Behavior Analysis Technologies

Session 1

Course Introduction

Applied Data Science

2024/2025

Course Objectives

- Understand and apply key concepts of **opinion and sentiment analysis**;

- Develop proficiency in using various technological **tools and platforms** for **text mining** and **sentiment analysis**;

- Integrate multiple **analytical tools** to create comprehensive **data-driven insights** for decision-making.

Classes

- **Thursdays | 14:30 - 16:30**
- **Fridays | 09:00 - 11:00**

- **Theory Session**
  - o **Focus**: Foundations of Behavior Analysis Technologies, including concepts of opinion and sentiment analysis.

- **Hands-On Session**
  - o **Focus**: Hands-on exploration of text mining and sentiment analysis tools and techniques applied to real-world data.

Evaluation

	% of Final Course Grade
Exam	30%
Text Mining Python Project	35%
Sentiment Analysis Dashboard in Power BI Project	35%

Contact

- For all course-related matters you can contact me:

  o joacorreia@ucp.pt
  OR
  o jfscorreia95@gmail.com

Opinion and Sentiment Analysis

- **Opinion Analysis**:

  o The process of extracting **subjective information** from text.

  o It goes beyond just identifying whether the sentiment is **positive**, **negative** or **neutral**.

  o It can include identifying the **target** of the opinion, the **strength of the opinion**, and the **emotions involved**.

Opinion and Sentiment Analysis

- **Sentiment Analysis:**

  o A subset of opinion analysis focused on identifying **emotions** and **attitudes**.

Positive or negative movie review? 👍👎

- A heartwarming film with great performances and a feel-good story. It leaves you smiling!

- Disappointing and dull. The plot was weak, and the characters were uninteresting. Not worth the watch.

- Oh, what a masterpiece! If you enjoy endless clichés and predictable plots, this film is a true gem. You'll be on the edge of your seat—wondering why you bothered.

Google Product Search

Twitter Sentiment vs Consumer Confidence
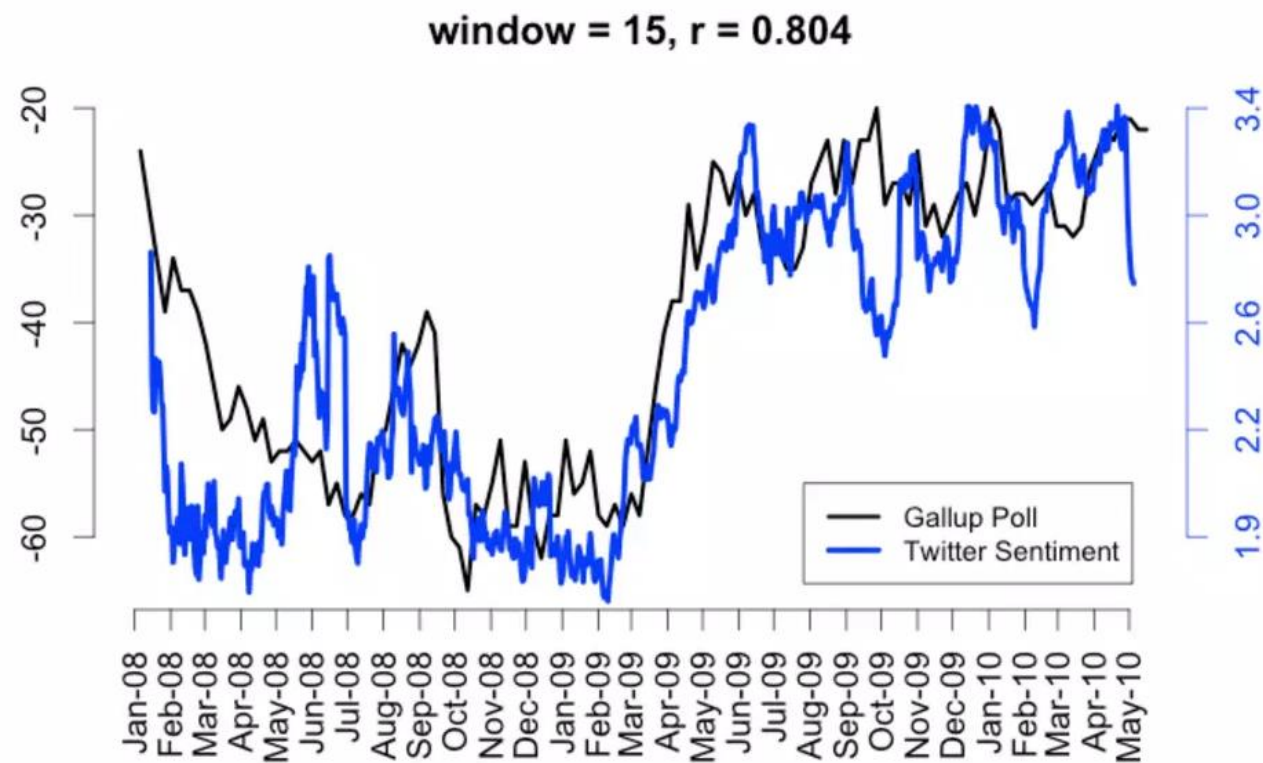
Source: Brendan O'Connor, Ramnath Balasubramanyan, Bryan R. Routledge, and Noah A. Smith. 2010. From Tweets to Polls: Linking Text Sentiment to Public Opinion Time Series. In ICWSM-2010

Why Organizations Use Sentiment Analysis?

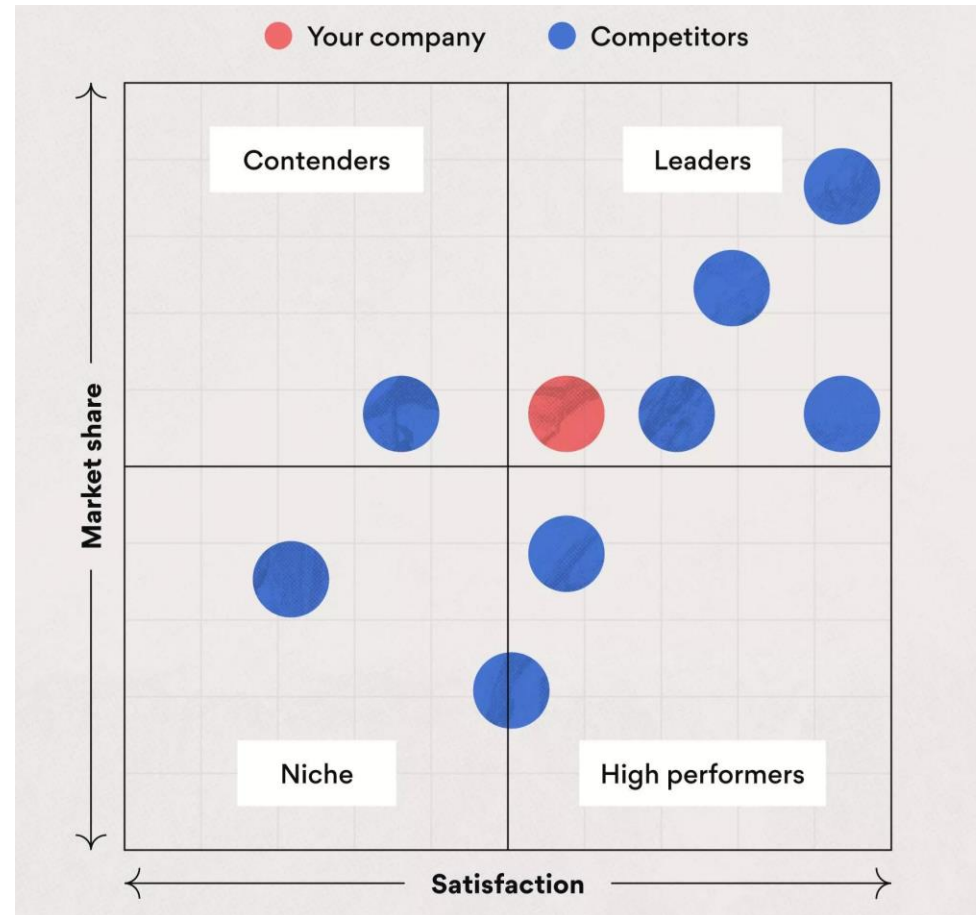- **Customer Feedback:** Understanding consumer opinions

Why Organizations Use Sentiment Analysis?

- **Brand Monitoring**: Tracking brand reputation

Why Organizations Use Sentiment Analysis?

- **Competitive Analysis**: Analyzing how competitors are perceived

Why Organizations Use Sentiment Analysis?

- **Product Improvement**: Gathering insights for product development

About this Course

- We will focus manly on these three topics:

  o **Text Retrieval**

  o **Text Mining**

  o **Sentiment Analysis**

GitHub SetUp

- Lectures will be provided both on GitHub and Moodle.
  - https://github.com/LCDA-UCP/tac-hands-on

- You will need to fork the repository and then clone it to your local machine.

- Setup a python/conda environment and install the requirements.
  - $ pip install –r requirements.txt