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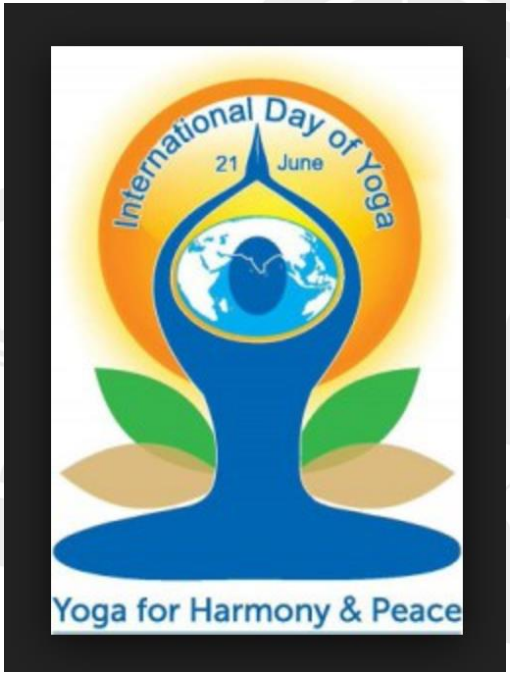
Analyzing Twitter Networks on International Yoga day

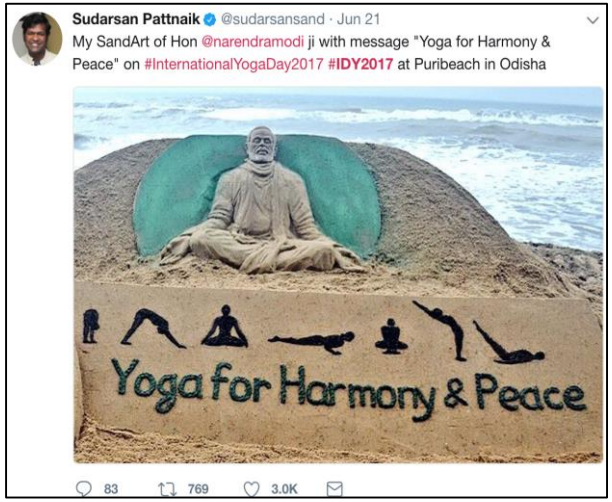
Vaibhav Prasad Desai

BIA-658-A
2017 Summer Session 1
Prof: Elizabeth Gomez



Introduction

- Twitter is one of the leading social media sites, a “micro blogging” platform service where users post and interact with messages, "tweets", media (pictures, videos) restricted to 140 characters. Users registered on it can post while non registered ones can read them.
- It has become a leading platform to express views, communicate and publish news.
- Track the world tweets limited to 10000 tweets (note: free Twitter API is limited to number of tweets to extract also the number is limited to get basic understanding of tweets)



Goal

- A network graph basically consists of nodes (in this case Twitter users) and the connections between them, which are called edges. We're going to import nodes and edges for all the users who've tweeted using the several hashtags tracking International Yoga Day 21st June 2017. To see how these nodes (users) are connected and significant contributors.
- We want to understand/identify who are the users or group of users that tweeting/engaging on this topic.

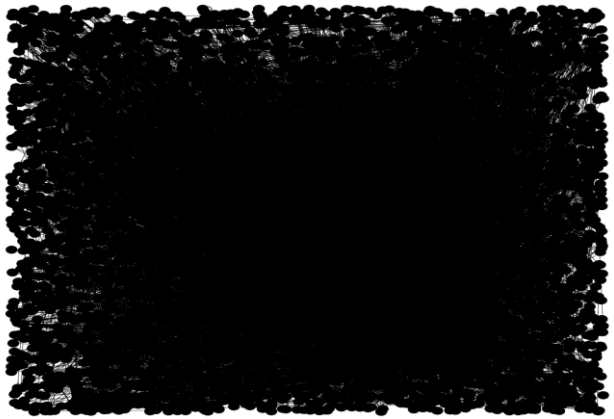
Data preprocessing and Data set

- Will be using R program to track tweets targeting hashtags: #yogaday OR #IDY2017 OR #InternationalYogaday OR #Yogaday2017 along with data preprocessing and filters with minimum no. of tweets.
- Using the Twitter API and twitter library tweets are captured based on hashtags.
- After the filtering the captured tweets are stored as dataframe which are transformed to edges (twitter text) and nodes.

Id	Label
n0	
n232	airnewsalerts
n261	AkashvaniAIR
n353	AmitShah
n398	ANI_news
n430	anjanaomkashyap
n592	ArvindKejriwal
n600	AsaramBapuJi
n869	BJP4India
n1277	dr_maheshsharma
n1334	EOIBeijing
n1605	Gurmeetramrahim
n1618	Gurpanthinsan
n1773	himantabiswa
n3229	MVenkaiahNaidu
n3276	narendramodi
n3279	narendramodi #Int...
n3351	ndtv
n3668	PIB_India
n3719	PMOIndia
n4476	rubyvicky_i
n5063	smritiirani
n5150	SriSri
n5191	sudarsansand
n5441	tarsem_insan
n5527	timesofindia
n5707	vijayrupanibjp
n5888	Yogitainsa

Statistics and Data Visualization

- From the above transformations of dataset, output is exported as GraphML file.
- This GraphML file consisting of 10000 tweets is opened via Gephi.
- This is chosen as directed graph.
- There are 5919 nodes and 18598 edges.



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The grey chaos layout is changed by applying ForceAtlas2 with scaling 3.0.

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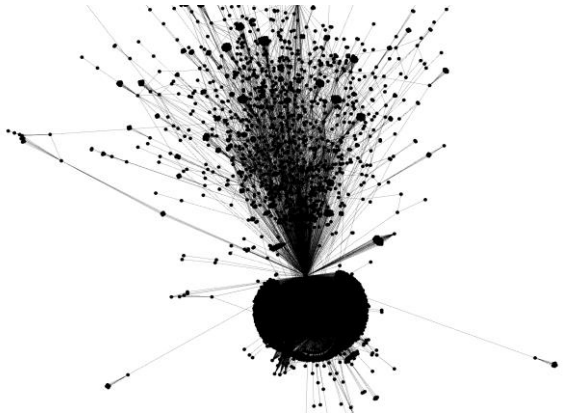
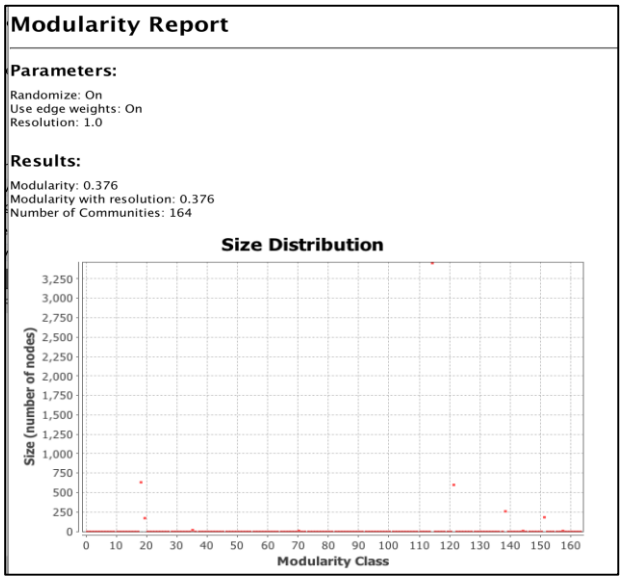
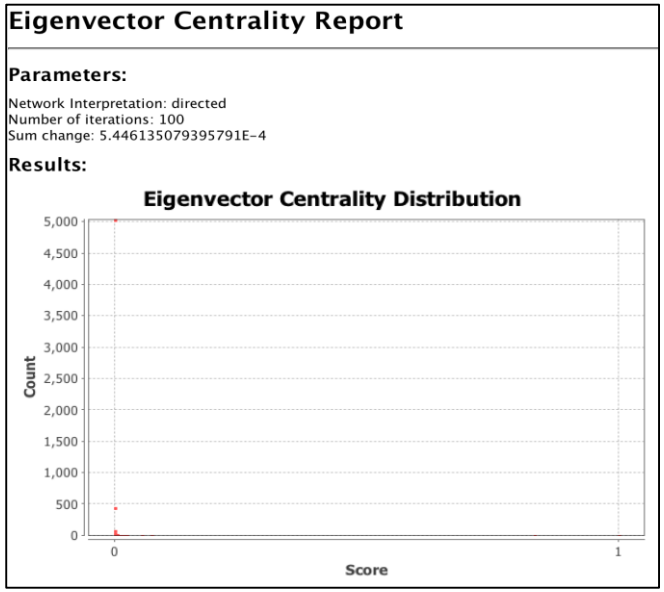


Statistics and Data Visualization

- **Modularity** and **Eigenvector centrality**: Eigenvector centrality is a useful way of measuring how important a node is within its network.

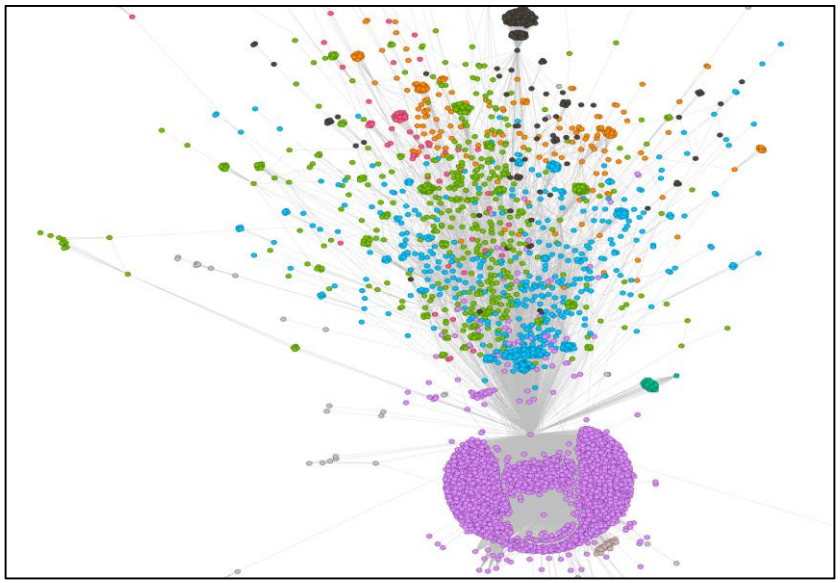


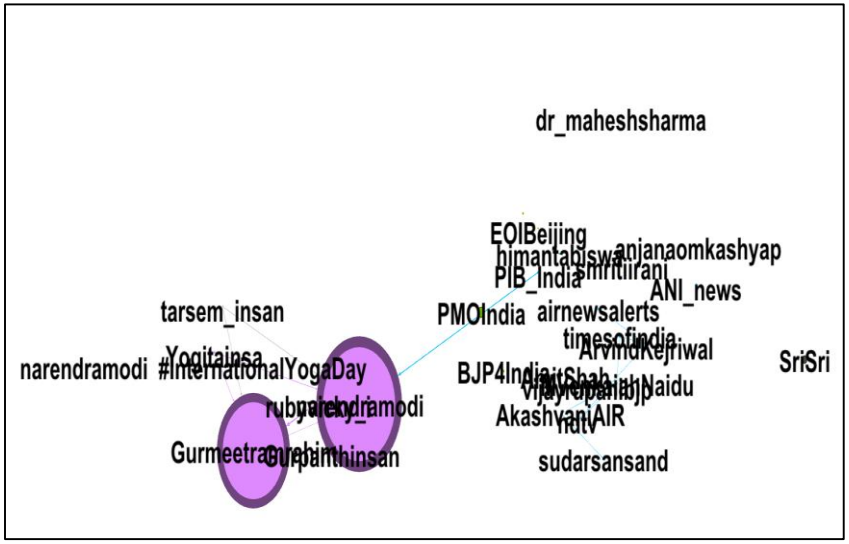


Id	Label	...	Modularity Class	Eigenvector Centrality
n0			64	0.015521
n232	airnewsalerts		9	0.016827
n261	AkashvaniAIR		9	0.005236
n353	AmitShah		64	0.016563
n398	ANI_news		9	0.024337
n430	anjanaomkashyap		136	0.012166
n592	ArvindKejriwal		9	0.012174
n600	AsaramBapuJi		136	0.009955
n869	BJP4India		64	0.022883
n1277	dr_maheshsharma		60	0.014465
n1334	EOIBeijing		64	0.00975
n1605	Gurmeetramrahim		117	0.832303
n1618	Gurpanthinsan		117	0.011977
n1773	himantabiswa		95	0.010216
n3229	MVenkaiahNaidu		9	0.016599
n3276	narendramodi		117	1.0
n3279	narendramodi #Int...		117	0.009989
n3351	ndtv		9	0.010219
n3668	PIB_India		9	0.013636
n3719	PMOIndia		64	0.072936
n4476	rubyvicky_i		117	0.012494
n5063	smritiirani		64	0.012178
n5150	SriSri		52	0.054781
n5191	sudarsansand		9	0.020327
n5441	tarsem_insan		147	0.010642
n5527	timesofindia		9	0.021655
n5707	vijayrupanibjp		64	0.019003
n5888	Yogitainsa		117	0.016077

Statistics and Data Visualization

- **Groupings** based on modularity class.
- We want the nodes' size to reflect how important they are to the network achieved using **Eigenvector centrality.**
- **Only those labels are displayed.**
- **CONCLUSION:** We do see the major communities speaking on this are the governments and Prominent Yoga Gurus.





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Thank You

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