Programming Lab III, WS 2016/2017

Handout 1

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Preliminaries

The Programming Lab, part III, will give you an introduction to the software engineering details a computer scientist should be familiar with.

Organization

- we have 11 slots 2016-11-02 to 2017-01-31 (no courses on X-mas)
- Tuesday, 14:00-15:30 - demonstration of results in Marshallsaal (deadline to hand in a solution is 11:00am always!); hand out and explanation of new task
- Wednesday, 13:00-14:30 - hand out of new task in PC-Pool
- all tasks will be published one week ahead of schedule on this page
- we will provide a standard solution to each task, which can be used for the **next** task

Course requirements

- passed course programming lab 1 and 2
- access to computer with Java, Eclipse and access to internet
- registered with GForge project (c.f. First steps)

Credit requirements

- being registered at the exam office
- successfully handed in 60% (i.e. 7 of 12) of the programming tasks in time
- you may ask us (don't expect an answer during weekends or on short notice – *no, we don't know your password*) or your fellow students for help, but you have to submit your own solution (it's easy to spot if something is just copied...)

First steps

Register at https://tor-2.scai.fraunhofer.de/gf .
After registration your newly created account has to be granted by the IT staff at SCAI. Once this is done you will receive an email from SCAI with your account confirmation and activation information.

After that we will create user permissions at project „Programming Lab III“ for a specific svn directory named after your last name. You will have read/write permissions granted only for your personal directory. In this svn directory you have to place all assignments / programs you will create during the course.
You will receive an email when the instructors have set the permissions for your folder.

Note: Feel free to create your own folder sub-structure in your svn area. Have a look at e.g. https://www.open.collab.net/support/media/pdfs/SVN/Subversion%20Repository%20Layout.pdf or

any other site. For this course your personal folder is the „root project“, in which you can create the appropriate folder structure of which you think it is the correct way.
Now read the „Prerequisites“ page at *https://tor-2.scai.fraunhofer.de/gf/project/pl3/wiki*
and follow the instructions described there.

After that you should have access to both the Software Versioning System and the Artifactory Repository Manager.

First task

Has to be completed finally on 2016-11-08, 11:00am - there is no extension or exception!

The Unstructured Information Management Architecture (UIMA) is used at Fraunhofer to develop Java-based pipelets, which can be combined to workflows processing documents. A pipelet thereby can be a reader, an analysis engine, or a writer. The basic structure of UIMA is explained here: *https://uima.apache.org/*

Pipelets can not only work on the data of the input document, but also on the results of prior pipelets. To be able to do so, all information is stored in the SCAI Type System shared by all pipelets. The data exchange format in between is called XMI – those files are are serialized versions of the internal CAS data structure. The resulting XMI files of each pipelet can be viewed by a CAS editor. An introduction how to setup Eclipse adequately can be found at

https://tor-2.scai.fraunhofer.de/gf/project/pl3/wiki/?pagename=UIMAEclipse

For further information about UIMA and CAS objects read the documentation at
*https://**uima**.apache.org/*

Create a *CollectionReader* pipelet with the following specifications:

- The pipelet should read a file (.txt) with at least a single line of text and create a CAS object from it.
  (Have a look at the Javadoc of the imported classes to find the correct methods to use. If you use the correct *Archetype*, there is actually not much to be implemented.)

- Write the file (.xmi) into folder src/test/resources/output/task1

- Commit the source code of the pipelet and the produced XMI into your personal svn folder at SCAI GForge under task1. Hint: Carefully check if the files have been successfully sent to the server.

Good luck and have fun!