

# Integration of I 4.0 standards

Alina Arunova, Maxim Maltsev, Philipp Matyash, Sattar Rahimbeyli

Tutor: Irlán Grangel

# What is “I 4.0 standards” ?



**I 4.0 or Industry 4.0** is a combination of production methods with state-of-the-art information and communication technology. In the world of Industry 4.0, people, machines, equipment, logistics systems and products communicate and cooperate with each other directly.



## The Problem

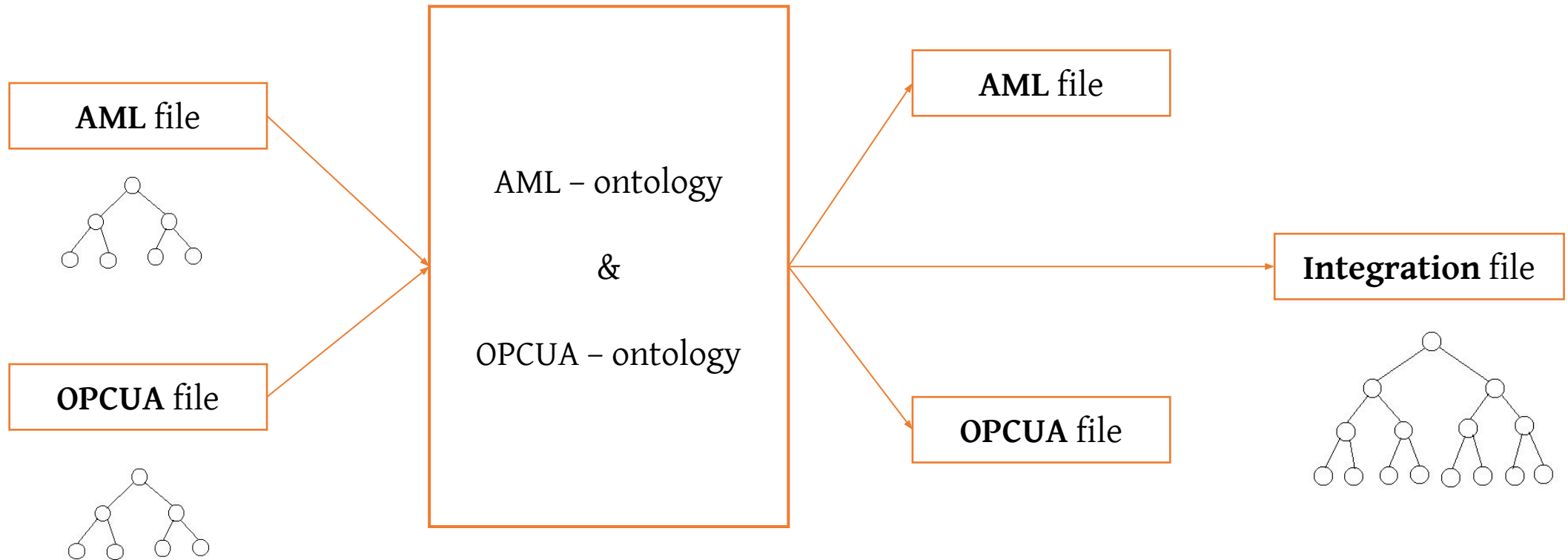
- Globalization forces large companies to go international
- Multinational companies tend to consolidate the standards
  - Different industrial standards need to be matched
- Lots of time wasted onto manual object notation transcription



## The Solution

- validates each document against standard schema
- matches each entity of the document to a respectful entity of another document if possible according to ontology
- consolidate the knowledge into the new unified standard

# Visualisation of the process



All files are in XML format

## **High Priority:**

1. Provide automatic document validation
2. Visualizing input (tree mode)
3. Direct topology mapping and producing integration file

## **Low Priority:**

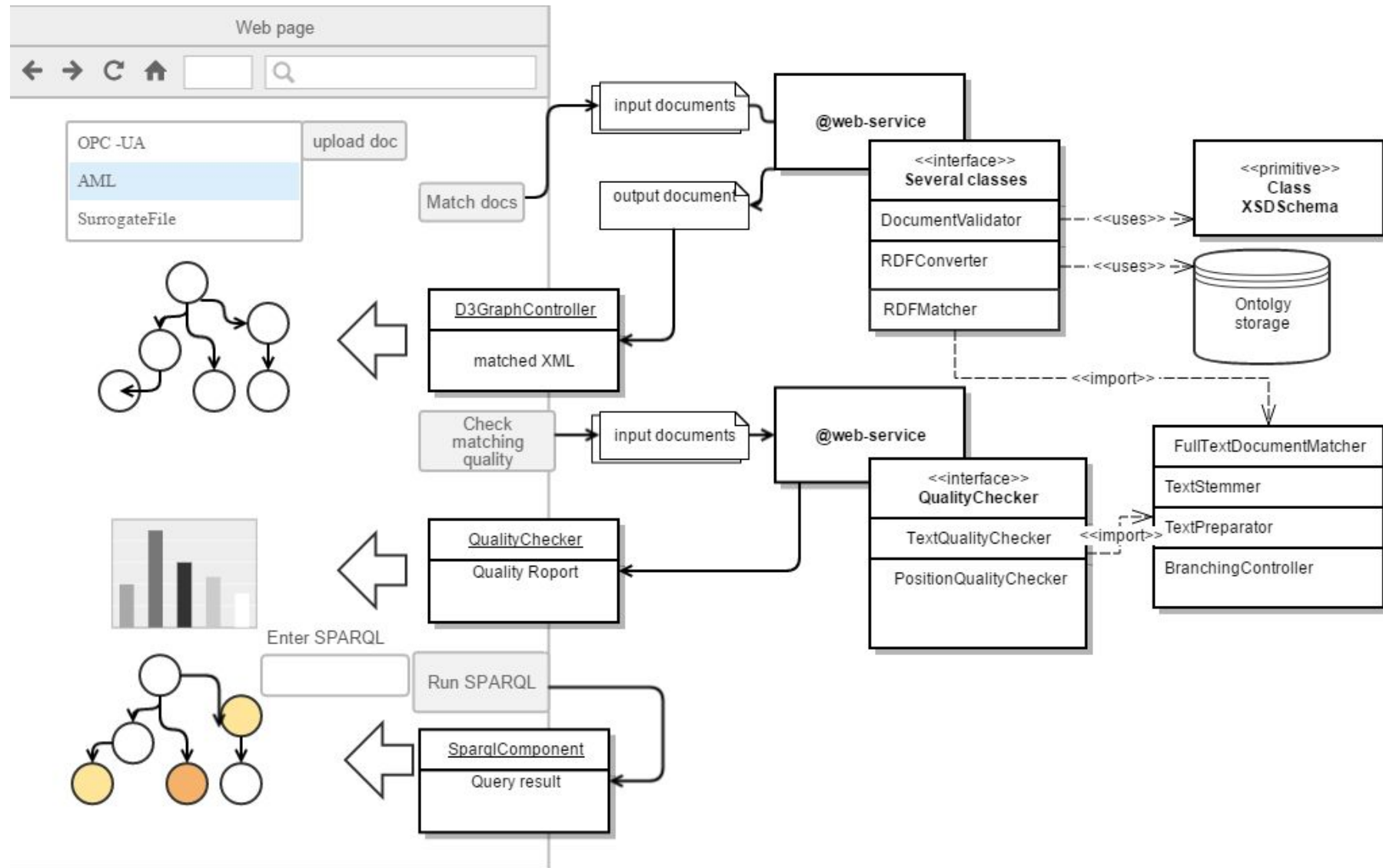
1. Demo testing of the output against Gold Standard
2. SPARQL query for the output file

## **High Priority:**

1. Security and fault tolerance

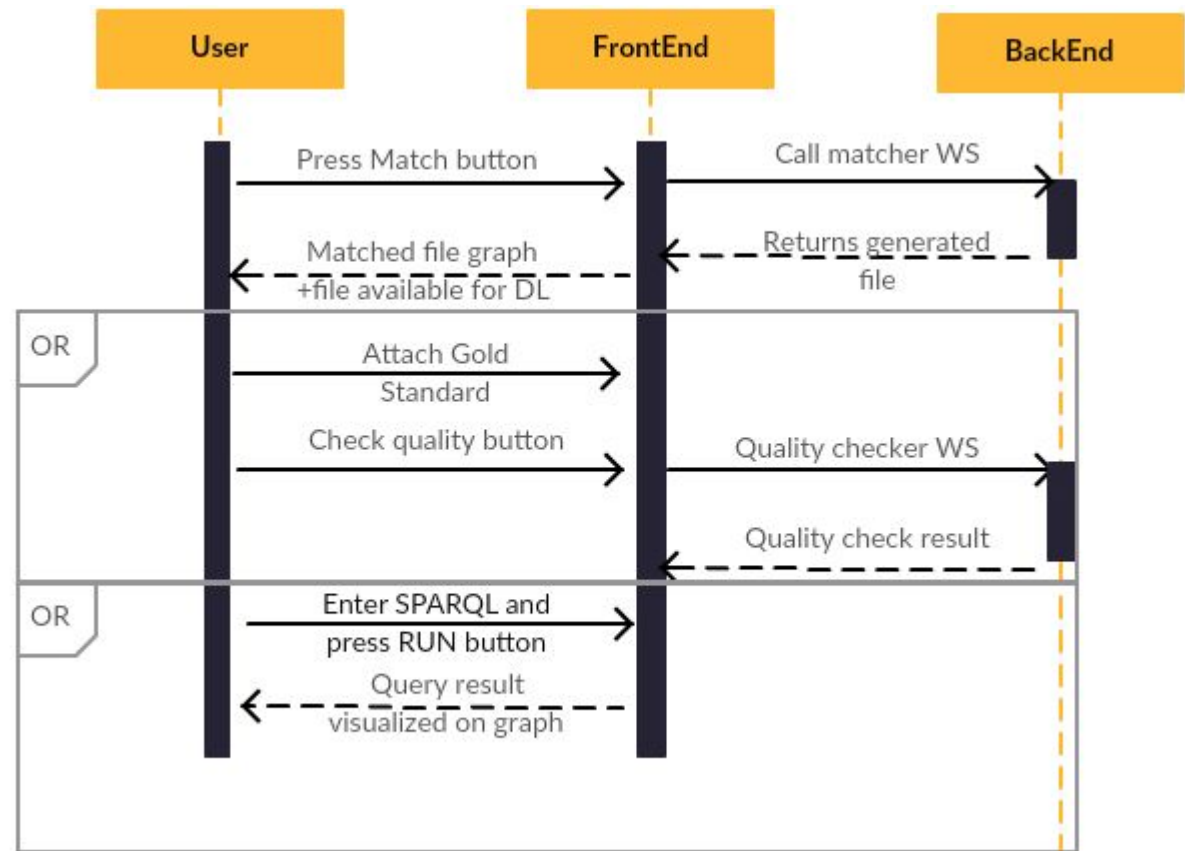
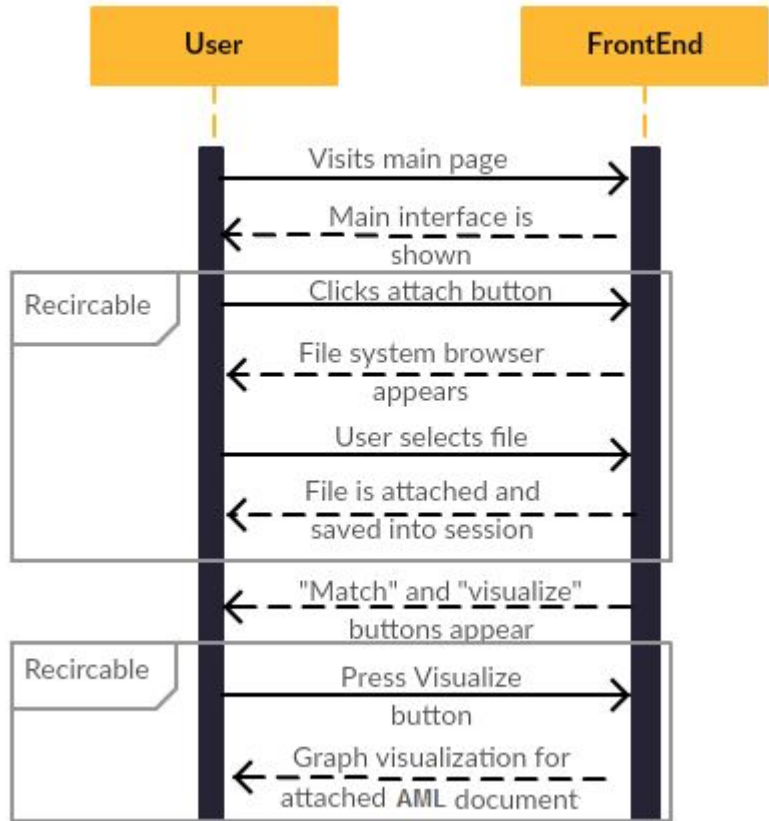
## **Low Priority:**

1. Time tolerant processing
2. Scalability
3. Semantic fuzzy matching
4. User-friendly interface





# Visualisation of the workflow



Sattar



Max



Phil



Alina



- High-level plan
  - Requirements
- 
- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Code specifications for Front-end;</li><li>• User-manual.</li></ul> | <ul style="list-style-type: none"><li>• Architecture;</li><li>• Code specifications for Back-end;</li><li>• System overview.</li></ul> |
|---|--|



## Front end

*01.06 – 01.07*

- Implementing the possibility of file uploading;
- Visualizing the data (in XML format).

*01.07 – 01.08*

- Implementing the possibility of browsing in the achieved result.

*01.08 – 01.09*

- Testing of created tools;
- Creating specifications and documents.

## Back end

*01.06 – 01.07*

- Development and realization of matching logic.

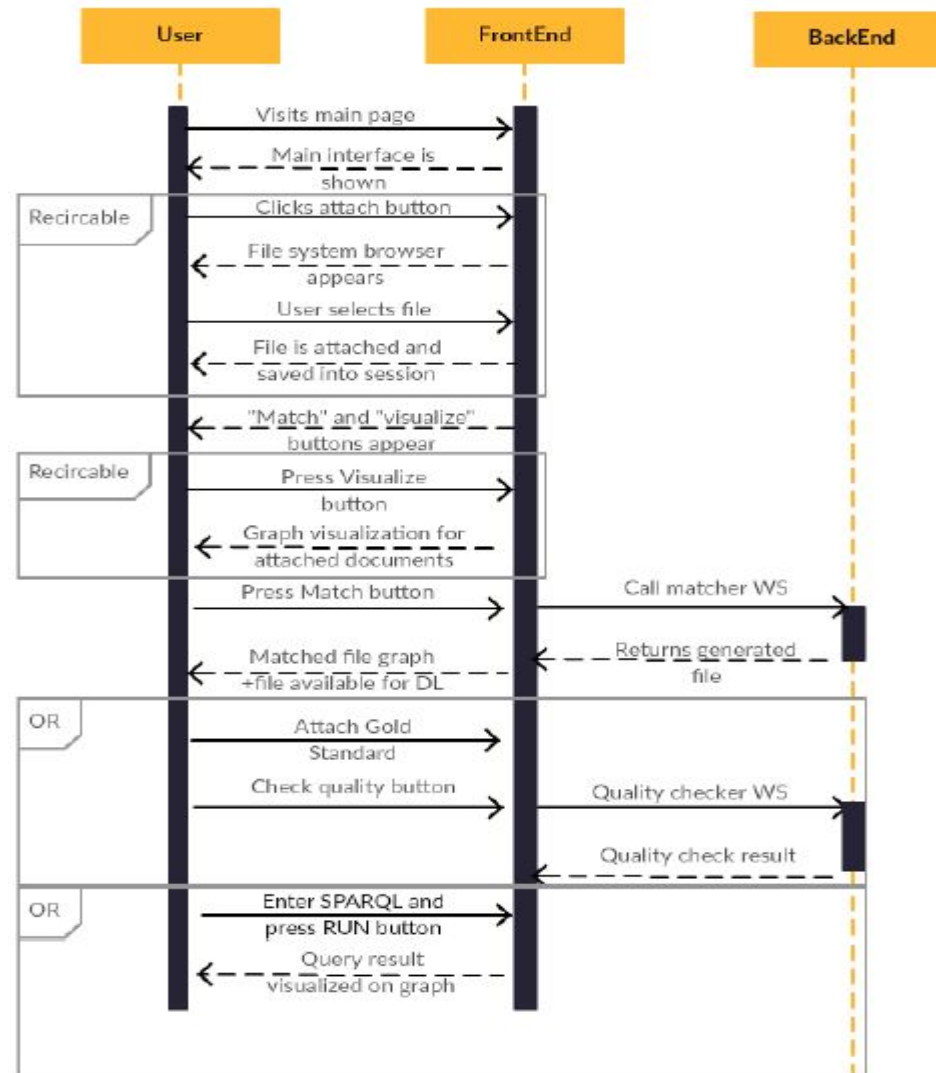
*01.07 – 01.08*

- Development and realization of transport and security logics.

*01.08 – 01.09*

- Testing of created tools;
- Creating specifications and documents.

# Use Case Diagram



## Conceptual tech stack



NGINX



Apache  
Tomcat

spring



# Test cases:











Q&A?  
Thanks!