

2nd Winter School in Complexity Sciences

"Formal approaches for the representation and analysis of social network structures"

Lisbon University Institute, January 11-15, 2010

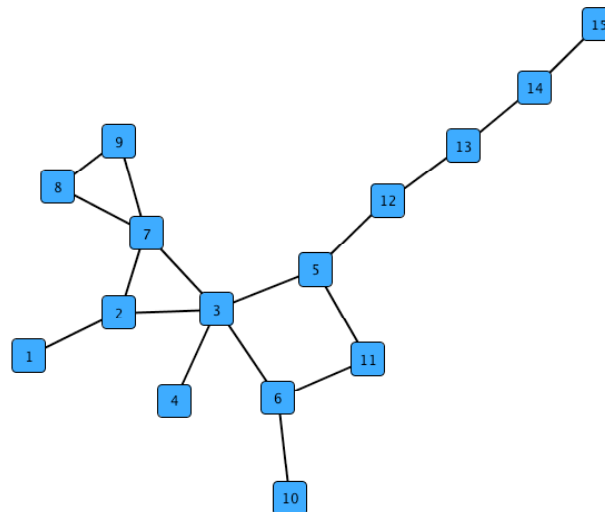
<http://complexsystemsstudies.eu/winterschool>

Exercise 1

Social networks representation and analysis with Visone

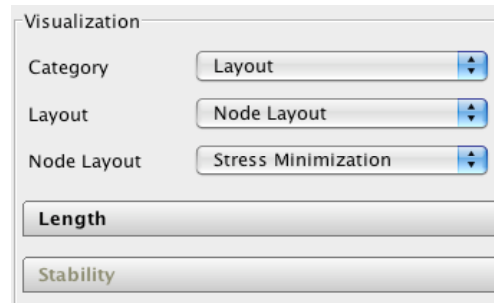
by David Rodrigues & Jorge Louçã

1. Install Visone in your laptop, using the install file available in your CDRom. In case you are logged in the students network, enter the system with a user/ password provided in classroom.
2. Open Visone. (double click in the JAR file)
3. Draw a network with approximately 15 nodes, in a way that you end up with a network similar to the next one:



4. Note the existence of triangles, a tail and squares.

5. In the Tab **Visualization** select **Node Layout:Stress Minimization** and click the **Layout** button

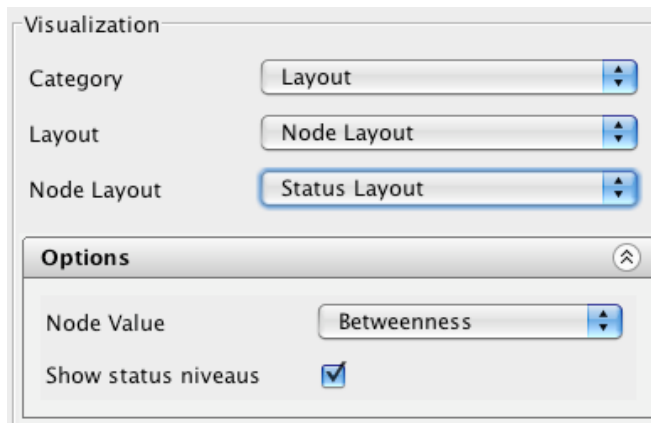


6. Do Node Centrality Analysis

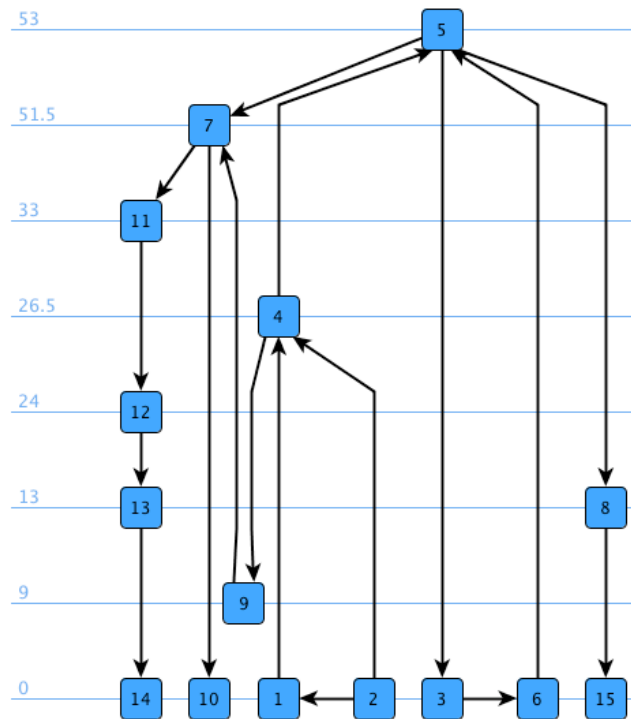
- Closeness
- Betweenness
- Authority (directed graphs)

7. Try some Vizualization of previous Graphs:

7. Chose **Layout:Status Layout** and **Layout:Centrality Layout**



- 8.



9.

8. Transform Directed into Undirected graphs (for Authority Analysis)
9. Use Attribute Manager to Export Data to Use in other Application
10. How to save the graph
 - o Several formats
 - o Pajek .net
 - o Ucinet .dl
 - o Adjacency .txt
 - o GraphML (native v 2.x)
11. **Hands on exercise**
12. Open the file **lisbon_subway.graphml** in Visone
13. Knowing that we are near “EntreCampos” station try to show the distance to your hotel subway station (if you don’t remember the station try “Baixa-Chiado” instead) in a graphical way. (In the **Analysis** tab explore de **Class** algorithms)

14. Can you tell which station has the highest closeness?
15. And which station ranks 4th in terms betweenness?
16. Does it make sense to talk about authority in this case?
17. Extra credits:
 1. Imagine that you want to live in Lisbon and you want to choose a place to live near a subway station. Knowing that you want this station to be the nearest to Entre Campos (ISCTE), Baixa Chiado (downtown, night diversion) and Oriente (Parque Expo Zone, restaurants) can you tell us where you'd like to live?