Derivation of Data-Driven Software Models from Business Process Representations

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Introduction/Motivation

- The number of organizations that uses the management and business process modeling is increasing [1].
- Software development still reveals difficulty in identifying user requirements and in the creation of software models [2] that are complex and costly tasks.
- The BPMN is a standard and one of the best known and actually used in organizations [3].
- The UML (Unified Modeling Language) is a standard for software modeling and designing [2].
- The 4SRS (4-step rule set) is a technique that enables the generation of UML object diagrams from the UML use case diagrams [4].

Work Plan - The PhD research work plan is scheduled to proceed as follows:

- 2012/2013: create an approach to decompose and refine use cases;
- 2013/2014: generate use case model from a set of business process models (BPMN);
- 2014/2015: extending the 4SRS to obtain the DER and thus complete the sequence of steps from BPMN to the data model.
- 2015/2016: write the PhD thesis report

Research Questions

There are several questions that can be posed for justifying the proposed research, some of them are listed next:

- How is it possible to ensure that the requirements of the application that supports the business meet the real business needs and that no requirement is forgotten?
- How to obtain the data model of the software products that support the business from a set of business process models? Can it be made directly?
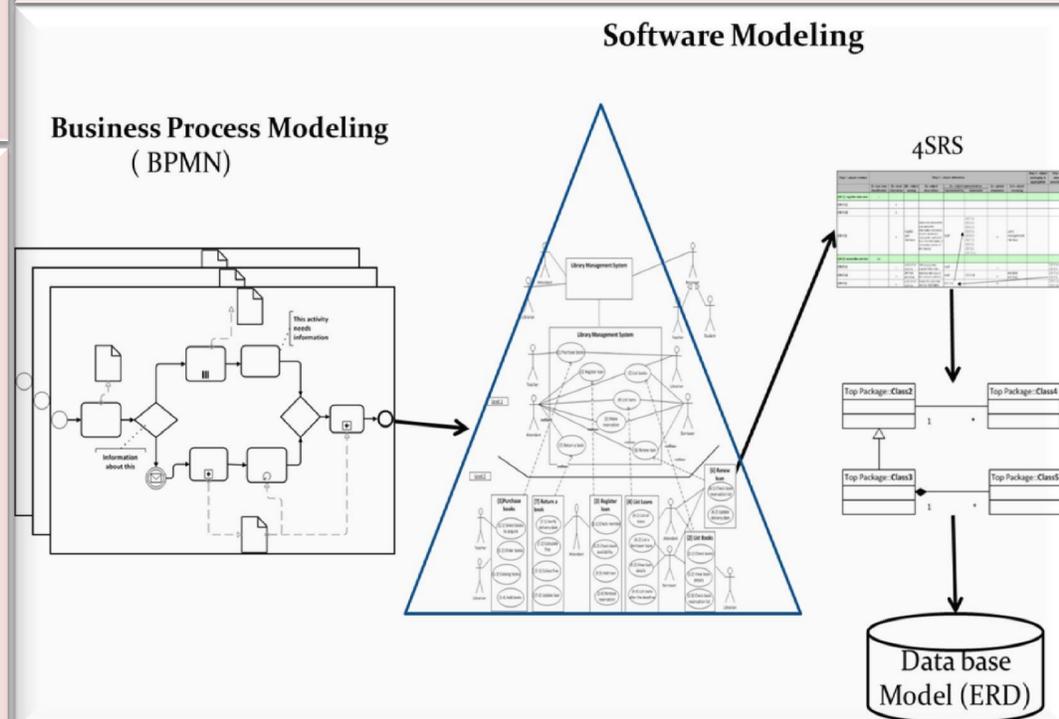
Results and Conclusion:

Many organizations adopt a business process management (BPM) approach. BPM includes methods, techniques, and tools to support the design, management, and analysis of the operational business processes of an organization. Software development still has difficulties on requirements definition.

The research work aims to obtain a set of consistent models, including the data model (see figure above), to serve as the basis for software development starting from business process models (using BPMN), enabling a reduction in the time spent on analysis and modeling software for business support, capitalize resources, and reduce the risk of creating software products that do not correspond to real business needs.

One first approach to obtain the data model from a business process models is presented in [5].

An approach to refine use cases in order to feed the 4SRS method is being developed.

References

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