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MS Business Analytics and Project

Management

OPIM 5501 Visual Analytics,

Summer Semester

Project#1 (Reverse Engineering)

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Project Report

Marvel Cinematic Universe Social Network Analysis

**Executive Summary**

Social Network Analysis provides vital information about network structures by analyzing relationships among a set of actors (Nodes). The marvel cinematic universe has 783 actors/actresses who have worked in 13 different movies over a span of 8 years. We have tried to visualize the entire marvel cinematic universe and analyze how the characters are connected to each other. It gives important insights such as which character should be targeted to have a significant impact on the social network as well as which individuals are popular in the network.

**Data Description**

The dataset has been prepared by pulling the actor information from IMDB (Internet Movie Database). The actor’s name, their roles and the corresponding movie name for all marvel movie releases were collected, other data was collected online and manually added. The coordinates of the nodes in the relative space, their degree and centrality were calculated by using NodeXL Excel Plugin.

**Approach and Methodology**

The data had to be wrangled to a large extent, to visualize it as a social network. We had to arrange the data in the following form: (this is just an example for 2 nodes).

|  |  |  |
| --- | --- | --- |
| ID | Node Initiating | Node Ending |
| 1 | Actor1 | Movie1 |
| 1 | Movie1 | Actor1 |

To visualize these nodes, their X and Y coordinates were added to Columns and rows shelf respectively. A new column Z was created with identical value of the Y coordinates and this was added to rows shelf. X, Y, Z were

added as attributes. Node Initiating is now added as Label for Y, the mark for Y is chosen as ‘circle’, the ID is added as ‘Detail’ for Z and the mark is selected as ‘Line’.

This gives us a 2 node Network Diagram: (Actor1 ------------ Movie1)

**Challenges**

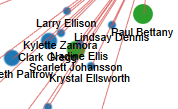
The data was not present at a single place from where you can download it directly, data collection was a tedious job, then it had to be wrangled in a particular manner. This was the biggest challenge we faced. We had to iterate a lot to get the visualization right.

Another challenge we faced was trying to make a URL filter which would be launched from one dashboard and would open in another dashboard, we were unable to do this, so we went ahead with a normal URL filter which opens the link in the browser. We also realized that the option with browser was more user friendly.

We also faced a challenge where some Node labels were not visible, we found that this was because they were overlapping, we can fix it by selecting the checkbox “Allow labels to overlap other marks”



But this led to a messy visualization



We decided to go ahead with the option of hiding the overlapping labels, to counter this we added a wildcard search filter, where a user can type the node’s name and the search would select the corresponding node.

**Conclusion**

We as Marvel and Data Visualization enthusiasts had great fun working on this project, we learnt a lot, tableau is not generally used to visualize social networks and working on this kind of project was thus a challenging task.

**References**

Images:

<http://nerdswole.com/wp-content/uploads/2015/05/marvel-cinematic-universe.png>

<https://en.wikipedia.org>

Study Material:

<http://www.clearlyandsimply.com/clearly_and_simply/2012/12/build-network-graphs-in-tableau.html>

<http://kb.tableau.com/articles/knowledgebase/using-path-shelf-pattern-analysis>

<https://public.tableau.com/s/blog/2015/08/chaos-clarity-social-network-diagrams-tableau>

<https://public.tableau.com/s/blog/2015/07/taking-path-function>