Project proposal.

Title: Model Driven Re-engineering of Jease**.**

Group: Jease awesome5.

Group members:

1. Nataliya Vlizko nataliya.vlizko@gmail.com
2. Jonas Norlin jnor@itu.dk
3. Louis Fleron louis@fleron.dk
4. Xia Liu bonnie777772003@hotmail.com
5. Gunn Weihe Reinert gwre@itu.dk

Contact: louis@fleron.dk

Project-proposal: Proposal 0. Model Driven Re-engineering Case Study.

Problem definition.

Introduction.

Content Management Systems are used for creating and controlling content of web applications.

The concept of a Content Management System (CMS) reaches back to the early 1970s to the era of Mainframe Content Managers.

With the advent of the internet, the requirements of Content Management Systems have been constantly increasing, resulting in very complex systems.

The increase in complexity has led to the development of many web frameworks which all aim to assist in the implementation of web applications.

We acknowledge that the architecture and specifics of Content Management Systems can be hard to master. Domain experts, such as web designers, also spend increasing amount of time and resources on customizing the Content Management Systems to meet customer demands.

State of the art.

Viðar Svansson and Roberto E. Lopez-Herrejon[1], address the issue of increased complexity of Content Management Systems and the needs for a domain-specific language for the implementation of applications. The paper of Viðar Svansson and Roberto E. Lopez-Herrejon also contains a description of a web specific language (WSL). The purpose of WSL is to increase the productivity of developers by describing the business domain at a higher abstraction level and automate the implementation process.

Eelco Visser has addressed the same issue of Content Management Systems and has developed a domain-specific language, WebDSL[2] , for the development of web applications.

1 A Web Specific Language for Content Management Systems - Viðar Svansson and Roberto E. Lopez-Herrejon

2 http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.107.6626

These papers present generic domain-specific languages which are not aimed for any specific framework or programming language.

Specific problem.

Content is information intended for a specific end-user audience, examples of content are pictures and text documents.
Content-types[3] are the heart of a Content Management System as they define the properties of the content. For example a picture must contain a title, description and an image file.
Many Content Management Systems come with predefined content-types; however these are rarely enough to meet the demands of the customer. To meet the demands, new content-types must be created and added to the Content Management System.
The creation of customized content-types can be a very time-consuming process which involves knowledge of the Content Management System architecture. Even Content Management Systems which promote '*easy to extend'* functionality, still require several steps of manual implementation of the customized content-types.
The steps involve writing a description of the content-type, writing an editor for the content-type, writing a HTML view of the content-type and finally registering the new content-type.
This project focuses on automating the steps required in the creation of new content-types, thus enabling the domain experts to describe the content-type at a higher abstraction level.
We will conduct an architectural study and analysis of a chosen open source Content Management System Jease.
From this study we will raise the aspect of customization to a higher level of abstraction by developing a domain-specific language which will facilitate creation of customized content-types. This domain-specific language will assist in the process of creation of new content-types by automating all of the required steps. We will also implement an editor for the domain-specific language and transform the language into concrete code.

Methods.

General methodology.

We will do an analysis of the open source Content Management System Jease and create a prototype of a new domain-specific language.
We will aim to make the domain-specific language generic, so other Content Management Systems will be supported by the domain-specific language.
We will evaluate the usefulness of the domain-specific language by comparing the two different approaches of creating customized content-types.
To compare the two approaches, we will develop a scenario which involves the implementation of customized content-types in the Content Management System Jease. A test-group will run the scenario and compare the approaches.

---

3 Content-type is also called document type (Umbraco CMS), resource type (Apache Lenya) and different names in other Content Management Systems.

Specific method.

We will conduct an architectural analysis of Jease; this will allow us to create a meta-model of the content-type component in Content Management Systems. We will use the Jease Content Management System for prototyping.
The analysis will be conducted by examining how content-types are created in Jease and how they are structured. Once the prototype is done, we will examine if it is possible to apply the domain-specific language to other Content Management Systems.

References.

1. A Web Specific Language for Content Management Systems - Viðar Svansson and Roberto E. Lopez-Herrejon http://www.dsmforum.org/events/dsm07/papers/svansson.pdf
2. domain-specific language for web applications, by Eelco Visser. http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.107.6626