ISOVIS **Department of Computer Science** **Linnæus University**

Course Assignments
for

Graph Drawing
4DV802 – Autumn 2016

Assignment 3

Deadline for this assignment is Jan 10, 2017 at 23:55.

Task 1 *X-Coordinate Assignment (all students)*

Extend your graph drawing tool from Assignment 2 by a postprocessing step to avoid the so-called spaghetti code. A good reference that can help you to find an algorithm (non-LP) is Section 4.1 from the paper: E.R. Gansner, E. Koutsofios, S.C. North, K.-P. Vo: A technique for drawing directed graphs, IEEE Transactions on Software Engineering 19 (3), 1993, 214–230, (`http://cs.lnu.se/isovis/courses/fall16/4dv802/assignments/Gansner93.pdf`). Another reference that explains a suitable algorithm in a very abstract way would be the teaching material of P. Mutzel (in German): `http://cs.lnu.se/isovis/courses/fall16/4dv802/assignments/schichten.pdf`

Task 2 *Graph Viewer (all students)*

Implement a Java-based graph viewing tool that is able to read an input GraphML file with a graph specification and to draw the input graph with the help of *yFiles for Java*. A GUI is needed to allow the user to load input files easily and to select various layout algorithms. You should use the following graph specifications for testing:

`http://cs.lnu.se/isovis/courses/fall16/4dv802/assignments/rome-GraphML.zip` (undirected)

`http://cs.lnu.se/isovis/courses/fall16/4dv802/assignments/digraphs-GraphML.zip` (directed)

- Student: Rob Bruinsma

    - Toolkit: yFiles for Java
    - Type of graphs: undirected
    - Data set: see above
    - Layout algorithms: three (or more) algorithms supported for that type of graphs

- Student: Camille Fôret

    - Toolkit: yFiles for Java
    - Type of graphs: directed
    - Data set: see above
    - Layout algorithms: three (or more) algorithms supported for that type of graphs

- Student: Andreas Zsigmond

    - Toolkit: yFiles for Java
    - Type of graphs: undirected
    - Data set: see above
    - Layout algorithms: three (or more) algorithms supported for that type of graphs

Please prepare a demo of your tool as well as a short presentation (about 5–10 minutes) (PowerPoint, PDF, ...) on the most important aspects of your implementation like data structures, etc. You will present both on Jan 11, 10:15–12:00 via Adobe Connect or locally (room D1167V). Please, use your own computer for the demo and the presentation if possible. Submit all files in a ZIP archive via Moodle by the given deadline and also include a short readme file about your software with instructions on how to compile and run it.

Please note: any kind of plagiarism is not acceptable!