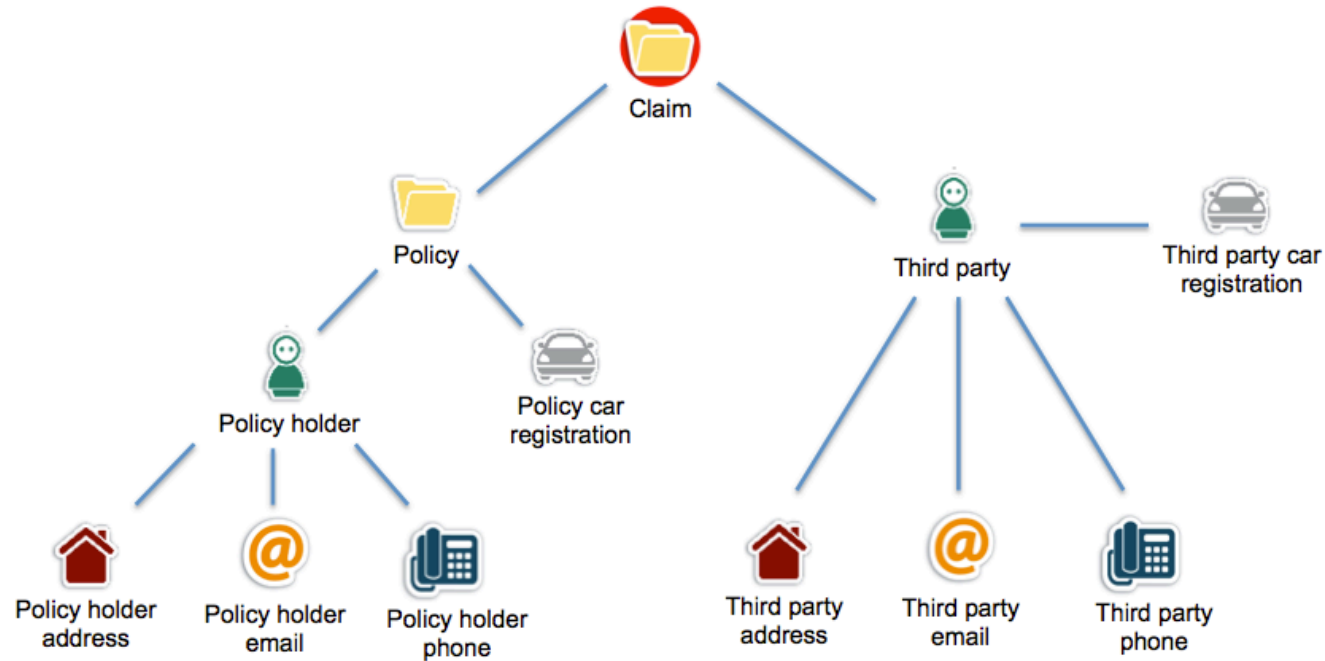


# Link Analysis

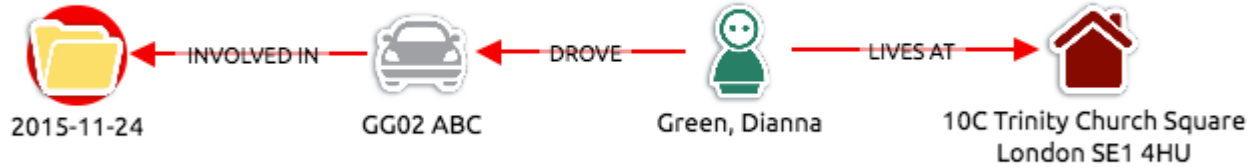
- Data-analysis technique used to evaluate relationships (connections) between nodes.
- Relationships may be identified among various types of nodes (objects), including organizations, people and transactions.
- Used for investigation of criminal activity (fraud detection, counterterrorism, and intelligence), computer security analysis, search engine optimization, market research, medical research, and art.



# Example – Investigation on Insurance Claims



# Example: Visual Data Model

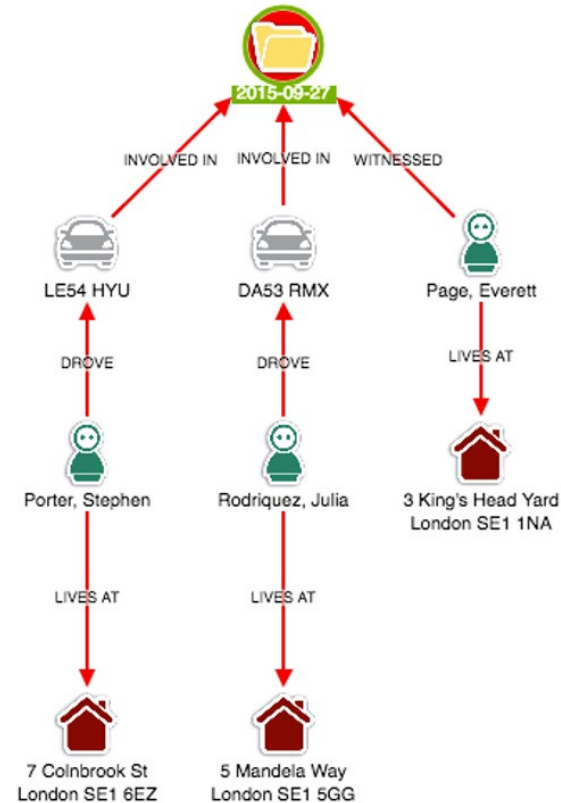


- Claim – being investigated
- Vehicle – involved in the claim
- Claimant – associated with the vehicle
- Address – at which the claimant lives



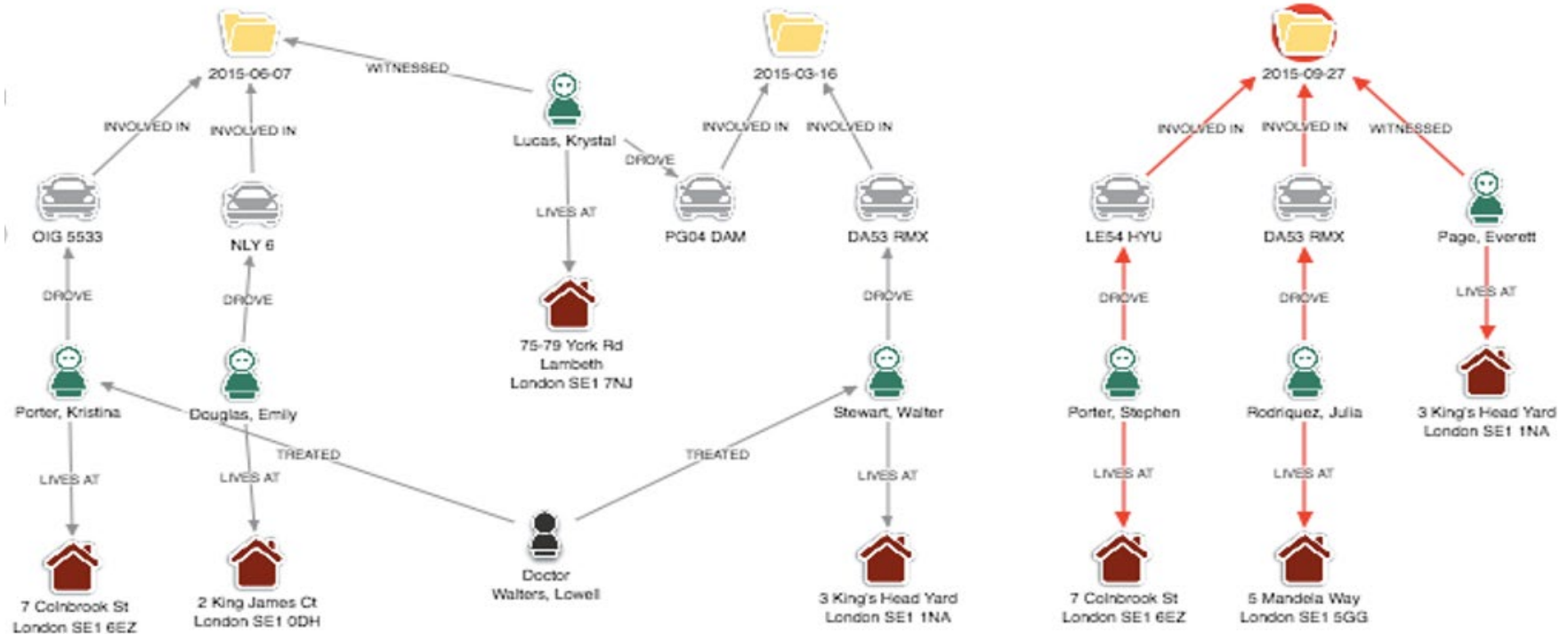
# 1. Load a claim

Involves two vehicles and three claimants,  
associated with three separate addresses





## 2. Find matches



Anything suspicious???



# 3. Combine Matches



# References

- <https://towardsdatascience.com/sentiment-analysis-concept-analysis-and-applications-6c94d6f58c17>
- <https://monkeylearn.com/sentiment-analysis/>
- [https://en.wikipedia.org/wiki/Link\\_analysis](https://en.wikipedia.org/wiki/Link_analysis)
- <https://cambridge-intelligence.com/link-analysis-fraud-detection/>

