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Advanced Aspects of Object-Oriented Programming (SS 2015)

Practice Sheet 14

Date of Issue: 22.07.15
Deadline: —-
(before the lecture as PDF via E-Mail)

Exercise 1 Extending Eclipse

a) Inform yourself about the plugin architecture of eclipse. The eclipse homepage or `http://www.vogella.de/articles/EclipsePlugIn/article.html` may be good sites to start with.

b) Compare OSGi-Bundles and Eclipse plug-ins. What is the relation between them?

c) Implement a plugin that extends the eclipse editor with a mail action. Add a button to the toolbar and a menu with a menu item that asks for an email address and sends the text selected in the editor to the given address. To send mails, you can use the JavaMail package provided by Oracle at `https://javamail.java.net/nonav/docs/api/`.

Exercise 2 Inversion of Control Containers and Dependency Injection

One of the entertaining things about the enterprise Java world is the huge amount of activity in building alternatives to the mainstream J2EE technologies, much of it happening in open source. A lot of this is a reaction to the heavy-weight complexity in the mainstream J2EE world, but much of it is also exploring alternatives and coming up with creative ideas. A common issue to deal with is how to wire together different elements: how do you fit together this web controller architecture with that database interface backing when they were built by different teams with little knowledge of each other. A number of frameworks have taken a stab at this problem, and several are branching out to provide a general capability to assemble components from different layers. These are often referred to as lightweight containers, examples include PicoContainer, and Spring.

-Martin Fowler

a) Inform yourself about *Inversion of Control Containers and Dependency Injection* at Martin Fowler's page `http://martinfowler.com/articles/injection.html`

b) Use PicoContainer (`http://picocontainer.com/`) to implement the *Movie* example given by Martin Fowler.

c) Explain the advantages of *Inversion of Control* and *Dependency Injection* using the example above.