

Introduction to Social Networks

Final Project

The main goal of this project is to practice and apply what you have learned to real-world tasks and the objectives of this project are:

- to familiarize you with the concept of social networks in a practical sense by working on a real data set;
- to walk you through all steps necessary to create a network, as well as simple network visualizations;
- to introduce basic features of a social network that provides insights into a relationship of interests;
- to help you learn how to perform basic network analytics such as clustering and community detection, and
- to introduce you to some advanced topics that may be of interest to you.

1. Prepare a pdf report called "Project Report + dataset name ", the report must contain the following:

- Student's name and ID.
- Explain the problem.

Note that: the problem description must answer the following questions:

- a. What will the program do?
- b. What the input to the program will be?
- c. What the output from the program will be?
 - The full description of your dataset.
 - Screenshots from your Project steps.
 - Discussing the Code (libraries used + attributes)
 - (Screenshot for code parts + Describing what it does)
 - Explain your results and insight by describing your plotted graphs.

2. We have here recommended a website, where you can download your data set or any data set you want to utilize:

<https://snap.stanford.edu/data/>

Software Tools:

You should utilize one of these tools:

1. UCINET (<https://ucinet-for-windows.software.informer.com/>)
2. Cytoscape (https://cytoscape.org/what_is_cytoscape.html)
3. Gephi (<https://www.gephi.org/>)
4. igraph (R)

3. You are free to select any dataset you want; you are asked to use one of the software tools given to do the following tasks:

- Node Degree
- Average Degree
- Special graphs
- Connectivity of graphs
- Matrix Representation
- Representing graph (Edge List or Adjacent List)
- Quantifying social structure
- Centrality Measures