Social Media Analysis

Lab 1 – Report

**Gephi**:  an open-source network analysis and visualization software package written in Java on the NetBeans platform. Gephi is open-source and free. Gephi is a tool for data analysts and scientists keen to explore and understand graphs. Like Photoshop but for graph data, the user interacts with the representation, manipulate the structures, shapes and colors to reveal hidden patterns. The goal is to help data analysts to make hypothesis, intuitively discover patterns, isolate structure singularities or faults during data sourcing. It is a complementary tool to traditional statistics, as visual thinking with interactive interfaces is now recognized to facilitate reasoning. This is a software for Exploratory Data Analysis, a paradigm appeared in the Visual Analytics field of research.

**SocNetV**: a free and open-source cross-platform social network analysis and visualization software. Social Network Visualizer (SocNetV) is a cross-platform, user-friendly free software application for social network analysis and visualization. With SocNetV you can, Draw social networks on a virtual canvas, load field data from a file in a supported format (GraphML, GraphViz, Adjacency, EdgeList, GML, Pajek, UCINET, etc) or crawl the internet to create a social network of connected webpages. Edit actors and ties through point-and-click, analyse graph and social network properties, produce beautiful HTML reports and embed visualization layouts to the network.

**Neo4j**: Neo4j is a graph database management system developed by Neo4j, Inc. Described by its developers as an ACID-compliant transactional database with native graph storage and processing. Unlike traditional databases, which arrange data in rows, columns and tables, Neo4j has a flexible structure defined by stored relationships between data records. With Neo4j, each data record, or node, stores direct pointers to all the nodes it’s connected to. Because Neo4j is designed around this simple, yet powerful optimization, it performs queries with complex connections orders of magnitude faster, and with more depth, than other databases.

**Cytoscape**: an open-source software platform for visualizing complex networks and integrating these with any type of attribute data. A lot of Apps are available for various kinds of problem domains, including bioinformatics, social network analysis, and the semantic web. Cytoscape is domain-independent and therefore is a powerful tool for complex network analysis in general.You can calculate statistics for networks by Apps such as Network Analyzer or CentiScaPe, Find shortest path, Find clusters by various kinds of algorithms, Use with other tools for more advanced analysis, Perform advanced network analysis in popular tools, including igraph, Pajek, or GraphViz and import it to Cytoscape as standard file formats like GraphML

**NodeXL**: it a network analysis and visualization software package for Microsoft Excel 2007/2010/2013/2016. The free version contains network visualization and social network analysis features. The commercial version includes access to social media network data importers, advanced network metrics, and automation. Graph Metric Calculations Powered by SNAP from Stanford University, NodeXL Basic can easily calculate basic network metrics like degree, and NodeXL Pro adds calculation of betweenness centrality, closeness centrality, eigenvector centrality, PageRank, clustering coefficient, graph density and more. Flexible Import and Export NodeXL Basic can import graphs from GraphML, Pajek, UCINet, and matrix formats. NodeXL Pro also allows for export into these formats. Direct Connections to Social Networks NodeXL Basic allows for limited import of network data from Twitter search. NodeXL Pro adds the ability to import social networks directly from Twitter, Facebook, Exchange, Wikis, YouTube, Flickr and email, or use one of several available plug-ins to get networks from Surveys, WWW hyperlinks and social media cloud storage lockers. Zoom and Scale Zoom into areas of interest, and scale the graph's vertices to reduce clutter.

**Pajek**: It is a historical Windows program for Social Network Analysis and visualization of large networks. Pajek includes six data structures (e.g. network, permutation, cluster,…) and about 15 algorithms using these structures (e.g. partitions, decompositions, paths, flows…).