THE UNIVERSITY OF SYDNEY

School of Information Technologies
Faculty of Engineering & IT

ASSIGNMENT/PROJECT COVERSHEET - INDIVIDUAL ASSESSMENT

Unit of Study: COMP 5048

Assignment name: Assignment 1

Tutorial time: _____

Tutor name: _____

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I realise that I may be asked to identify those portions of the work contributed by me and required to demonstrate my knowledge of the relevant material by answering oral questions or by undertaking supplementary work, either written or in the laboratory, in order to arrive at the final assessment mark.

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Graph Drawing Citations

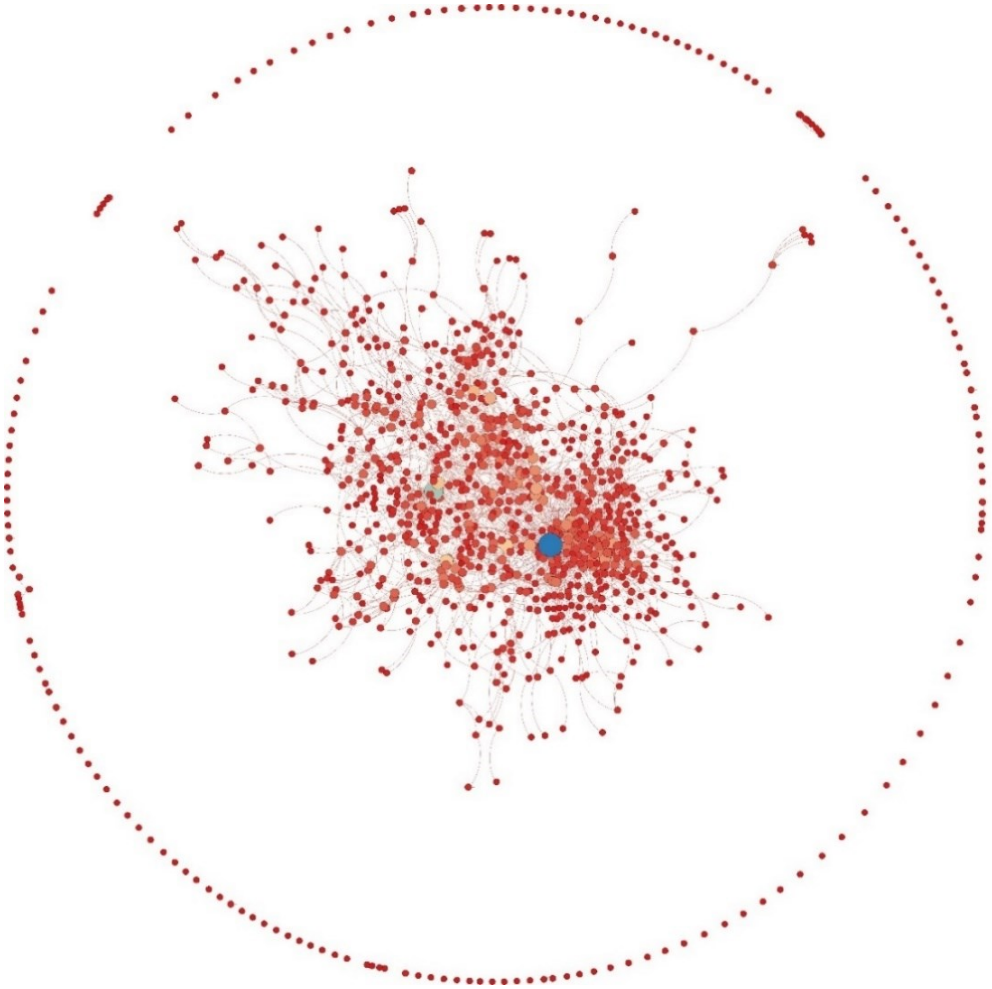

Fig 1. Citation relationship between graph drawing papers in the last 25 years, using Yifan Hu layout

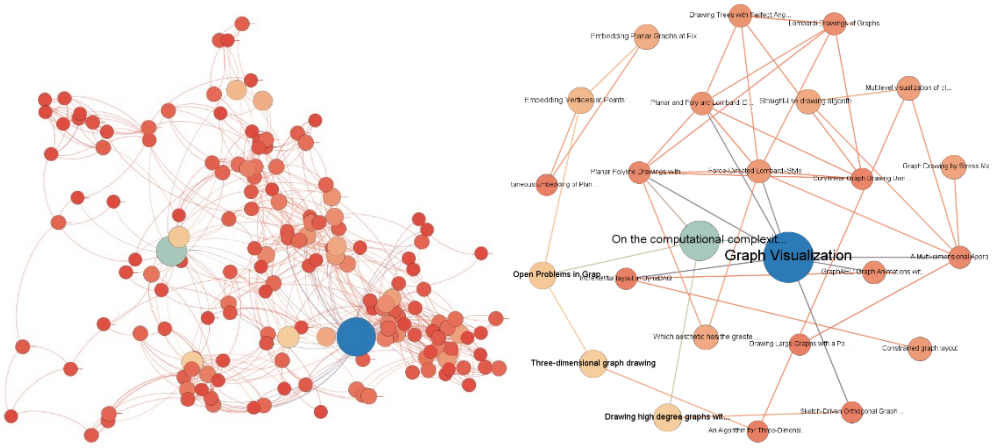

Fig 2. Filtered citation relationship (10 for left and 20 for right)

Graph drawing citations is based on the citation information gathered from graph drawing domain from 1994 to 2015. The whole dataset consists 1050 essays, and various number of citations for each essay. The total citation number is 2818.

To visualize this data set, I applies this dataset into 2 parts namely nodes and edges. Every node element is an essay containing title and id. And each recording in edge contains a pair of an essay id and one of essay id cited this essay. This assigning makes a neat representation of citation relationship and avoid using directed network thus makes graph neat and easy to read.

Fig 1. Shown the outcome of this network. Yifan Hu layout were used for this graph. The most cited essay is gathered at central and edges is those less cited. This visualization represents the importance for each essay.

Fig 2. right shown the filtered graph using filter at 10, which remain essay those only been cited more than 10 times by others.

Fig 2 left demonstrates the core essay in graph drawing domain by using filter = 20 and reformed using Fruchterman Reingold layout.

Greek myth

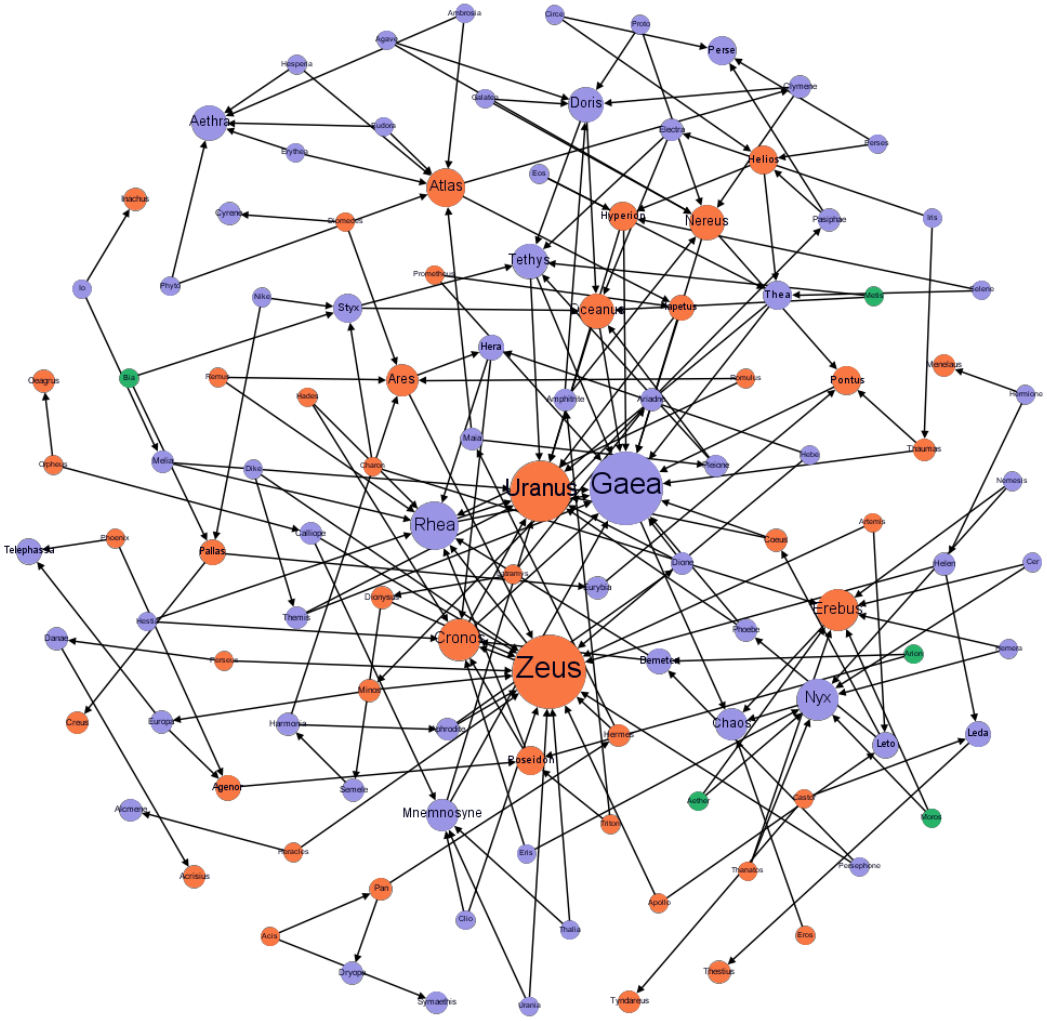

Fig 3. Greek myth relationship network

The Greek mythology data set was parsed from a gedmon file, which is a file structure specifically designed for family tree visualization.

The file was process and organized into 3 parts for gephi visualization these 3 parts are father and mother for edges and greek-myth for nodes.

The final graph can be seen as Fig 3. To make as much use of features as possible, several adjust were added.

As the arrow shown in graph, this visualization is a directed network. And the direction of arrows is child to parents.

The size of nodes is adjusted with in-degree. Which indicates more children one has, the bigger the node is.

The color of nodes indicates sex. I assigned purple for female, orange for male and green for unisex.

Besides, the label of nodes which is name of Greek god were added. And the size of label has also adjusted by in-degree to make whole graph's consistency.

Panama

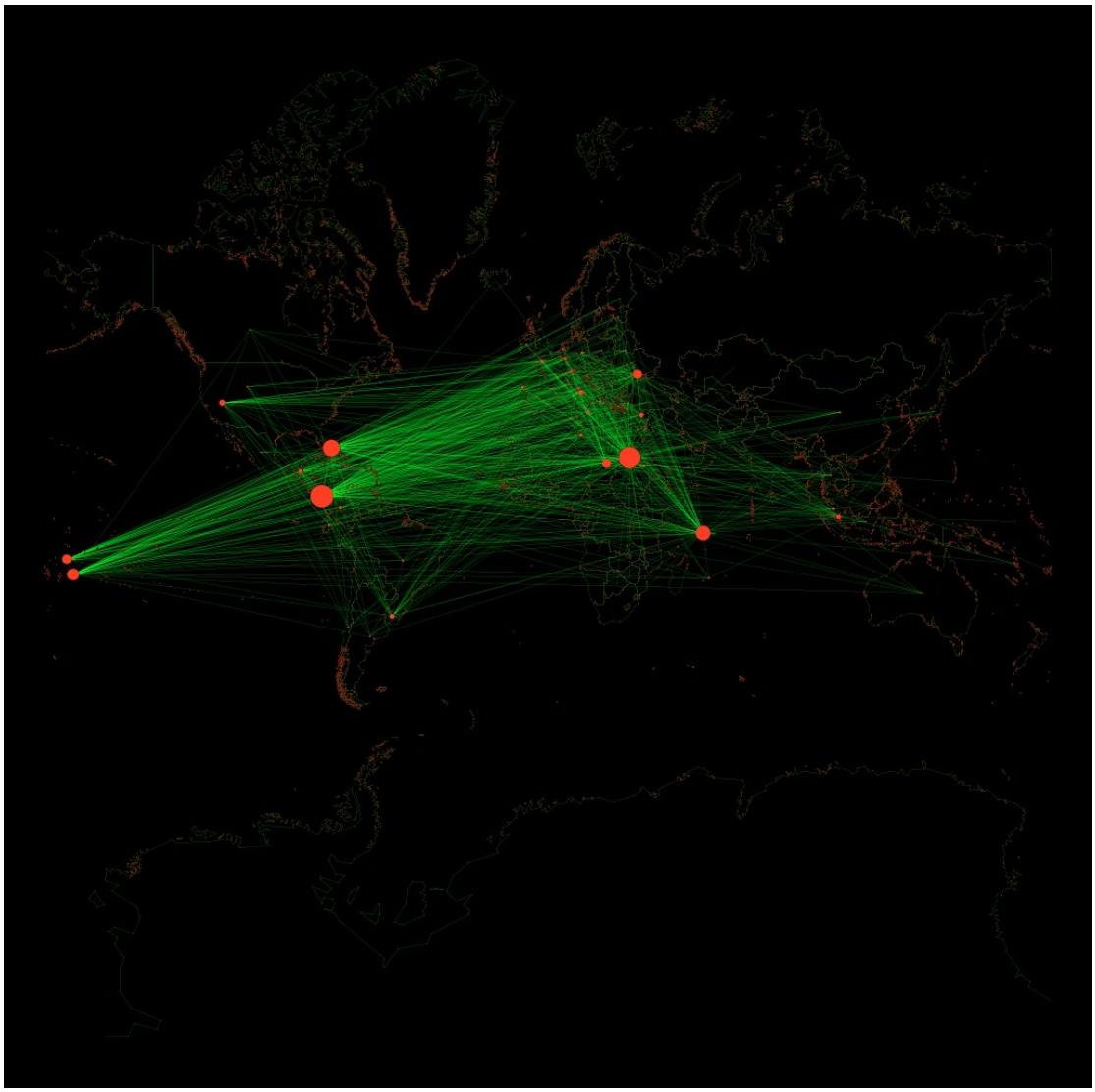

Fig 4. Trips made passing by panama

Panama paper data set provides a trip data around the world collected by 190 investigation journalists among 65 countries collaborate on in-depth investigative stories.

The original data come with nested data with destination and source and number of trips happened this route.

For the visualization for this dataset. I utilized 2 gephi plugins to implements geography information along with trip data.

The first plugin used in this graph is map of countries, which generates a world map by printing a number of points along with longitude and latitude information.

Similar with previous graph, this data set has also been separated into nodes and edges data set. By import nodes and edges, the trip is precisely drawn.

Planer graph

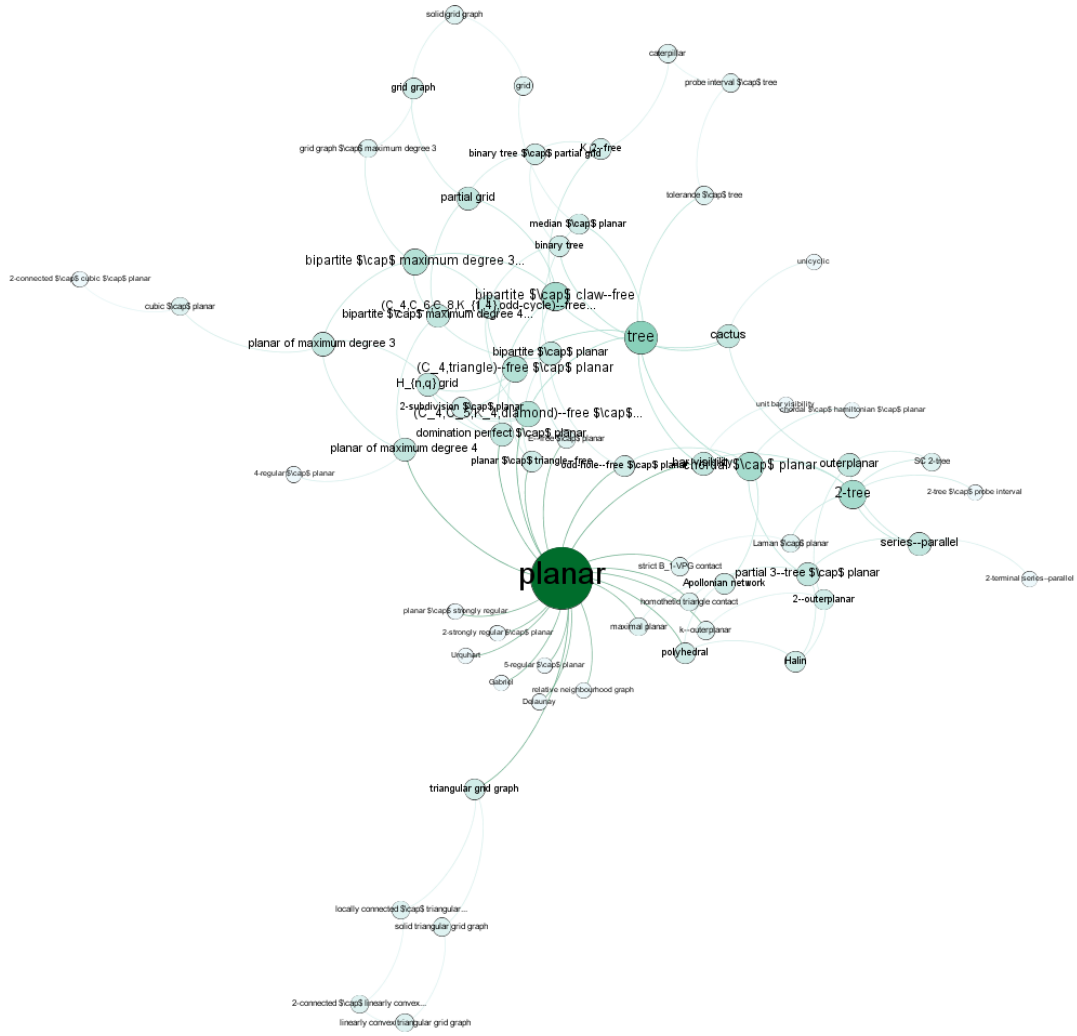

Fig 5. Planer Graph

Similar with the first one with citation graph, the planer graph is also driven from a xml file with nodes and edges. Parsing nodes and edges to csv files. And import to gephi and as shown in fig 5, the visualization about planer is drawn.