Project Tasks and Goals

The main goal is to detect some hidden information in the data (e.g. materials needing more processing time). In order to analyse them correctly, you should do the following:

1. Collect input- and output data from the underlying message broker architecture (ActiveMQ) as well as the file system (spectral analysis data). You can either use JMS directly or utilize the Apache Camel library. Unmarshalling of the event messages can be done using JAXB.
2. Design and implement a state machine (including the UML model) which represents the current state of a work piece. By fiering triggers derived from the OPC items, you can send a work pieces through a „virtual“ production line.
3. Look closely at the data you get and think about useful information which can be extracted (e.g.: it’s better to know how many work pieces of a certain material are marked „NOK“ than to sum up material or customer numbers).
4. Correlate these values with ERP data / spectral analysis data arriving via the message queue.
5. Try to detect and point out the hidden characteristics in the manufacturing process. To finally analyze the data, you can use any oft he technologies and methods provided in the lecture (esperTech, Big Data Analysis in a Database etc.)
6. Optional: A visual representation (if there’s still enough time)

In your final presentation, please include:

- A UML class model showing your overall architecture
- A UML state diagram showing the details of your finite state machine
- An explanation on how you did the data analysis (i.e. what was subject to your analysis and how you did it).