Creation of a Data Management Tool

Lecture: Data Management in quanitative Biology

Names: Sven Fillinger, Simon Heumos, Judith Neukamm

June 11, 2015

Abstract

Bla bla blubb

1 INTRODUCTION AND MOTIVATION

- based on data → description how to store, analyze, integrate data [2], as well as meta information
- no existing standard, but DAMA-DMBOK as orientation which information are useful (!not complete!)[2]
- Essential aspects concern: - Data acquisition, standards, file formats - Data sharing - Data preservation [2]
- why manage and share data?
– making data available → can impinge positive on the work (concerning discovery and relevance) (`http://libraries.mit.edu/data-management/plan/why/`)
- nice picture of research data life cycle: `http://data.library.virginia.edu/data-management/`

2 EXPERIMENTAL DESIGN KNOWLEDGE

On of the project's task was the implementation of results from an web-based experimental design tool called QWizard [1]. It is part of QBiC's web-based science gateway QPortal which handles scientific experimental projects and data. Customers are using the QWizard for setting up their experimental design and therefore provide information which can be used for the data management plan.

3 SYSTEM ARCHITECTURE

3.1 JAVA FRAMEWORK

For the setup of an own data management planning tool we decided to use the `Vaadin Framework`[1]. `Vaadin` is a single-page web framework for Java developers that provides powerful functions for creating rich Internet applications (RIAs) without the knowledge of classical web-languages as HTML5 or CSS3. It also provides a huge library of functional components that can be included in the project and already satisfy out needs for usability and navigation. The `Vaadin Framework` takes care of browser incompatibilities and automatically designs ajax communication protocols, which we evaluated as advantage in terms of time efficiency during the development. It is also open-source but still provides a support service.

As we are all quite familiar with Java, the availability of a huge component library, good documentation and support as well as the capacity to build a rich Internet application convinced us to give it a chance and use it for our own creation of a data management planning tool.

---

[1]https://vaadin.com/home

3.2 JAVA APPLICATION SERVER

In order to run the project, local or on a web-server, we needed to set-up a Java application server. There are numerous servers available, most of them are free and open-source. For our needs, we thought it does not make a big difference which server we select as we will not use the full capacities anyway. Apache's Tomcat was already known to us and was used before in other projects. To get to know a new application server which also comes with a nice documentation and web interface is JBoss' Wildfly[2]. In our case the installation and set-up of Wildfly was easy under Linux OS. So we configured local instances on every development environment and used the server's default settings.

3.3 VAADIN THEME

The `Vaadin Framework` also comes with additional themes, that apply a different layout and style to the graphical interface elements. We decided to choose the theme 'Valo', as it comes with a complete set of designed components, is responsive and ensures a pleasant user experience.

---

[2]http://wildfly.org/

REFERENCES

[1] Andreas Friedrich. Intuitive web-based experimental design for high-throughput biomedical data. 2015:8.

[2] Sven Nahnsen. Lecture notes in data management in quantitative biology, April 2015.