Bachelor Thesis

Extension of a Choreography Modeling Environment
towards enhancing Usability

Beginning: immediately

Background
Peer-based interactions among multiple organizations or systems fulfilling individual
and shared objectives can be depicted using service choreographies [1]. Towards
this goal, the BPEL4Chor [1] language has been proposed as one potential
specification approach built atop of WS-BPEL [5] which can be enacted and
executed in highly distributed environments. Towards supporting the modeling of
choreographies in a simplified manner, the ChorDesigner provides a graphical
modeling environment towards defining the interactions from a global perspective [2].
However, as choreographies are not executable, these must be transformed to
executable WS-BPEL service orchestrations which can be deployed in a BPEL
engine. Such transformation to service orchestrations is based on [3] and is
performed in the designer in a transparent manner.
The current version of the ChorDesigner, however, does not fully cover the set of
necessary constructs towards fully modeling interactions among the different
choreography participants. Moreover, usability and simplicity of the modeling
environment are fundamental requirements that must be taken into account.
Therefore, this thesis firstly focuses on extending and improving the functional and
usability aspects of the current version of the designer, and secondly by evaluating its
usability using a realistic case study.

Tasks
1. State of the art on usability techniques in modeling environments and
   complete analysis of potential improvements / usability enhancement points.
2. Implementation using the current Chor Designer version as the basis and
   based on the previous aspects under the Apache License 2.0.
3. Validation of the approach using a realistic case study.
4. Usability evaluation based assessment points retrieved from 1.
**Required previous knowledge and experiences**

- **Java programming skills and expertise**
- **Workflows [4]**
- **WS-BPEL [5] and [6]**

The lectures "Services and Service Composition", "Business Process Management", and the literature attached, such as [3], [4], and [5] are recommended for preparation. The student has the responsibility to manage his own time schedule including the work packages and milestones.

**Literature**


**Supervisor**

Andreas Weiß
Pfaffenwaldring 5b, Room 01.020
andreas.weiss@iaas.uni-stuttgart.de

Santiago Gómez Sáez
Room 1.318
santiago.gomez-saez@iaas.uni-stuttgart.de

**Examiner**

Prof. Dr. Frank Leymann