



## **Social Network Analysis**

**Multimedia University  
Cyberjaya**

**Submitted to  
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Lecturer**

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**Date of Submission: 7 November 2021**

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# Introduction

Social network analysis (SNA) is the process of investigating social structures through the use of networks and graph theory. In this assignment, we will explain the results we have been found on Samsung and Huawei network.

## Data Extraction

The data is extract using tweepy which is an API for twitter. First we scrape only 100 followers for Samsung and Huawei. Then we visualize it normally. After that, we scrape another first 5000 followers from the 100 followers that we scrape later on. For Samsung, we got total of 5940 nodes and 5941 edges in the network while Huawei, we got total of 10556 nodes and 10579 edges in the network.

## Centrality Measures

We only use 3 type of centrality measures which is degree centrality, eigenvector centrality and page rank centrality. Degree Centrality is to measure how many nodes are connected to the brand. The degree centrality for a node is simply its degree. For degree centrality, higher values mean that the node is more central and vice-versa.

Eigenvector centrality is to measure the influence of a node in a network. A high eigenvector score means that a node is connected to many nodes who themselves have high scores and vice-versa.

Page rank is used to evaluate the quality and quantity of the links to a page. In our cases, it is to see how popular the brand is by calculating the value of the edges that link to the brand.

Brands	Degree Centrality	Eigenvector Centrality	Page Rank
Huawei	0.009474182851729039	0.010217521076635488	0.0036287085778269686
Samsung	0.016837851490149856	0.011752899619136217	0.006565344263411281

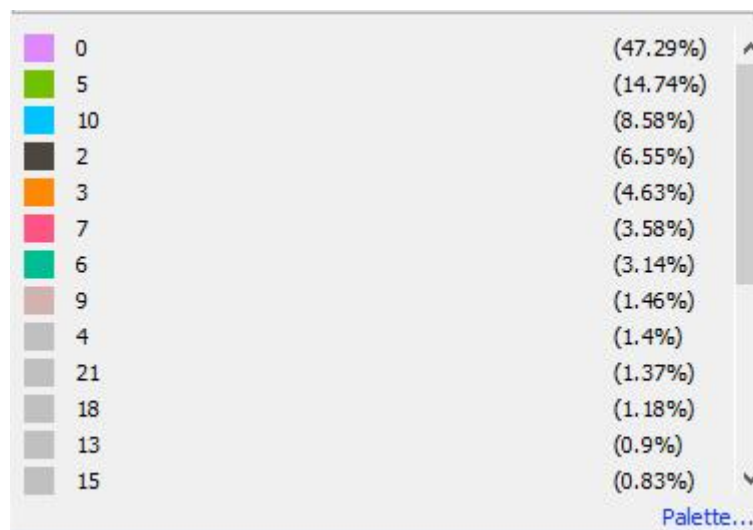
For degree centrality, Samsung brand achieved the highest score of the centrality which indicated there are many connections (edges) for the followers or friends towards the brand and vice-versa. In contrast, Huawei has the lowest score of the centrality.

For eigenvector centrality, the Samsung brands showed many influences of a node in a network. A high eigenvector score means that a node is connected to many nodes who themselves have high scores and vice-versa. Meanwhile, the Huawei brand has the lowest eigenvector score which indicates the least influences of a node in a network.

For page rank, it can see that the Samsung brand has the highest page rank score among the others. Huawei have the lowest page rank score compared to the Samsung brand. Therefore we can see that Samsung is more popular than the Huawei brands.

## HuaweiMobile

HuaweiMobile has a total 10556 nodes, 10579 edges and average degree of 2.0044 in the network. From there we found about 23 communities has been form over the network.



*Figure 1: Top community form in Huawei Network*

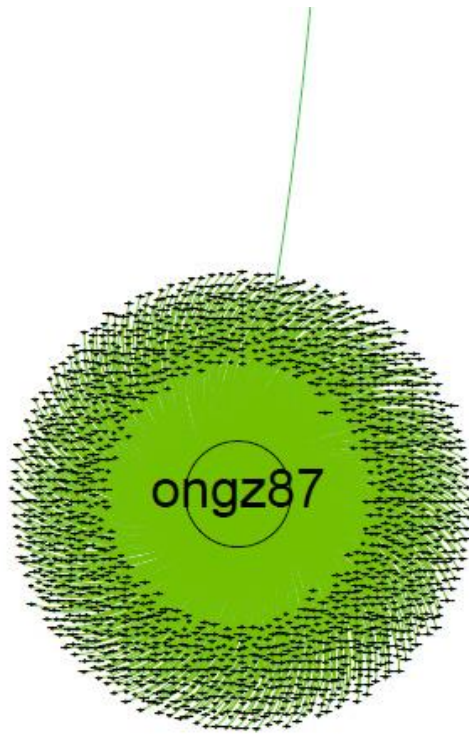
Figure above show the top community from in these network. We will be discussing 1 by 1 of each of the top form community



# Rhadebelihle

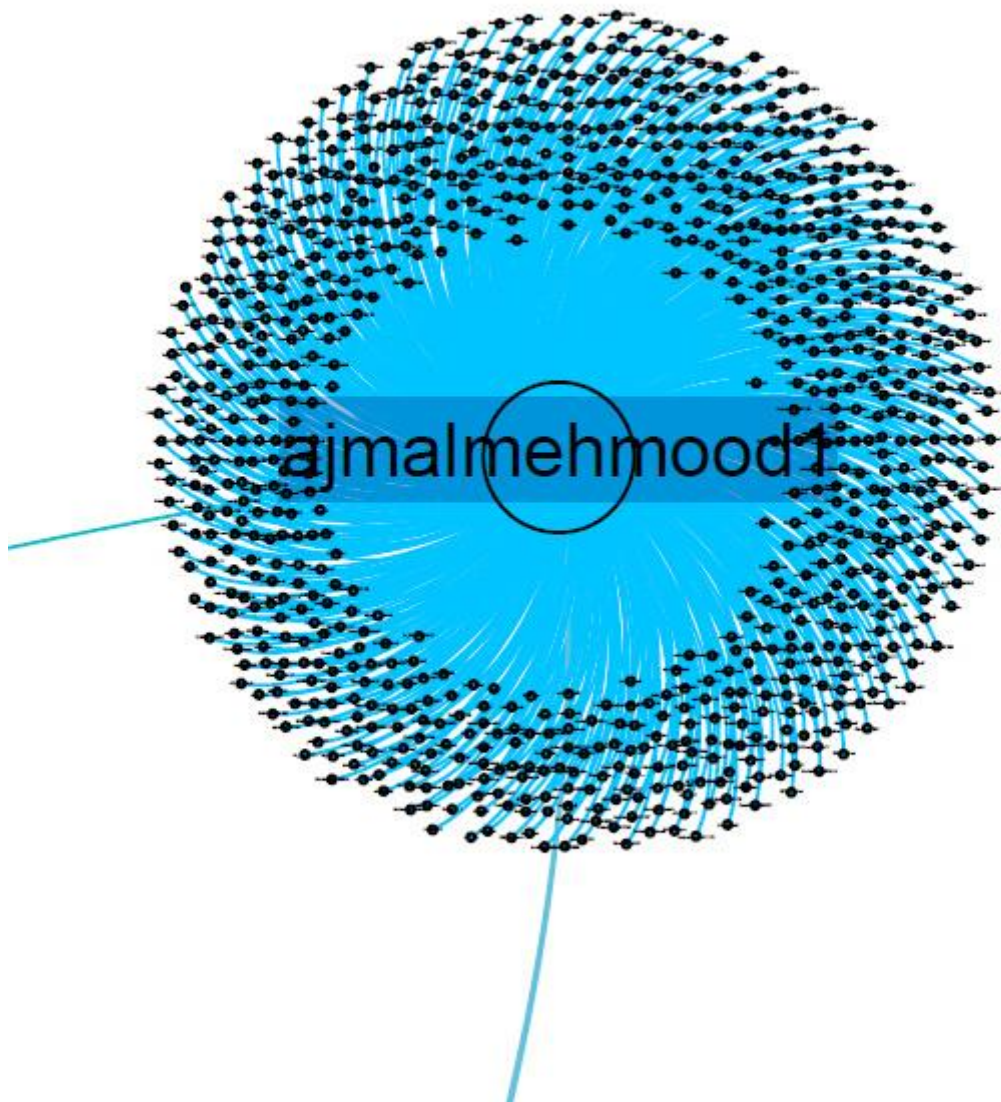
*Figure 2: Top 1 community form in Huawei Network*

Figure above show the biggest community form in the network. About 4992 out of 10556 nodes in this network form this community and in the center which is the. This user is social influencer talking about wellbeing and religions stuff. This user have 124.7k followers and we only extract 5k due to computation power. From the 5k nodes, some of them are student, some of them are small startup, some of them are news reporting channel, some also the same as him which is social influencer talking about well being stuff.



*Figure 3: Top 2 community form in Huawei Network*

Figure above show the 2<sup>nd</sup> biggest community form in the network. About 1556 out of 10556 nodes in this network form this community and in the center which is @ongz87. This user is a football fans and movie critic and most of the follower is from Indonesia.



*Figure 4: Top 3 community form in Huawei Network*

Figure above show the 3<sup>rd</sup> biggest community form in the network. About 906 out of 10556 nodes in this network form this community and in the center which is @ajmalmehmood1. This user is a radiologist which his profession is related to technology stuff. Most of his followers, is either a politician, journalist or tech nerds.



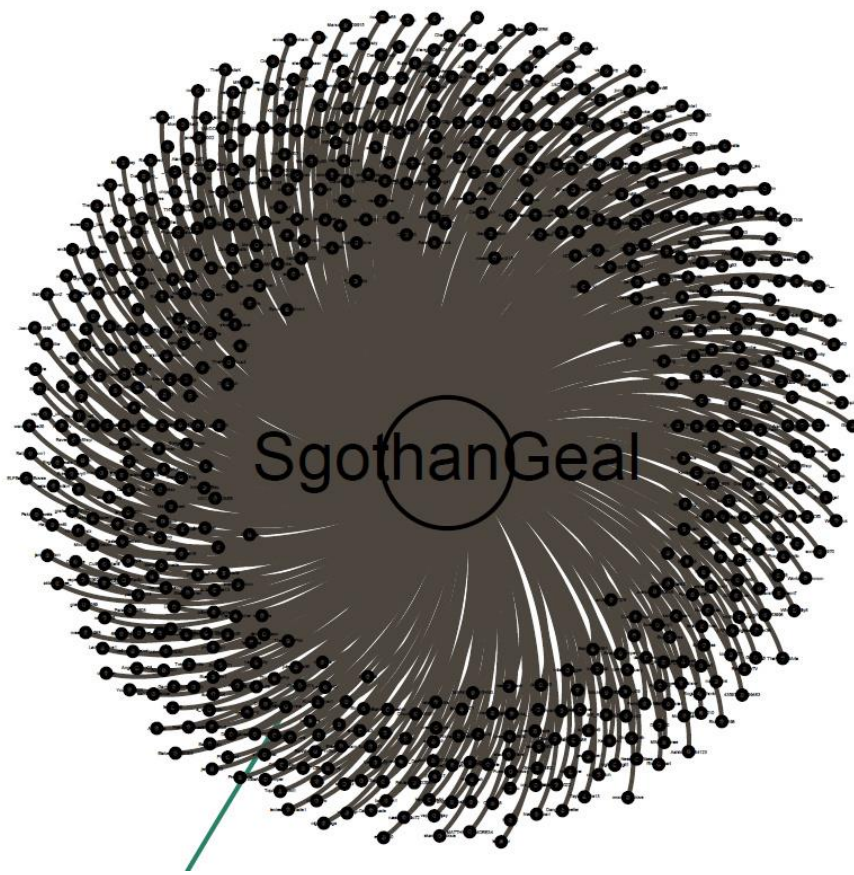


Figure 5: Top 4 community form in Huawei Network

Figure above show the 4<sup>th</sup> biggest community form in the network. About 906 out of 10556 nodes in this network form this community and in the center which is @SgothanGeal. This user is seller on vape product and flavor. Most of his follower are also that like to vape.

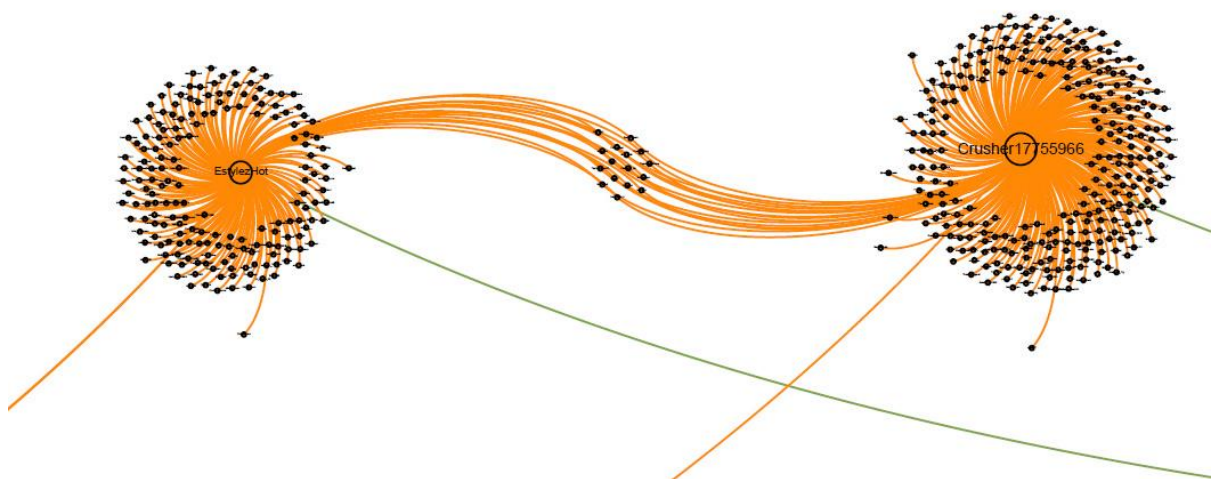
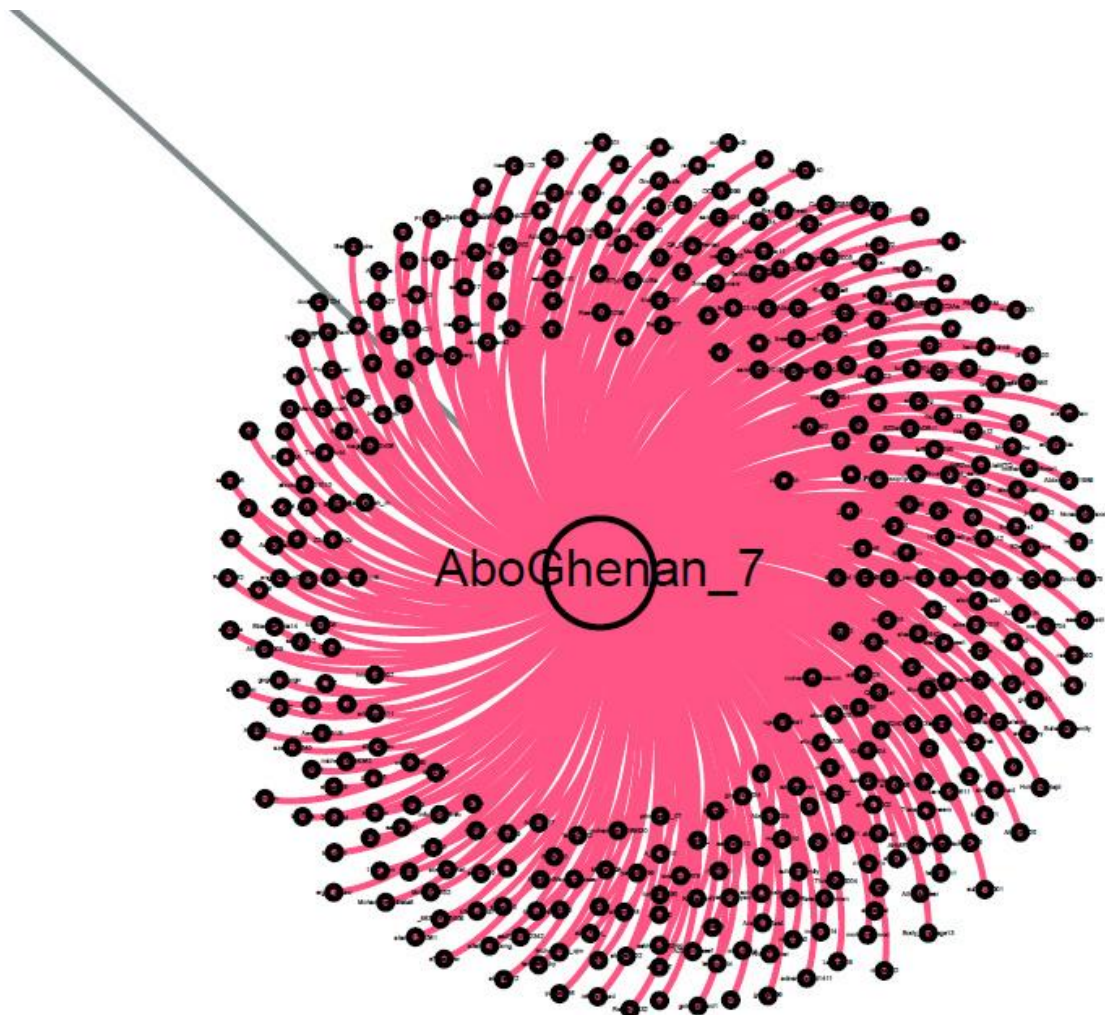


Figure 6: Top 5 community form in Huawei Network

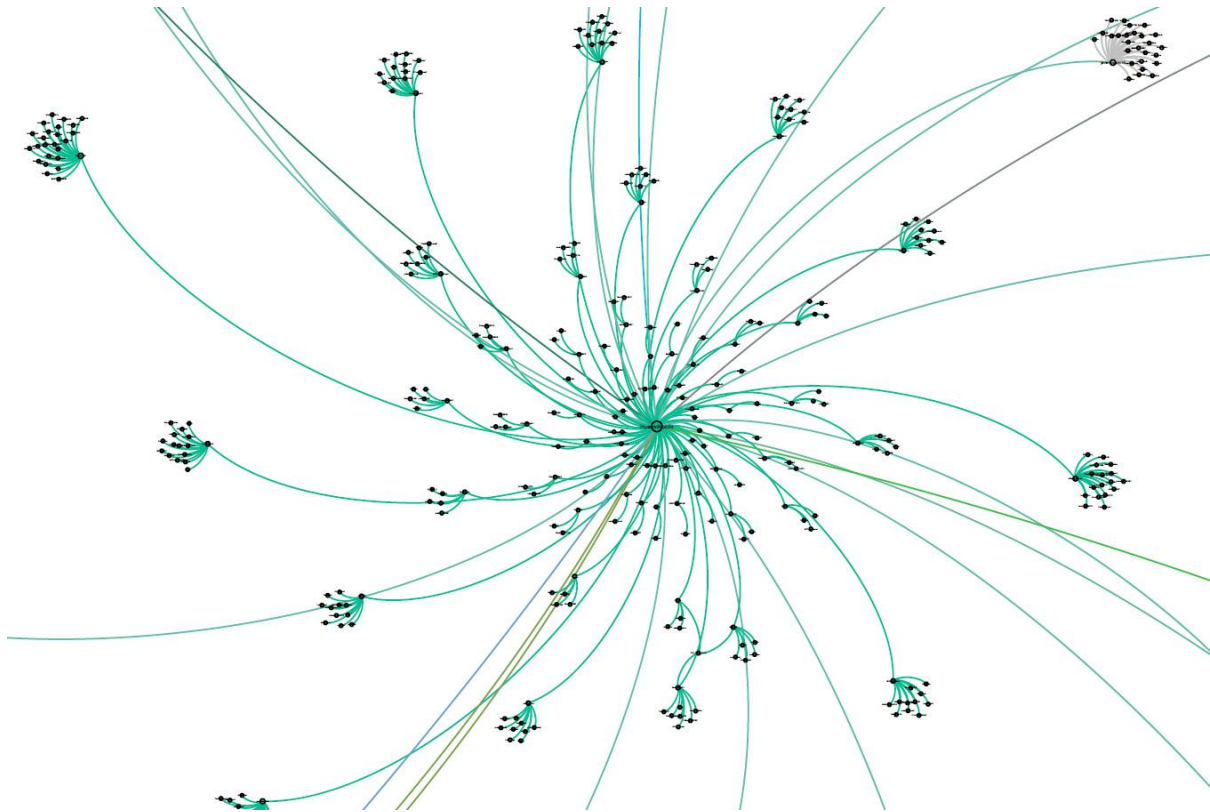


Figure above show the 5<sup>th</sup> biggest community form in the network. About 489 out of 10556 nodes in this network form this community with 2 main nodes which is @EstylezHot and @Crusher17755966 . @EstylezHot is a pages that sell fashion accessories while @Crusher17755966 doesn't have much information about him other than most of his retweet are about shoes. This community is form due to their background as most of the user is from Africa side.



*Figure 7: Top 6 community form in Huawei Network*

Figure above show the 6<sup>th</sup> biggest community form in the network. About 378 out of 10556 nodes in this network form this community with the main node AboGhenan\_7. @AboGhenan\_7 is a tech nerds where most of his retweet are about mobile phone. Most of the followers of his are from the same country as him.



*Figure 8: Top 7 community form in Huawei Network*

Figure above show the 7<sup>th</sup> biggest community form in the network. About 331 out of 10556 nodes in this network form this community and in the center which is our main target @HuaweiMobile. This community is form because each of Huawei's follower have their own followers at least 4 to 20 followers.

# SamsungMobile

SamsungMobile has a total 5940 nodes, 5941 edges and average degree of 2.0003 in the network. From there we found about 18 communities has been form over the network.

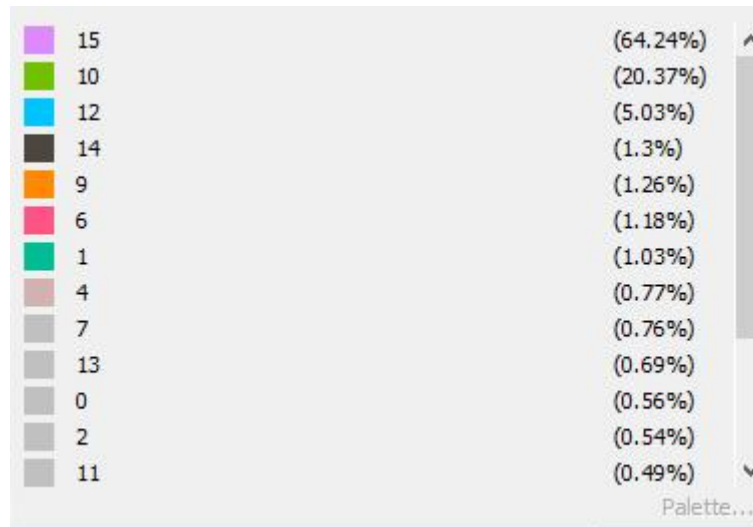


Figure 9: Top Community form in Samsung Network

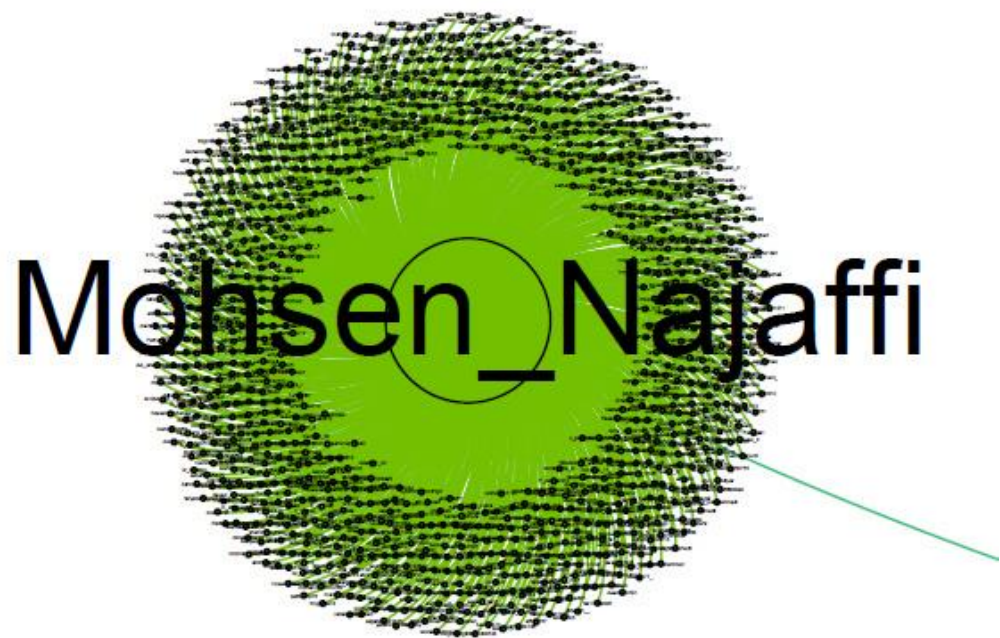
Figure above show the top community from in these network. We will be discussing 1 by 1 of each of the top form community



# ismailduran66

*Figure 10: Top 1 Community form in Samsung Network*

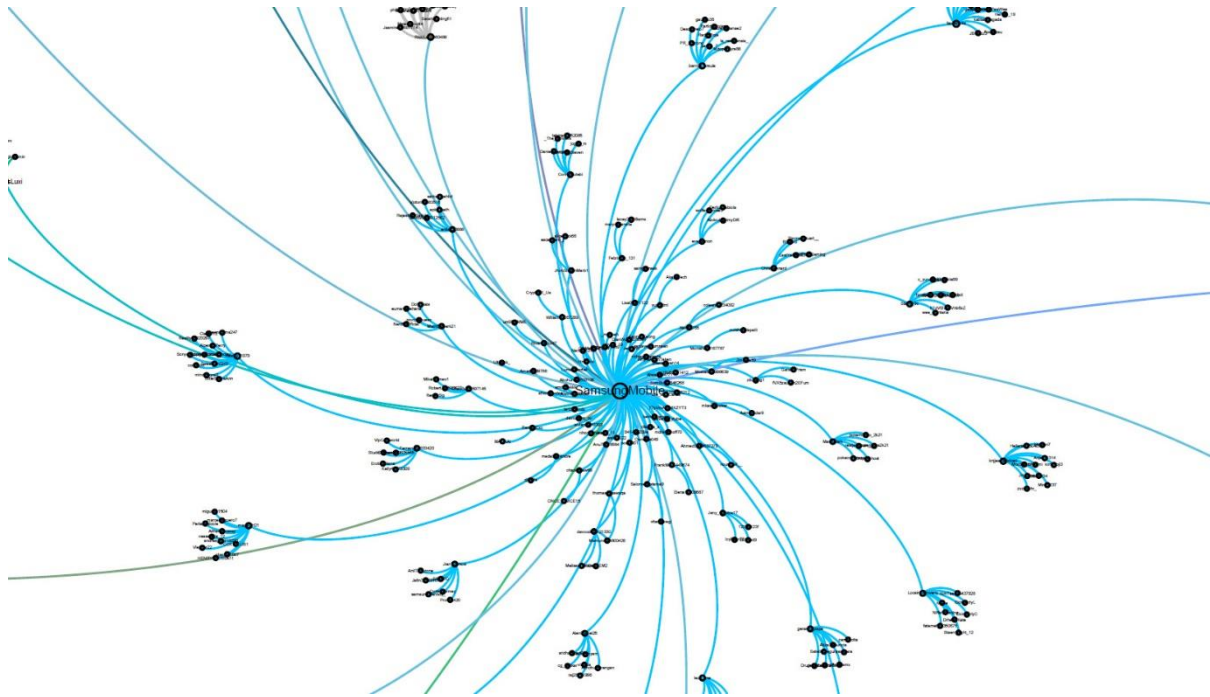
Figure above show the biggest community form in the network. About 3816 out of 5940 nodes in this network form this community and in the center which is the @ismailduran66. This user is from Germany and is an Islamic person. Most of his follower is from the same country as him which is Germany.



*Figure 11: Top 2 Community form in Samsung Network*

Figure above show the 2<sup>nd</sup> biggest community form in the network. About 1210 out of 5940 nodes in this network form this community and in the center which is the @Mohsen\_Najaffi. This user is from Iran most of his tweet post is regarding about politician issue in Iran. Most of his followers are from the same country and has the same interest as he is which is regarding politician issue in Iran.





*Figure 12: Top 3 Community form in Samsung Network*

Figure above show the 3<sup>rd</sup> biggest community form in the network. About 299 out of 5940 nodes in this network form this community and in the center which is also our main target @SamsungMobile. Why this community is form is because each followers of SamsungMobile have at least 2 to 10 of their own followers.



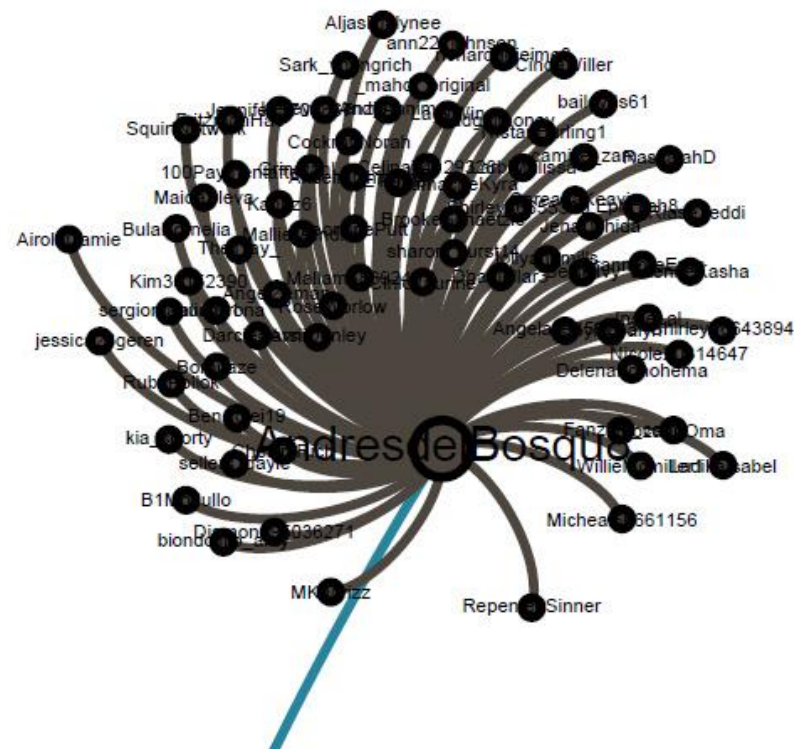


Figure 13: Top 4 Community form in Samsung Network

Figure above show the 4<sup>th</sup> biggest community form in the network. About 77 out of 5940 nodes in this network form this community and in the center is @AndresdelBosqu8. This user is a football fans. Most of his followers is either bot or adult content creator.

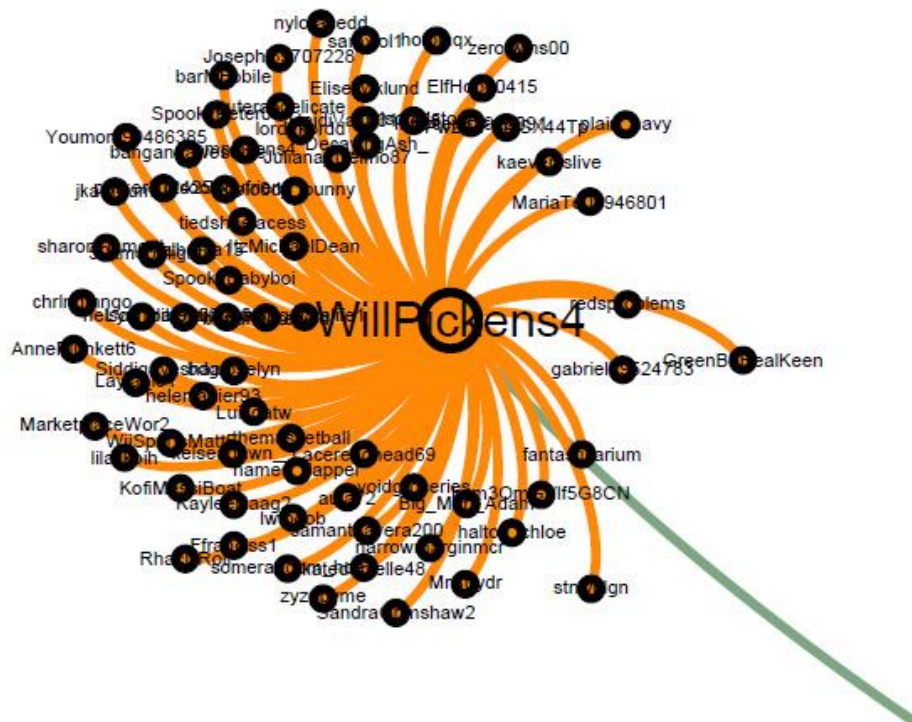


Figure 14: Top 5 Community form in Samsung Network

Figure above show the 5<sup>th</sup> biggest community form in the network. About 75 out of 5940 nodes in this network form this community and in the center is @ WillPickens4. This user is a gamer and meme sharer. As for his followers, we cant seem to find any correlation between them.



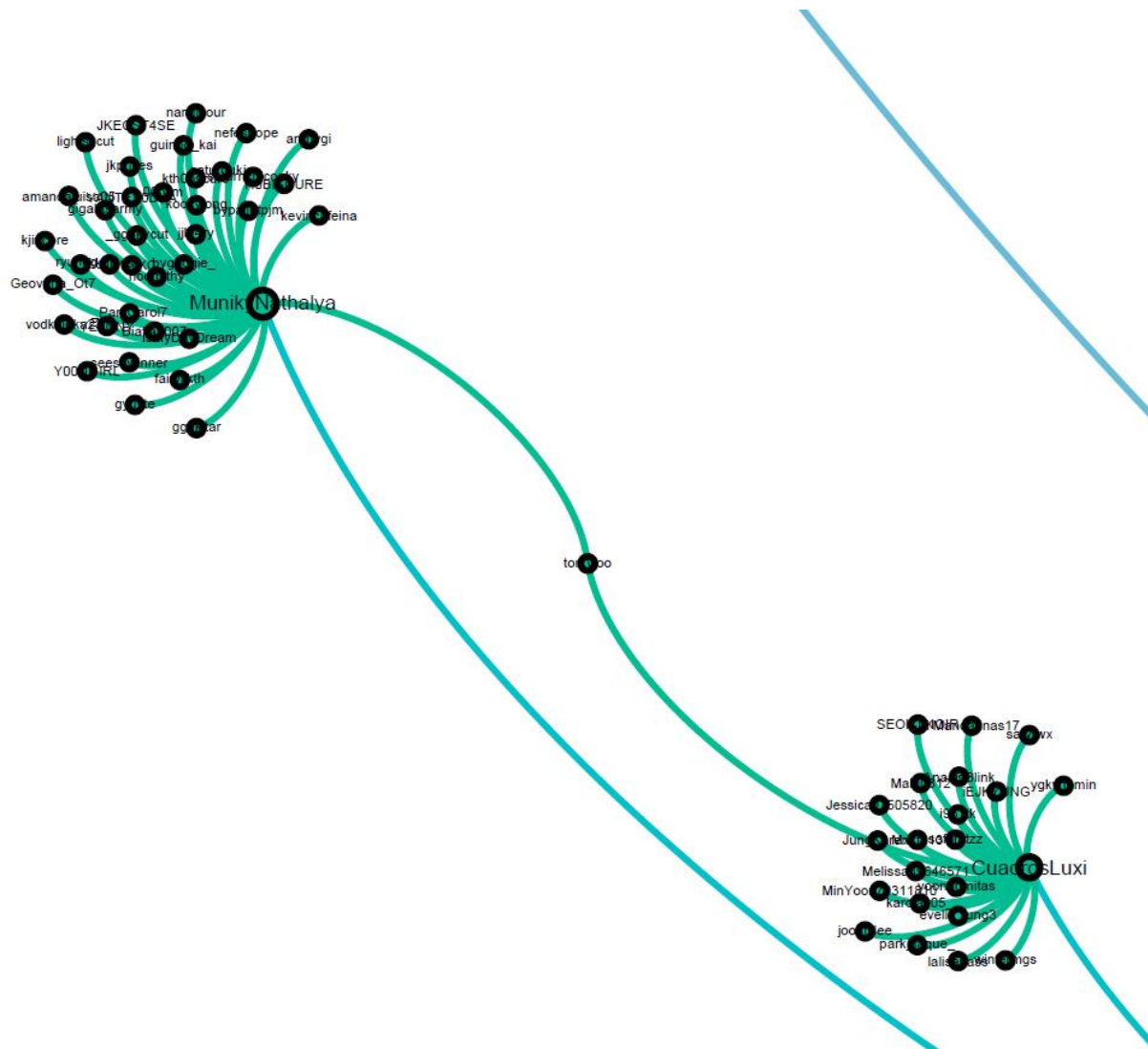


Figure 16: Top 7 Community form in Samsung Network

Figure above show the 7<sup>th</sup> biggest community form in the network. About 61 out of 5940 nodes in this network form this community and there is 2 center nodes which is @MunikyNathalya and @CuadrosLuxi. @MunikyNathalya is a BTS fans and @CuadrosLuxi is also a BTS fans but this user loves all korean bands like blackpink and other solo korean actor. Both of these account speak in the same language which is spanish.