Project Topic 4: Docker-based Service Composition

Group 1, Topic 4
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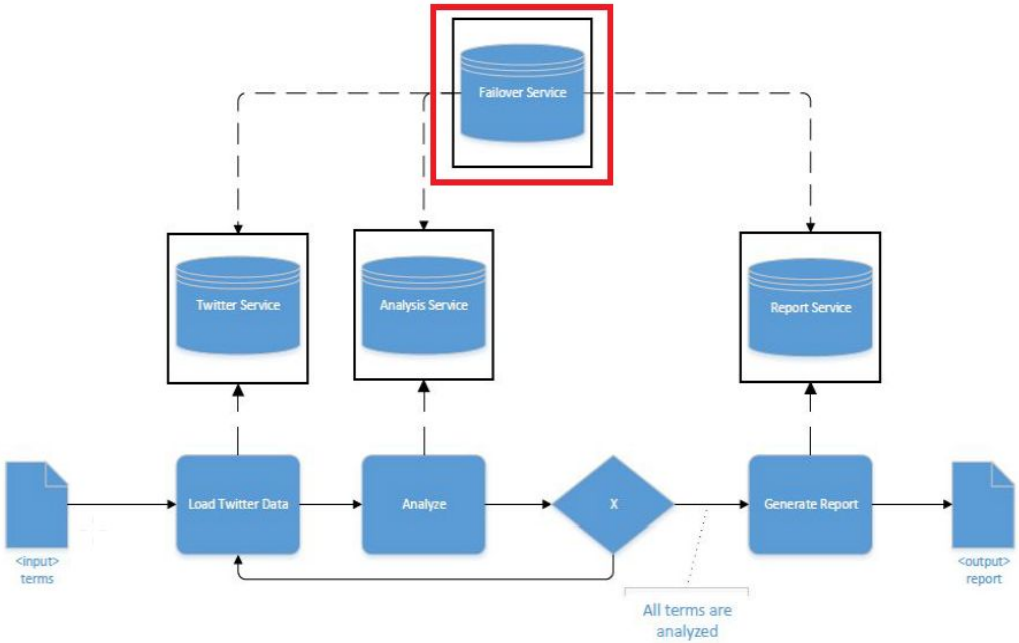
Sentiment analysis is the study of feelings by identifying attitudes, emotions and opinions in texts.

Sentiment analysis for tweets



Stage 1

- Twitter, Analysis and Report Services each wrapped in a *Docker Container*

Stage 2

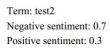
- Failover Service - runs in a *Docker Container* and constantly checks the availability of all services and (re)starts the affected Docker Container if it is not available.

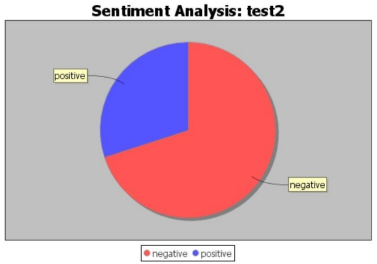
- Process model BPMN extended to consider service failures

- UI to enter terms and obtain the PDF

UI

- Start point:
  - localhost:8080



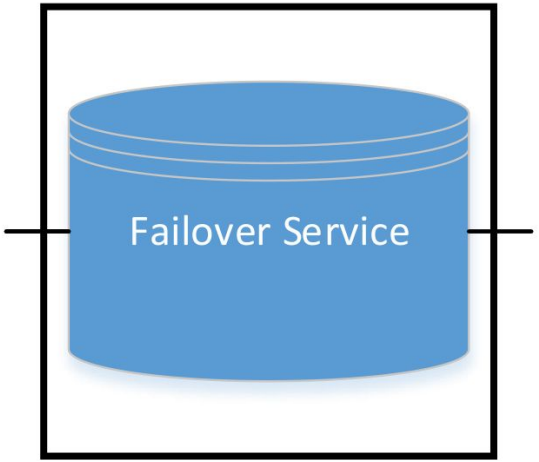


Challenges:

- Credentials security
  - Suggested solution but not applied: Ability to enter credentials through a config page by user
  - Applied: Creating a use-less account to obtain credentials
  - Problem: Account was locked during test and it needed to be unlock by login into twitter website

Failover Service

- Checks every 10 seconds if services are still reachable
- Restarts the container using the docker api
- Checks if service is restarted properly



Lessons learned

- Natural language analysis for sentiment is not an easy task especially because of grammatical and spelling errors, sarcasm, double or even triple negation in texts, graphics, emogies, different types of slangs and words shortening.
- The preprocessing part of text analysis requires many manipulations with initial text to normalise it and the classification part uses huge training sets which can in some cases slow the performance of the whole software application.
- The results of analysis always have certain probability to be true.
- Docker-container
- BPMN
- Messaging

Demo of the implementation...