



## SS2019 – Component-based Software Engineering

# Implementing Component-Based Systems–Part II

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## Task 1 Implementation of the Factory Automation Application – Part 2

So far, we have only implemented Beans in one EJB module. In a real scenarios, multiple EJB modules will have to interact. Traditionally, the production system of a company will run on a different server then the *Customer Relation Management* (CRM) system. Complete the previous EJB module to a complete CRM. Then implement a second EJB module that provides a rudimentary implementation of the described production system in a simulated environment. Consider at least one printing and one finishing machine (including the robot arms and the mobile robots). Connect the two systems using *Java Naming and Directory Interface* (JNDI) and remote service lookup [1].<sup>1</sup> Additionally, you may want to add a simple web interface for customers and managers of the CRM system using *JavaServer Faces* (JSF).<sup>2</sup>

*Note: You can work in groups of up to five students.*

- a) Complete the previous EJB module to a complete CRM.
- b) Implement the production system as a standalone EJB module.
- c) Implement the rudimentary components to handle production processes (including at least two machines, two robot arms and two mobile robots).
- d) Implement a small simulation for the communication between those components.
- e) Optionally, add a web interface to your CRM system for both customers and managers using JSF.
- f) Prepare a short presentation and demo (maximum 5 minutes)!

## References

- [1] Debu Panda, Reza Rahman, and Derek Lane. *EJB 3 in Action*, volume 15. Manning Publications Company, 2007.

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<sup>1</sup>[http://www.java2s.com/Tutorial/Java/0415\\_\\_EJB3/OneEJBCallAnotherEJBWithContextLookup.htm](http://www.java2s.com/Tutorial/Java/0415__EJB3/OneEJBCallAnotherEJBWithContextLookup.htm)

<sup>2</sup>[https://docs.jboss.org/tools/4.0.1.Final/en/GettingStartedGuide/html/rad\\_jsf\\_application.html](https://docs.jboss.org/tools/4.0.1.Final/en/GettingStartedGuide/html/rad_jsf_application.html)