

Knowledge management: seminar work instructions

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Requirements

- select, find or create a SN domain (dataset):
 - Pajek dataset webpage:
 - <http://vlado.fmf.uni-lj.si/pub/networks/data/>
 - Datamob repository:
 - <http://datamob.org/datasets/tag/social-networks>
 - Many eyes webpage:
 - <http://manyeyes.alphaworks.ibm.com/manyeyes/datasets>
 - Mark Newman's datasets:
 - <http://www-personal.umich.edu/~mejn/netdata/>
 - INSNA datasets:
 - http://www.insna.org/software/public_data.html

Requirements

- dataset:
 - at least few hundred vertices (≥ 200)
- Pajek .net files:
 - **use dataset which is already in .net format**
 - other possibilities:
 - write it by hand (not recommended)
 - transform it from other format
- report and presentation
 - 4 (max. 6) pages in IS format (English or Slovene)
 - up to 8 slides
 - use templates for IS papers and slides

Report

- most important:
 - try to **explain** your observations and results
 - use Pajek's output: pictures, report text
- contents:
 - general info about your data
 - source and history of the data
 - did you do any preprocessing?
 - what are nodes and connections, type of graph (directed, undirected, mixed)
 - are there any loops or multiple edges (if yes, why, what is the explanation)

Report

- contents:
 - general info about your data:
 - size of your graph and its density (is it sparse?)
 - if your graph is weighted:
 - report line weights distribution
 - Pajek: Info – Network – Line values
 - degree distribution:
 - draw bar graph (use Excel)
 - visualization:
 - use Kamada-Kawai and/or Fruchterman 2D algorithm in Pajek
 - whole graph (if possible)
 - zoom interesting parts (comment and explain)

Report

- analysis:
 - connectivity concepts:
 - strong and weak components, draw, analyze, comment
 - centrality concepts:
 - degree centrality, closeness, betweenness; compute, draw, analyze, comment
 - cohesion concepts:
 - cores, islands; compute, draw, analyze, comment
 - try to find cliques by drawing graph nicely
 - other concepts which you think that are important for your data, e.g. prestige, clustering, ranking, paths, neighbours, ...

Literature

- Pajek book:
 - Exploratory social network analysis with Pajek (W. de Nooy, A. Mrvar, V. Batagelj)
- free online book:
 - Introduction to social network methods (R.A. Hanneman, M. Riddle)
 - <http://www.faculty.ucr.edu/~hanneman/nettext/index.html>
- slides from network analysis summer school
- slides from lectures