

Course Assignments
for
Graph Drawing
4DV802 – Autumn 2018
Assignment 3

Deadline for this assignment is Jan 15, 2019 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/fall18/4dv802/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/fall18/4dv802/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* (please get an evaluation version according to the instructions sent to you via email, or contact the TA otherwise). 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/fall18/4dv802/assignments/rome-GraphML.zip> (undirected)

<http://cs.lnu.se/isovis/courses/fall18/4dv802/assignments/digraphs-GraphML.zip> (directed)

- Student: Angelos Chatzimparmpas
 - 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: Henric Rosengren Evenlind
 - 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 16, 14:00–15:30, room B3032 or remotely via Zoom. 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!