Diploma / Master Thesis

Data Generator for BPMN 2.0 Models Designed for Performance Testing

Beginning: as soon as possible

Background

BPMN 2.0 [1] is the de facto standard for business process modeling that provides a graphical notation for specifying business processes in a diagram. Business Analysts usually present their ideas on conceptual business models which cannot be executed by a Workflow engine.

The case of converting the conceptual process model to an executable one is admitted to be a gap in the field of Business Process Modeling [2, 3, 4, 5], and it constitutes ongoing work in the context of the BenchFlow Project [6].

The scope of this thesis is to focus on creating a prototypical Data Generator as a RESTful application in order to ensure that a conceptual process model is executable, and validate it through use cases.

The broader case where this data generator is applied will be a Benchmark Framework for BPMN 2.0 Workflow Engines, so the prototypical design should be designed with respect the various performance testing cases (stress test, load test etc.)

Tasks

- Literature review concerning data generation for performance engineering and benchmarking
- Requirements analysis and design of the data generator (following the REST principles)
- Refinement and update of the existing Executable Model Generator as deemed appropriate
- Implementation of the data generator (following the REST principles) and instrumentation for the automatic benchmarking of process models
- Validation through use cases

Required previous knowledge and experiences

- BPMN 2.0 [1]
- Java Programming skills and expertise
- REST
- Business Process Management
- …or the declared intention to deeply dive into these topics in advance

The lectures of Business Process Management and the referred to literature are recommended for preparation. The student has to manage his schedule including this work packages and milestones for himself. A helpful guide for planning and writing a thesis can be found in [7] and [8]. The preferred language of the work is English.
Benefits
By the end of this thesis, you are expected to have a deep understanding of the BPMN 2.0 industry standard, excel your Java programming skills, and get familiar with the field of REST services and BPMN 2.0 hands on techniques. Skills on literature review and academic writing will also be acquired.

Literature

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