

# Lyon Eye

**Application using Big  
Data Analytics over the  
Open Data of Grand  
Lyon-France**



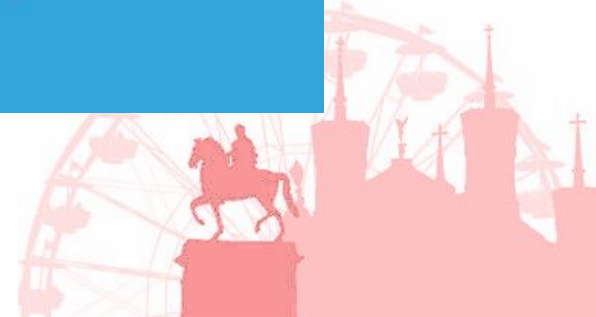
# Outline

- Our Proposal
- Architecture
  - Data Sources
  - Text Mining
  - DWH
  - OLAP
  - User Interface
- Usage



# Our Proposal

AN OPEN-SOURCE WEB-APPLICATION TO  
EXPLORE THE TOURISTIC POINTS OF INTEREST  
AS WELL AS TO DO SENTIMENT ANALYSIS IN  
THE RELATED SOCIAL NETWORK DATA.

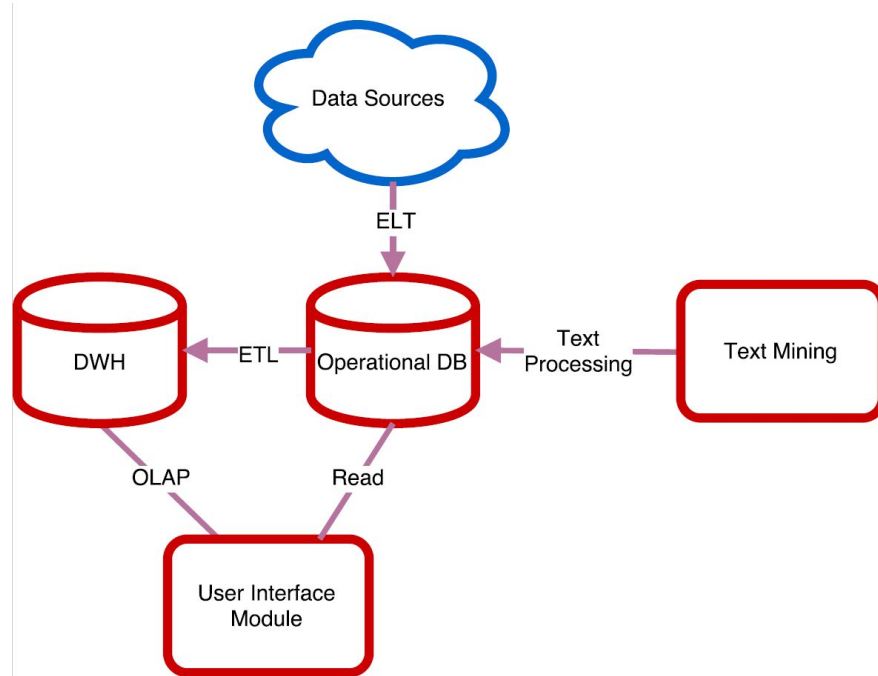


# Architecture

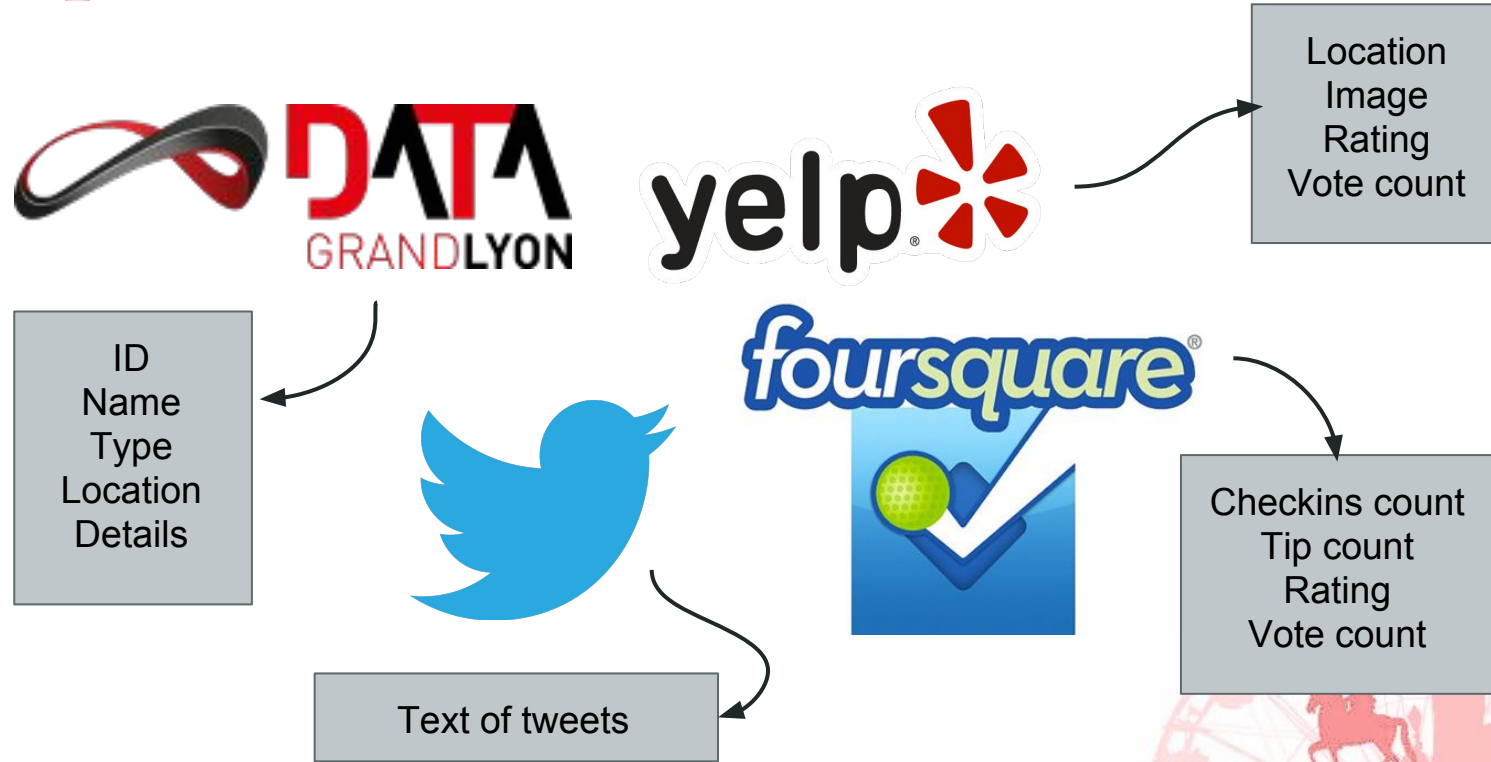
## 3 Priorities

- Modular Design
- Scalability
- Usability

### Minimal Architecture Model



# Components: Data Sources



# Data Sources - ELT

- GrandLyon
- Yelp
- Foursquare



- Twitter: ELT Running 24/7



# Components: Text Mining

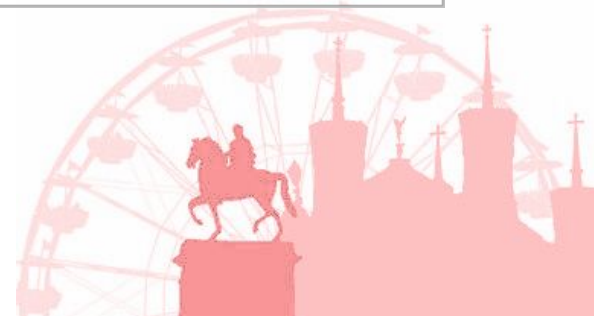
## Rating / Sentiment

Rating	Sentiment
★	Very Negative
★★	Negative
★★★	Neutral
★★★★	Positive
★★★★★	Very Positive



# Components: Text Mining

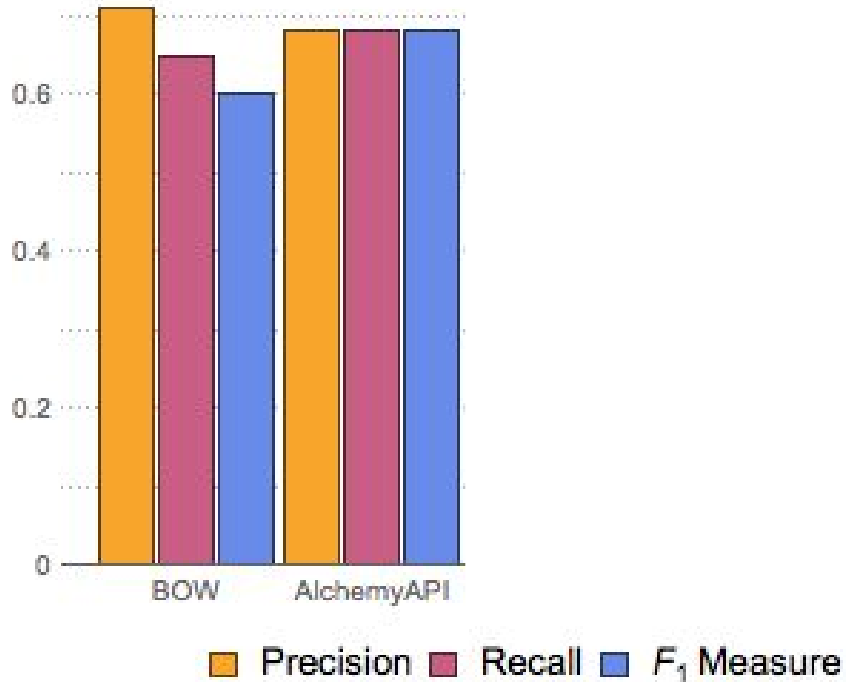
## Scoring Tweets Pipeline





# Components: Text Mining – Model Evaluation

Performance Measures of models



	Precision	Recall	$< F_1 >$
Alchemy	0.68	0.68	0.68
BOW	0.71	0.65	0.60



# Components: Text Mining

## Tweets to Interest Points



# Components: DWH

## Objective:

Analyze the different ratings and user interactions per Interest Point, per Location and per Date

## Fact:

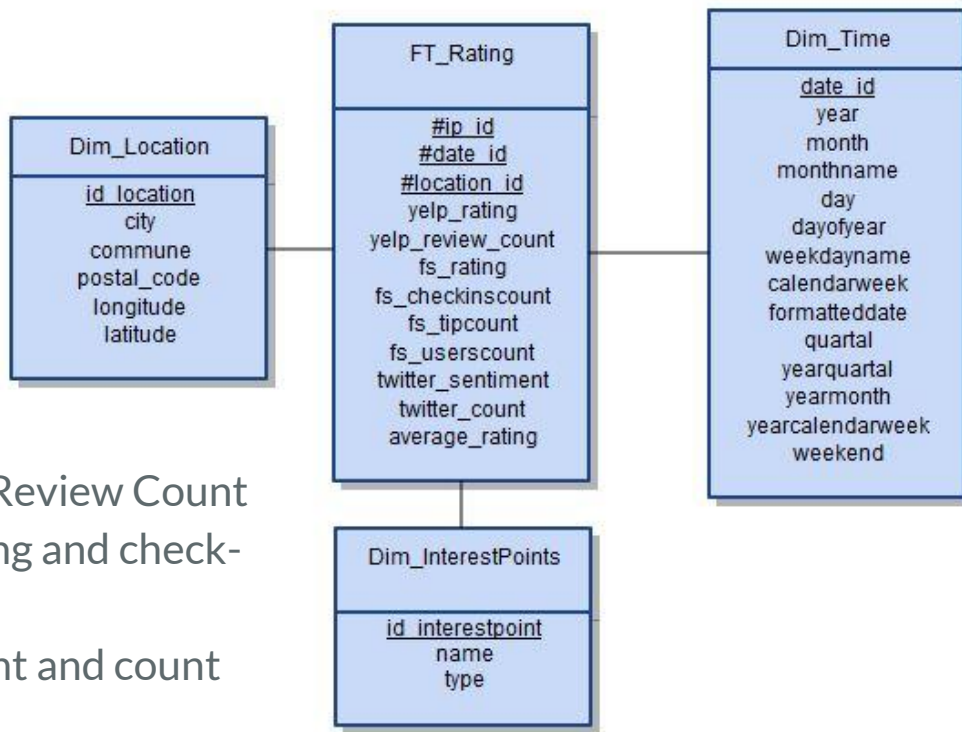
- Ratings

## Dimensions:

- Interest Points
- Location
- Date

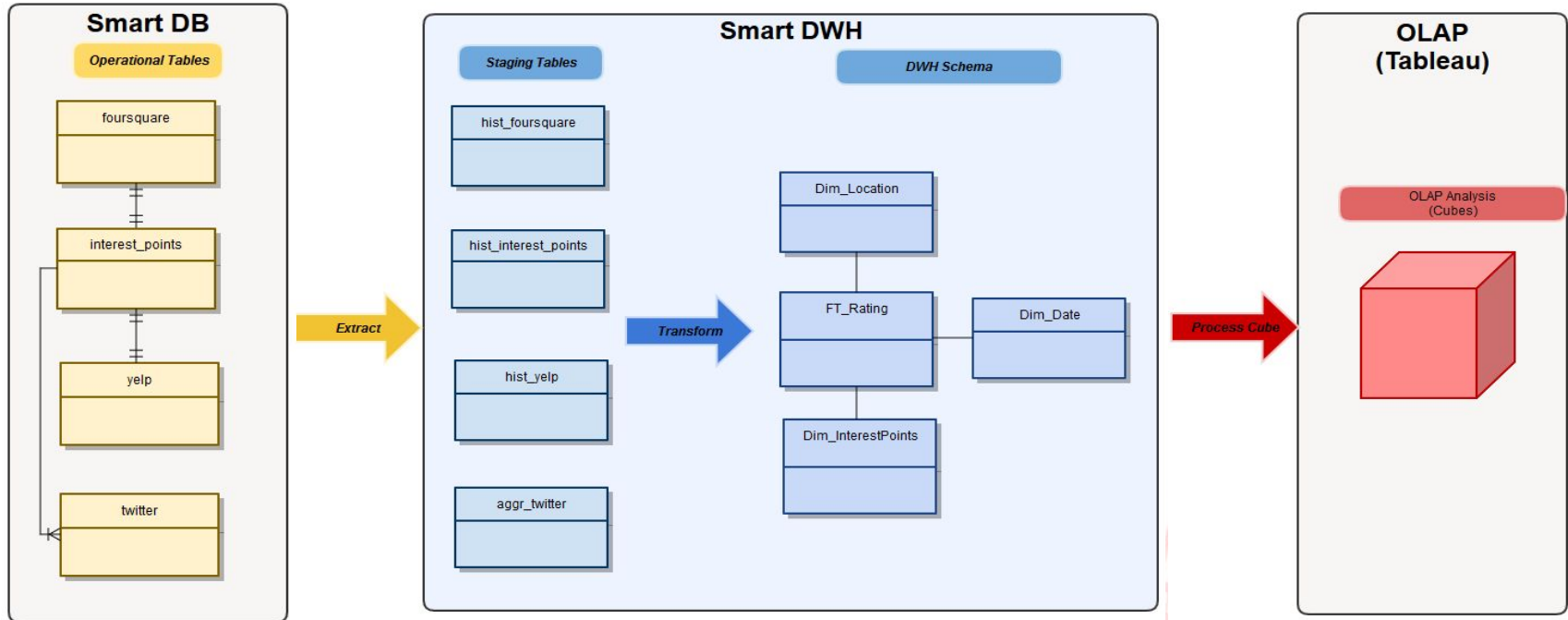
## Measures:

- Yelp: Rating and Review Count
- Foursquare: Rating and check-ins
- Twitter: Sentiment and count of tweets



# Components: DWH - ETL

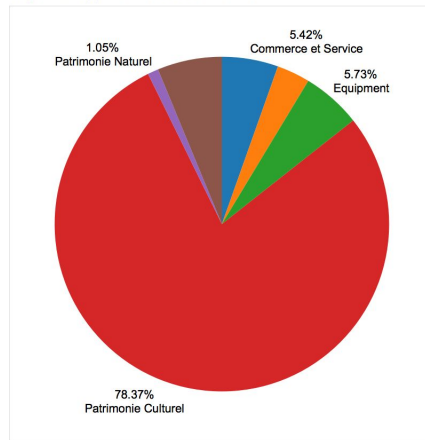
ETL Process run every morning to **update** the DWH.



# Components: OLAP

## Type of Interest Points

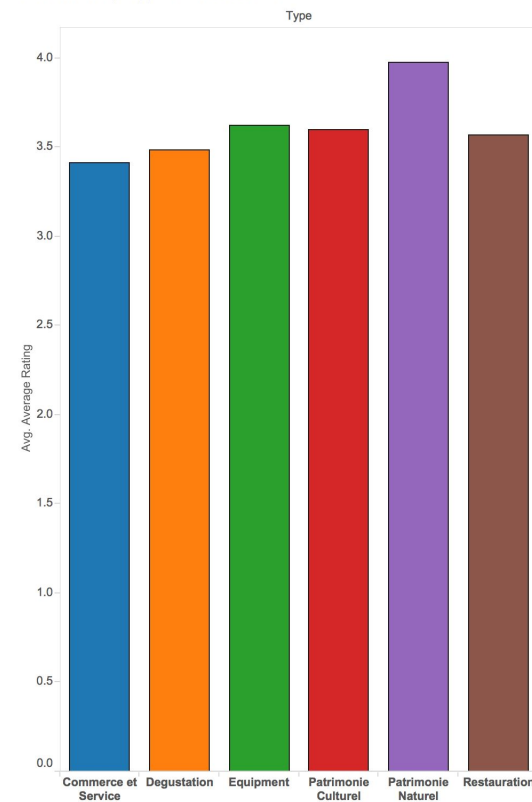
Popular Type of Interest Points



Type

- Commerce et Service
- Degustation
- Equipment
- Patrimoine Culturel
- Patrimoine Naturel
- Restauration

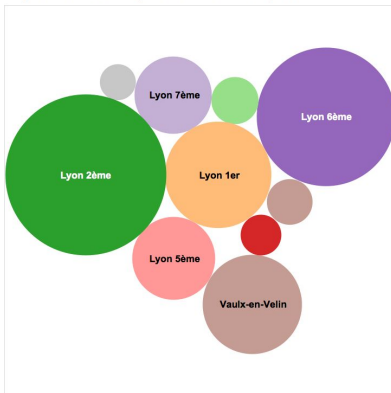
Sentiment by Type of Interest Point



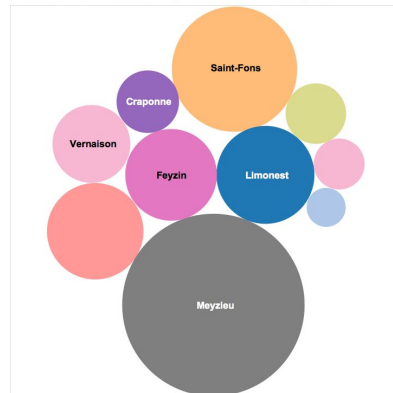
# Components: OLAP

## Activity by Location

Top 10 Tweets by Commune in Lyon



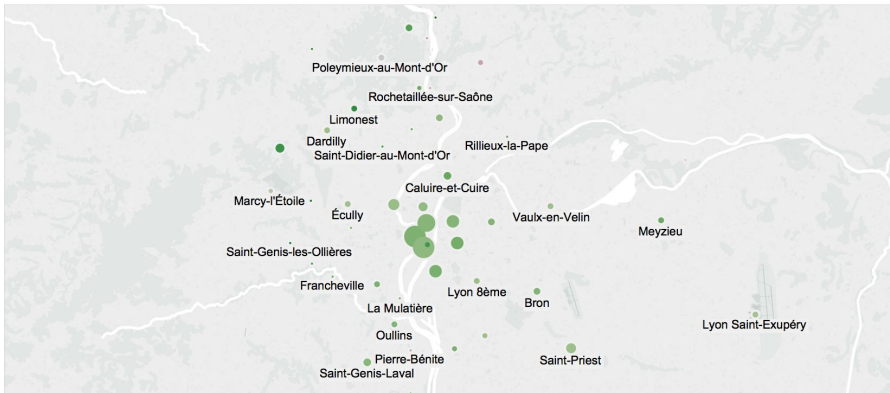
Bottom 10 Tweets by Commune in Lyon



Commune

- Lyon 2ème
- Lyon 1er
- Lyon 5ème
- Lyon 7ème
- Lyon 3ème
- Lyon 6ème
- Lyon 9ème
- Lyon 4ème
- Vaulx-en-Velin
- Givors

Sentiment by Area



Avg. Average Rating

1,000 5,000

SocialMention

15,775

1,000,000

2,000,000

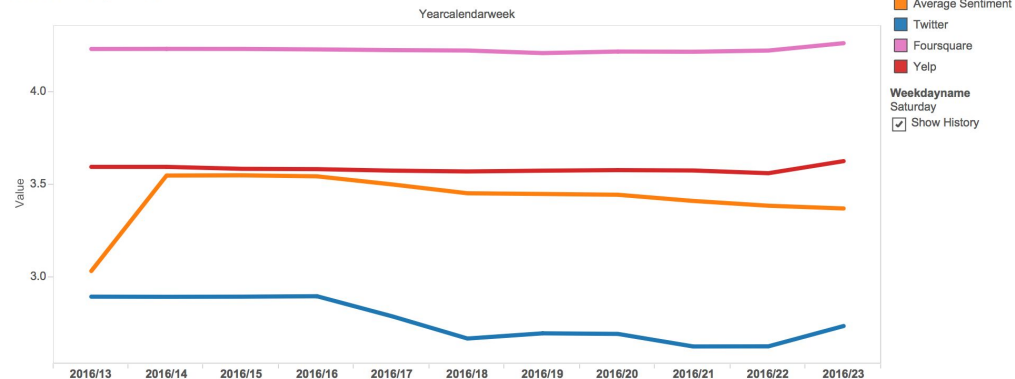
3,000,000

3,866,157

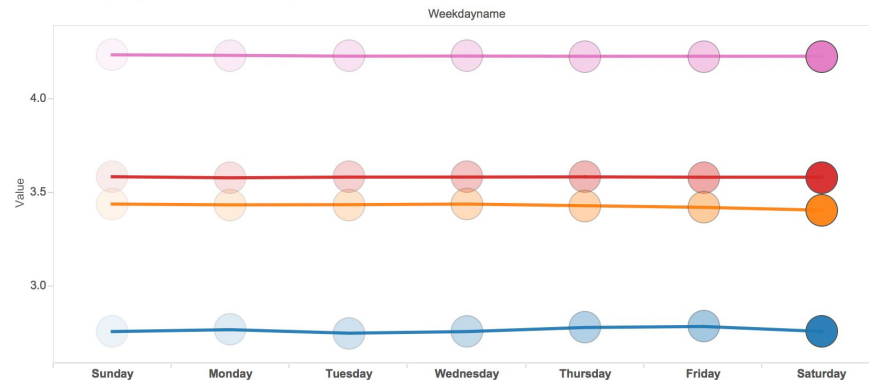
# Components: OLAP

## City's Sentiment by Time

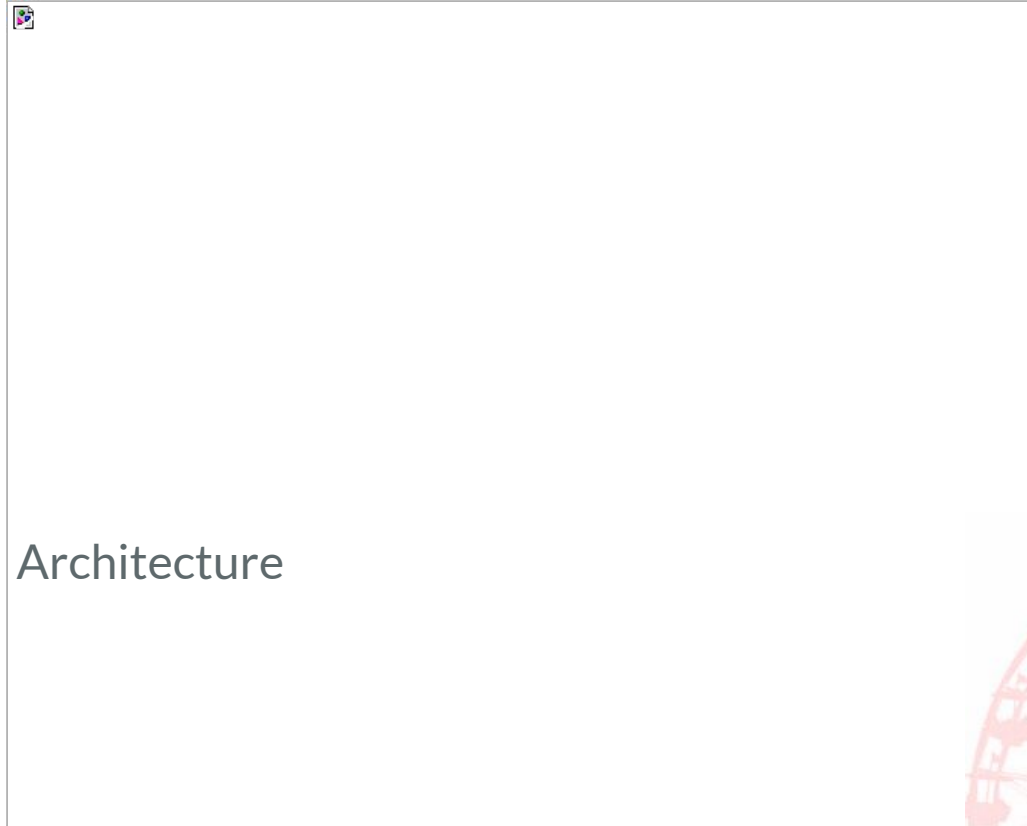
Sentiment by Week



Sentiment by Day of Week - Saturday



# Components: User Interface

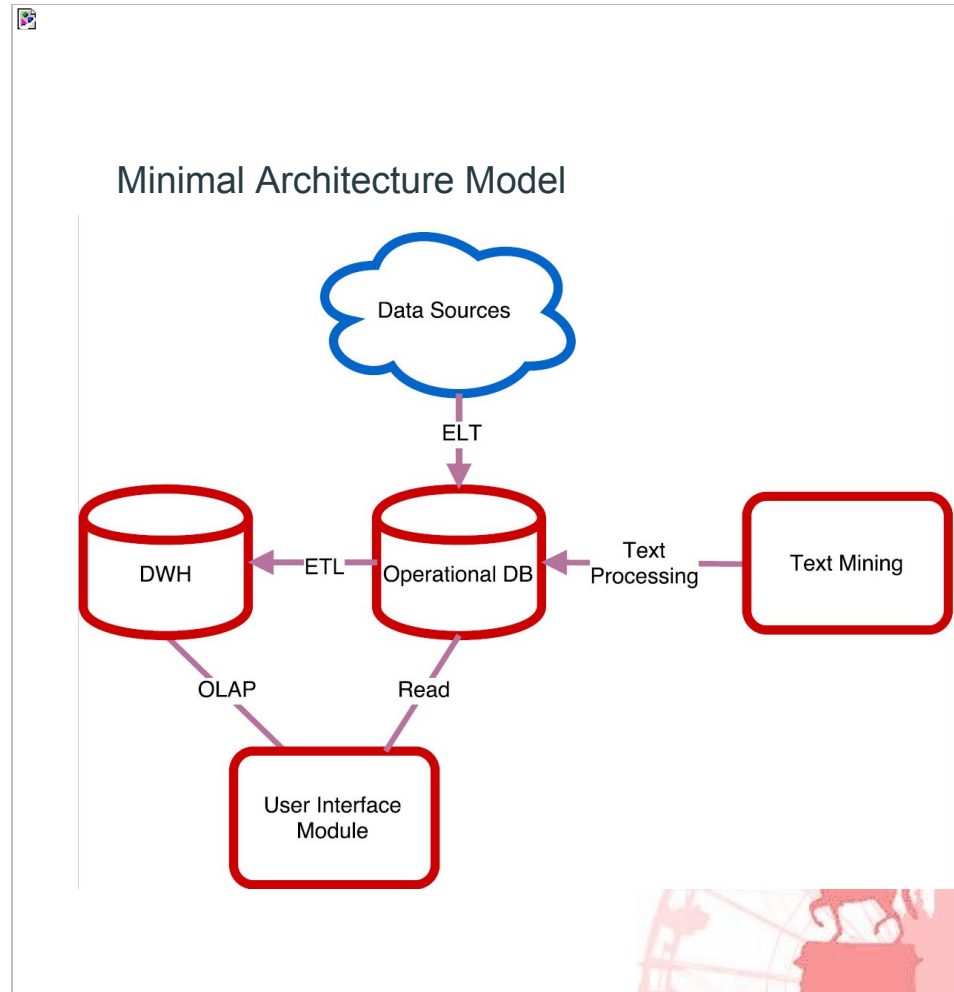




# Architecture

## 3 Priorities

- Modular Design
- Scalability
- Modifiability



Demo