Intelligente Softwaresysteme
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Abgabetermin: 03.11.2016 um 23:59 Uhr

Übungen zur Vorlesung
Software Engineering – WS 16/17
Übungsblatt 02

1. **Responseability Driven Design** (max. (7 + 5 + 6 + 2) x 0.5 Punkte)

   Given is the following scenario:

   The new graphics software intellijPhoto is an interactive tool to view and edit images. Each image is represented by a 2D array of bytes, where each byte value represents a color value of the pixel. The user should be able to query the image dimensions. The software can represent two different types of images: "RasterImage" and "ShapedImage", where the latter one is a special form of "RasterImage". A "ShapedImage" has a non-rectangular shape (polygon); the bytes in the array specify whether the respective pixel is transparent or opaque. Furthermore, the software should be able to allow simple image manipulations. This will allow the user to rotate, magnify and reduce images, set new color values in the image, and combine two images into a new image within 0.2 seconds.

   Carry out a detailed analysis and find as much **classes**, **responsibilities**, **collaborations** and **relationships** (**inheritance**) as possible. Give reasons for your opinion. (An UML-Classdiagram is not planned in this step).

2. **Encapsulation** (2 + 4 x 0.5 Points)
   What does the term *Encapsulation* in the context of object-oriented programming stands for? What are the key benefits of such a concept?

Information for Submissions

- To submit your solution, create a **PDF-File**, in which your answers as text and figures are stored.

- If you are required to submit a programming task, please send only the source code as plain text file. Source code in a PDF file won't be considered!

- To allow tracing from PDF to the source code file, please reference the source code files in the PDF file.

- For your PDF document, please write your **name** and **student ID (Matrikelnummer)** of each team member.

- Please compress all files into a single zip-file with the following file name (team submission require the data of only a single person):
  ```
  <Family name>-<student ID (MatrikelNr)>-se-blatt<Nb Excercise>.zip
  ```

- Send this file to Philipp Seltmann (**philipp.seltmann@uni-weimar.de**)