19ZO02 - Social And Economic Network Analysis

"MCU ACTOR SOCIAL NETWORK ANALYSIS"

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May 2022

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PROBLEM STATEMENT

The exponentially growing content produced by Disney-Marvel, has a new set of actors/characters showing up every month or two. So establishing a social network of these actors/characters, connected through the movies and TV shows in which they shared screen space with each other, can possibly be used to understand the character-character relationships to further take decisions for upcoming productions. So accordingly a set of analysis were designed to benefit from the created social network graph.

DATASET DESCRIPTION

There two datasets used for this project were manually obtained. One which holds the information of the list of movies and TV-Shows and the actors who played in it and the other holds the information of the critic ratings it received.

The list of Disney-Marvel produced movies and TV-Shows and the actors who played in it were collected from Wikipedia and IMDB. The constraints we followed to get the desirable dataset to make sure we included the recurring actors/characters and irrespective of that, we included a minimum of 5 characters. A total of 63 productions(movies and TV-Shows) and 227 actors/characters.

For the other dataset which holds the information of the critic ratings that a movie received, we extracted the information of the ratings from three different sources: IMDB, RottenTomatoes and MetaCritic. These three are the leading most movie review websites. So with the extracted ratings, we put them together to create a single score for each production.

TOOLS USED

1. Networkx - Python Software Package

Networkx is a python package for creating and manipulating graphs and networks.

2. Gephi - Network Visualization Tool

Gephi is open-source software for visualization of graphs and networks.

3. Jupyter Notebook - Coding IDE

Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text.

CHALLENGES FACED

1. The required dataset was not readily available. So to create the right dataset, we manually created the dataset.
2. Displaying bi-partite graph wasn't really helpful and not much analyses were possible. To make an effective analysis, we had to use secondary attributes like critic ratings.
3. Coming up with meaningful analyses which would actually benefit the decision making for future productions.

CONTRIBUTION OF TEAM MEMBERS

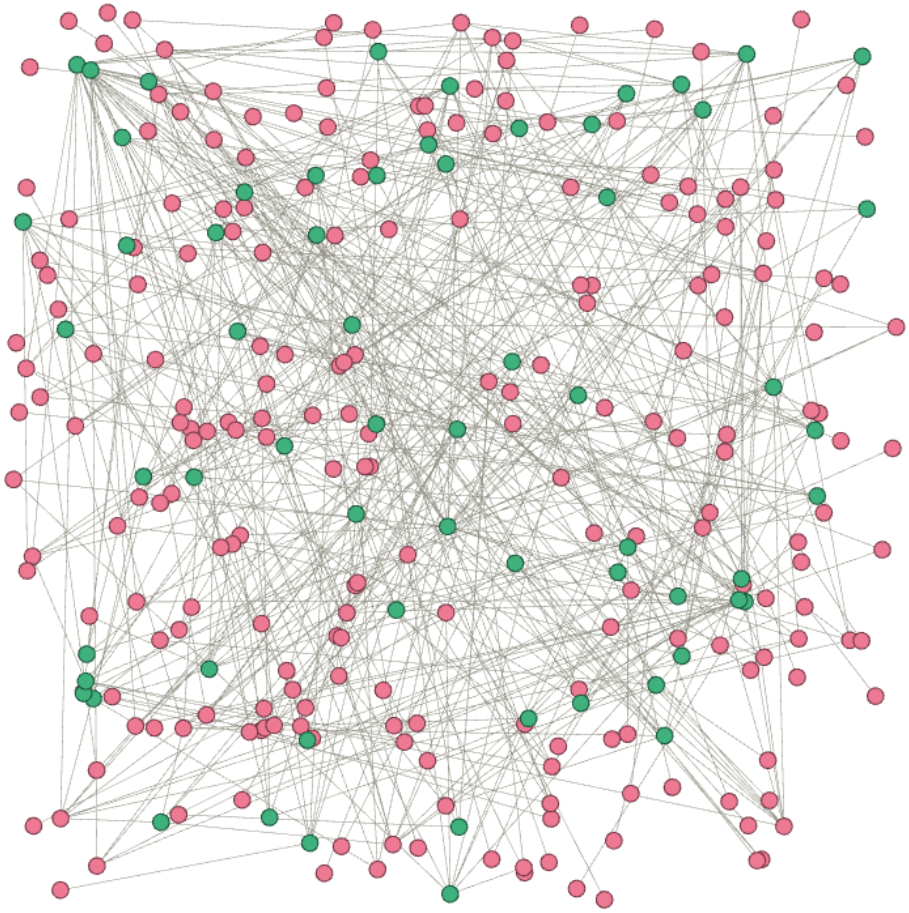
Roll No	Name	Contribution
19z221	Naresh K	Community Detection, Report
19z229	Navaneeth A B	Dataset Extraction, Most Movies Acted
19z249	Sudarshan V	Dataset Extraction, Graph Visualization
19z250	Suriya Prasad P	Potential Actors, Bridge Detection
19z254	V S Tharun	Debutant Actors, Degree Distribution

ANNEXURE I: CODE

https://github.com/Suriya-Prasad/MCU-Actors---Movies-Series-Network-Analysis/blob/b4a89d3f40c6ed755f2d35433e959c0b09773f3c/SENA_Project.ipynb

ANNEXURE II: SNAPSHOTS OF THE OUTPUT

1.



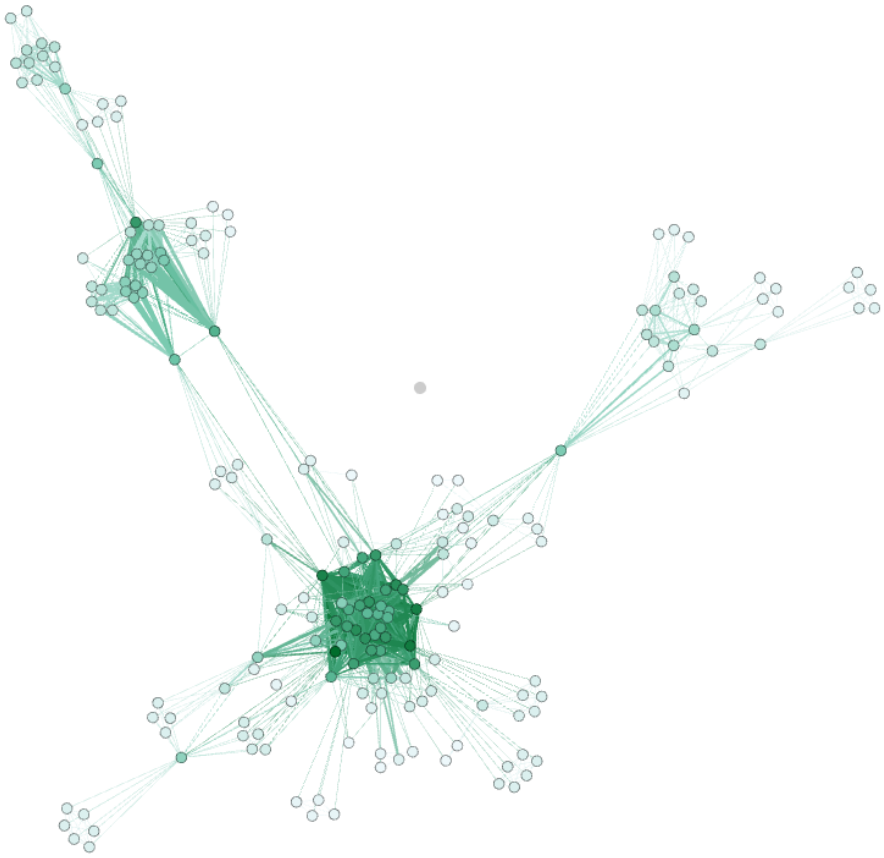
Actors-Movies/TV-Shows Bipartite Graph

2.

```
[('Martin Freeman', 92.0),
 ('Michael B. Jordan', 92.0),
 ('Letitia Wright', 92.0),
 ("Lupita Nyong'o", 92.0),
 ('Rish Shah', 88.0),
 ('Mehwish Hayat', 88.0),
 ('Fawad Khan', 88.0),
 ('Matt Lintz', 88.0),
 ('Yasmeen Fletcher', 88.0),
 ('Iman Vellani', 88.0),
 ('Ming-Na Wen', 85.0),
 ('Iain De Caestecker', 85.0),
 ('Brett Dalton', 85.0),
 ('Chloe Bennet', 85.0),
```

Potential Actors/Characters based on their Movie/TV-Show Score

3.



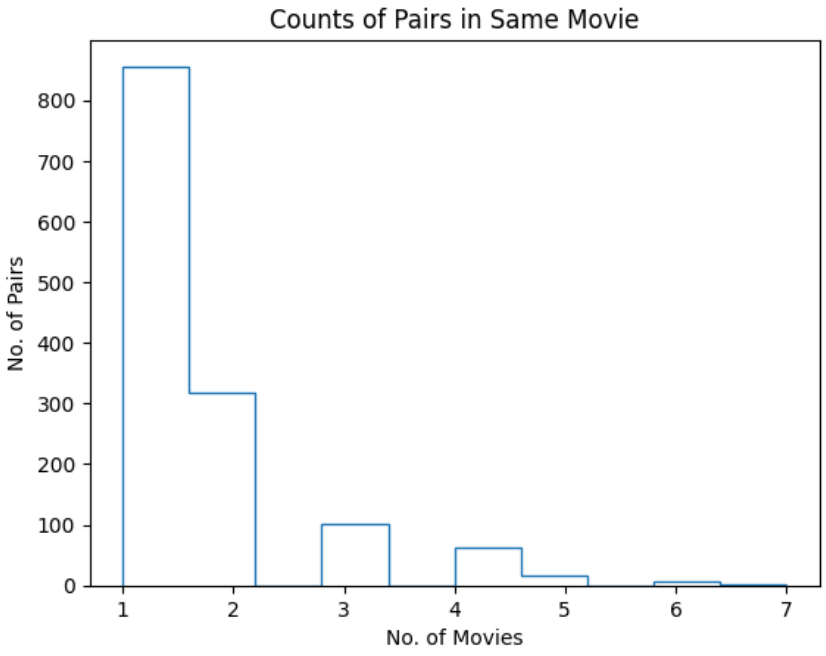
Weight Projected Graph of Actors - Largest Component

4.

```
[(('Benedict Cumberbatch', 'Patrick Stewart'), 0.14523183675914456),
 (('Charlie Cox', 'Benedict Cumberbatch'), 0.10314898009590136),
 (('Vinnie Jones', 'Patrick Stewart'), 0.08962162501589103),
 (('Evan Peters', 'Paul Bettany'), 0.07534023671800846),
 (('Elisabeth Olsen', 'Patrick Stewart'), 0.07197261452094082),
 (('Benedict Wong', 'Patrick Stewart'), 0.05855120988493743),
 (('Charlie Cox', 'Jon Bernthal'), 0.05511795686861132),
 (('Charlie Cox', 'Mark Ruffalo'), 0.04625624711603117),
 (('Samuel L. Jackson', 'Stan Lee'), 0.04619688292388531),
 (('Charlie Cox', 'Jon Favreau'), 0.03953954144788828),
 (('Hugh Jackman', 'Patrick Stewart'), 0.03891313322658156),
 (('Rachel Taylor', 'Charlie Cox'), 0.034195935136707344),
 (('Charlie Cox', 'Tom Holland'), 0.03379894219657242),
 (('Finn Jones', 'Charlie Cox'), 0.02989474258289699),
 (('Rosario Dawson', 'Charlie Cox'), 0.027246945898778362),
```

Actor-Actor Bridge Connecting Largest Components

5.



Histogram of Recurring Pairs of Actors over all the Movies/TV-Shows

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