MSI
Computer Science Department

Växjö University

Course Assignments
for

Graph Drawing
DA4124 – Fall 09

3rd assignment

Deadline for this assignment is Jan 12, 2010.

Task 1 *X-Coordinate Assignment (all groups except Group D)*
Extend your self-implemented 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.msi.vxu.se/isovis/courses/fall09/da4124/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.msi.vxu.se/isovis/courses/fall09/da4124/assignments/schichten.pdf`

Task 2 *Graph Viewer (all groups)*
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 a toolkit (you will find their URLs on the course web page). 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.msi.vxu.se/isovis/courses/fall09/da4124/assignments/rome-GraphML.zip` (undirected)
  `http://cs.msi.vxu.se/isovis/courses/fall09/da4124/assignments/digraphs-GraphML.zip` (directed)

- Group A

    - Toolkit: JUNG Java Universal Network/Graph Framework
    - Type of graphs: undirected
    - Data set: see above
    - Layout algorithms: all that JUNG offers for that type of graphs

- Group B

    - Toolkit: PREFUSE Visualization Toolkit
    - Type of graphs: undirected
    - Data set: see above
    - Layout algorithms: all that PREFUSE offers for that type of graphs

- Group C

    - Toolkit: PREFUSE Visualization Toolkit
    - Type of graphs: directed
    - Data set: see above
    - Layout algorithms: all that PREFUSE offers for that type of graphs

- Group D

  - Toolkit: JUNG and PREFUSE (please compare both in your presentation)
  - Type of graphs: trees
  - Data set: your file directory
  - Layout algorithms: all that JUNG and PREFUSE offer for trees

- Group E

  - Toolkit: JUNG Java Universal Network/Graph Framework
  - Type of graphs: directed
  - Data set: see above
  - Layout algorithms: all that JUNG offers for that type of graphs

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Please prepare a demo of your tools as well as a short presentation (about 5-10 minutes) (PowerPoint, Latex, PDF, ...) on the most important aspects of your implementation like data structures, etc. You will present both during the second exercise at Jan 13th, 2010. Please, use your own notebook for the demo and the presentation! Send all files to Ilir Jusufi via email by the given deadline! Any kind of plagiarism is not accepted and leads to the consequence that all group members will fail the course.