**Project Plan**

Project Title: Network Analysis on Reddit Hyperlink Network (we’ll think of a more specific title later, depending on our findings)

Network: Reddit Hyperlink Network. This social network contains positive and negative relationships, and it’s dynamic. <http://snap.stanford.edu/data/soc-RedditHyperlinks.html>

Team Members:

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Project Description:

The project will consist of a mixture of simple and more complex analysis tasks.

Simpler analysis tasks:

* compare different graph embedding algorithms to visualize the network and evaluate the results with respect to centrality measures
* examine to what extent the triadic closure property is fulfilled by the nodes of this network (possibly using only positive edges)
* apply some graph partitioning algorithm (possibly Girvan-Newman) to identify communities
* see if structural balance holds; if not, see if we can at least form supernodes with no negative edges inside (this would correspond to a weaker balance with more than two factions); if not, calculate the percentage of negative edges inside the supernodes

The more complex analysis task will be to test the performance of some machine learning algorithms to predict possible evolutions of the network. This could mean predicting the formation of new edges.

Distribution of Effort:

We will work separately on the simpler tasks, but we’ll review each other’s code and results. We will work together on the complex task, the presentation slides and the final report.

Timeline:

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| **Date** | **Event** |
| 01.31. - 02.02. | Familiarization with the network |
| 02.03. - 02.05. | Definition of concrete tasks |
| 02.06. - 02.16. | Coding and evaluation of results |
| 02.17. - 02.23. | Project report and presentation slides |
| 02.24. | Last presentation practice |
| 02.25. - 02.27. | Project presentation |
| 02.28. | Project report due |