CSE 472 Social Media Mining

Project I: Social Media Data Analysis

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DECLARATION

I hereby declare that the project titled, **Social Media Data Analysis**, is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person not material which has been accepted for the award of any other degree or diploma of the university or any other institute of higher learning, except where due acknowledgement and reference has been made in the text.

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Date: 18th September 2022

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ABSTRACT

In this project, we will crawl through social media content related to any specific topic and develop a graph with various users of the social media as nodes and two users connected if they got influenced or affected by each other. In this exercise we are crawling through twitter posts related to covid 19 and among the tweets that are scraped, we are categorizing the data into two sections: tweets generated from users who supports covid19 vaccine and tweets generated form users who does not support covid-19 vaccine. After dividing the data, for each of the data collection, we will develop a directed graph with nodes as users who has tweeted related to covid-19 and edges formed If the tweet itself is retweeted on some other original tweet or if they mentioned any other users in their tweet or not.

ACKNOWLEDGEMENT

I would like to express my deepest appreciation to all those who provided us the possibility to work in this project. A special gratitude I give to out professor Huan Liu, whose contribution in stimulating suggestions and encouragement, helped us to coordinate my project.

Chapter 1
Collect the Data

1.1 Get Elevated Twitter Access:

1. Visit https://developer.twitter.com and apply for a elevated developer account access from our asu mail id.
2. It will take 2 days to get the elevated developer account access.
3. The keys required for crawling the data over the twitter will be:

```
api_key = '8RQ5xPiDzAg1duMVpj9pWYEdX'
api_key_secret = 'BqfcElqH5G6yAFHafuMQWO5ljp8Bosa402DzldWgc3mzCOSrSB'
access_token = '1570146620653850629-erndFgwUuLXuK8prEhhrpkqlBUICih'
access_token_secret = 'hwjy8IzsfECPVje0SAzdg3YorFifjAZbpBBgmLxBxnGVc'
```

1.2 Create Crawling API Object:

1. We are using API based crawling in this project to scrape the tweets from twitter related
2. An external Library called **Tweepy** is used for crawling the data.
3. We are exploiting cursor API of tweepy library with a query parameter to crawl the data
4. For query parameter we are utilizing a combination of 5 hashtags, The hashtags we used for :
    a. Pro vaccine: **'#GetVaccinated','#VaccineMandate','#VaccinesWork','#FullyVaccinated', 'GetVaccinatedOrGetCovid'**
    b. Anti-Vaccine: **'#vaccineinjury','#NoVaccineMandates','#SayNoToVaccineMandate', '#NoVaxMandates','#AntiVaccine'**

5. API object is created after successful authentication to twitter oauth2.0 layer using access keys:

```
def getTweetAPI():

    api_key = '8RQ5xPiDzAg1duMVpj9pWYEdX'
    api_key_secret = 'BqfcElqH5G6yAFHafuMQWO5ljp8Bosa402DzldWgc3mzCOSrSB'
    access_token = '1570146620653850629-erndFgwUuLXuK8prEhhrpkqlBUICih'
    access_token_secret = 'hwjy8IzsfECPVje0SAzdg3YorFifjAZbpBBgmLxBxnGVc'


    auth = tweepy.OAuth1UserHandler(api_key, api_key_secret)
    auth.set_access_token(access_token, access_token_secret)
    return tweepy.API(auth)
```

1.3 Scrape 500 tweets for each anti and pro vaccine:

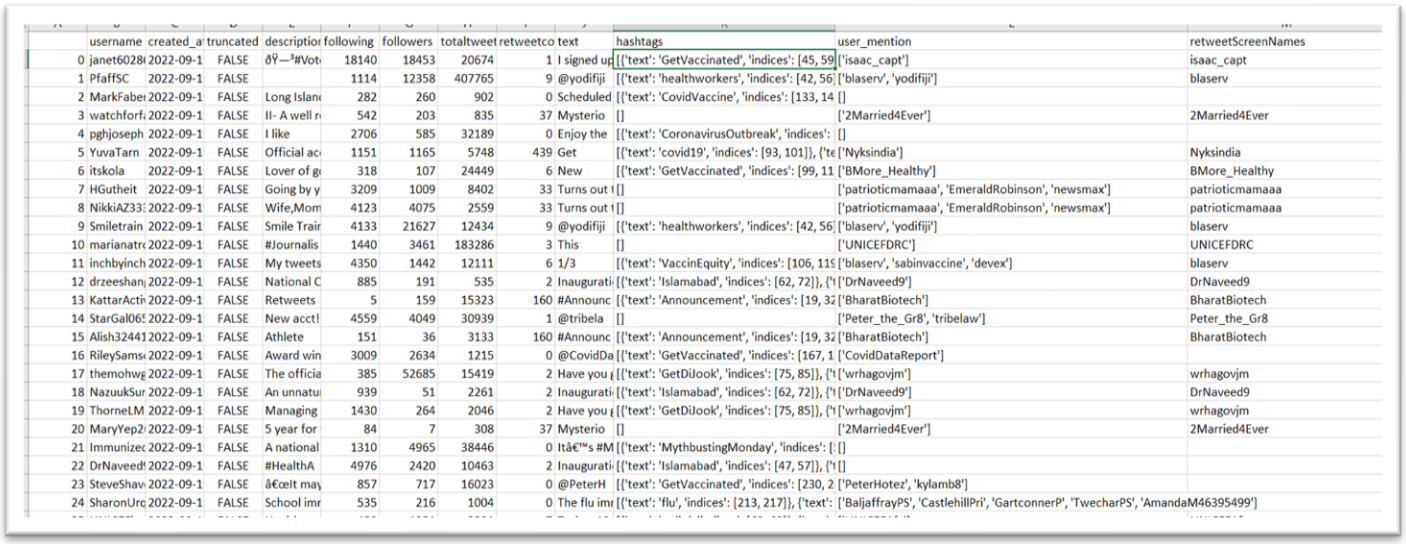
1. Each single tweet data which we are crawling contains properties:
    a. **Username**: screenname of the user who has tweeted.
    b. **Created at**: date at which tweeted
    c. **Truncated**:
    d. Description
    e. **Following**: following of the user
    f. **Followers**: followers of the user
    g. **Total tweets**: total tweets done by the user who has tweeted this tweet
    h. **Retweet count:** how many retweets has made on the tweet
    i. **Text**: text of the tweet
    j. **Hashtags**: list of hashtags present in the tweet
    k. **User mention**: list of all the screennames mentioned in the tweet
    l. **retweet Screennames**: If retweeted screenname of the owner of the original tweet.

2. the Code for generation of the content using cursor API of **tweepy** API object is :

```
def scrape(words, date_since,numtweet, api,filename):
    cols=['username','created_at','truncated','description','following','followers','totaltweets','retweetcount','text','hashtags','user_mention','retweetScreenNames']
    db = pd.DataFrame(columns=cols)
    tweets = tweepy.Cursor(api.search_tweets,words, lang="en",since_id=date_since,tweet_mode='extended').items(numtweet)
    i = 1
    for tweet in tweets:
        username = tweet.user.screen_name
        created_at=tweet.created_at
        truncated=tweet.truncated
        description = tweet.user.description
        following = tweet.user.friends_count
        followers = tweet.user.followers_count
        totaltweets = tweet.user.statuses_count
        retweetcount = tweet.retweet_count
        hashtags = tweet.entities['hashtags']
        mention=tweet.entities['user_mentions']
        mention_screennames=getMentionScreenname(mention)
        retweetScreenNames=''
        try:
            text = tweet.retweeted_status.full_text
            retweetScreenNames=tweet.retweeted_status.user.screen_name
        except AttributeError:
            text = tweet.full_text
        ith_tweet = [username,created_at,truncated, description, following,followers, totaltweets,retweetcount, text, hashtags,mention_screennames,retweetScreenNames]
        db.loc[len(db)] = ith_tweet
        i = i + 1
    return db
```

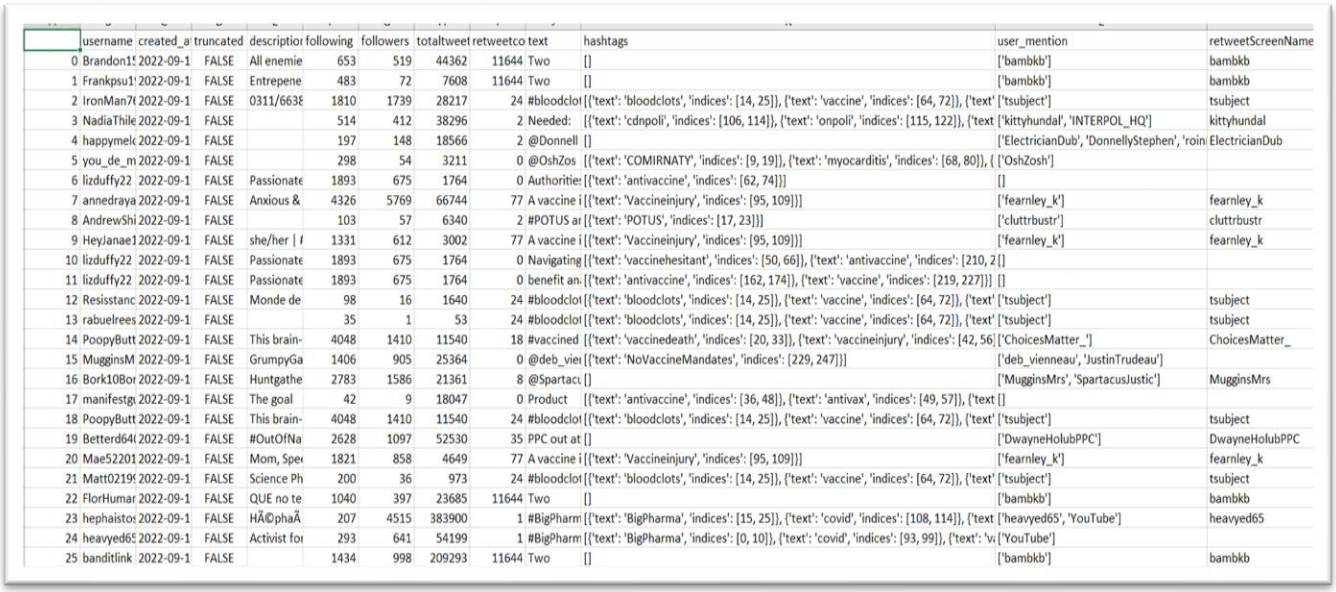
1.4 Scraped Data:

1.4.1 Pro vaccine tweets in CSV:



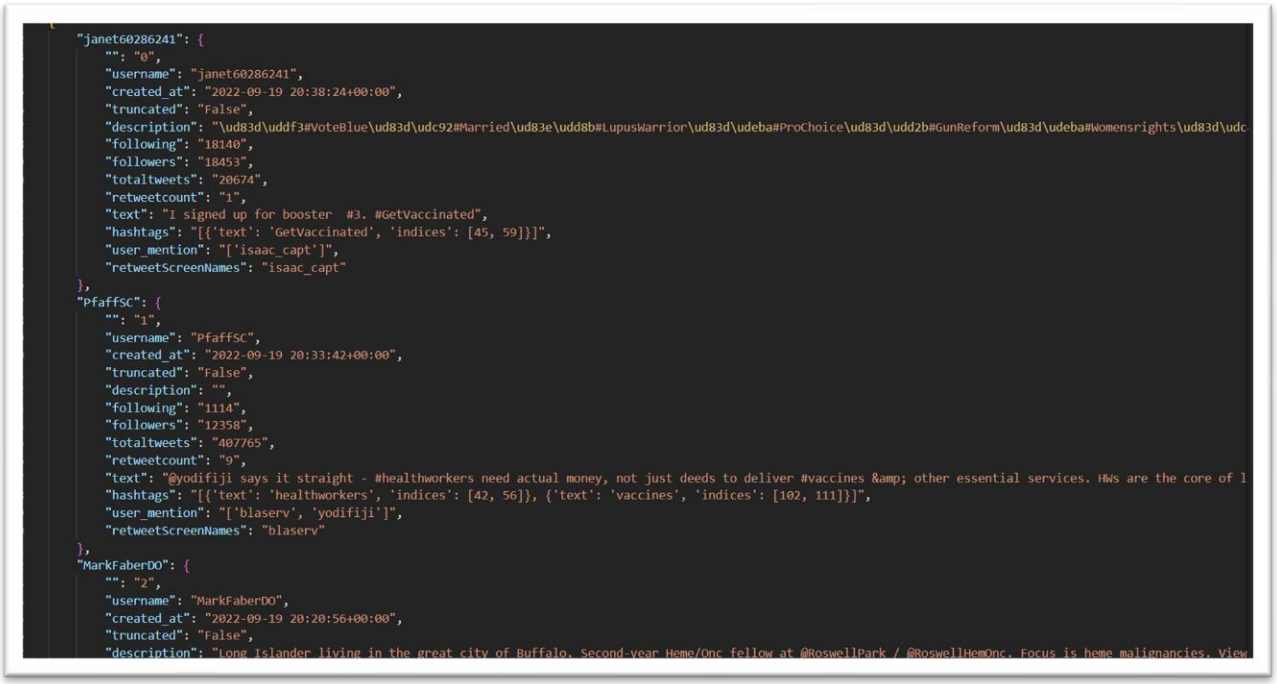
	username	created_a	truncated	descriptio	following	followers	totaltweet	retweetco	text	hashtags	user_mention	retweetScreenNames
0	janet6028	2022-09-1	FALSE	ðŸ—³#Vot	18140	18453	20674	1	I signed up	[{'text': 'GetVaccinated', 'indices': [45, 59	['isaac_capt']	isaac_capt
1	PfaffSC	2022-09-1	FALSE		1114	12358	407765	9	@yodifiji	[{'text': 'healthworkers', 'indices': [42, 56	['blaserv', 'yodifiji']	blaserv
2	MarkFabe	2022-09-1	FALSE	Long Islan	282	260	902	0	Scheduled	[{'text': 'CovidVaccine', 'indices': [133, 14	[]	
3	watchforf	2022-09-1	FALSE	II- A well r	542	203	835	37	Mysterio	[]	['2Married4Ever']	2Married4Ever
4	pghjoseph	2022-09-1	FALSE	I like	2706	585	32189	0	Enjoy the	[{'text': 'CoronavirusOutbreak', 'indices':	[]	
5	YuvaTarn	2022-09-1	FALSE	Official ac	1151	1165	5748	439	Get	[{'text': 'covid19', 'indices': [93, 101]}, {'te	['Nyksindia']	Nyksindia
6	itskola	2022-09-1	FALSE	Lover of g	318	107	24449	6	New	[{'text': 'GetVaccinated', 'indices': [99, 11	['BMore_Healthy']	BMore_Healthy
7	HGutheit	2022-09-1	FALSE	Going by y	3209	1009	8402	33	Turns out t	[]	['patrioticmamaaa', 'EmeraldRobinson', 'newsmax']	patrioticmamaaa
8	NikkiAZ33	2022-09-1	FALSE	Wife,Mom	4123	4075	2559	33	Turns out t	[]	['patrioticmamaaa', 'EmeraldRobinson', 'newsmax']	patrioticmamaaa
9	Smiletrain	2022-09-1	FALSE	Smile Trair	4133	21627	12434	9	@yodifiji	[{'text': 'healthworkers', 'indices': [42, 56	['blaserv', 'yodifiji']	blaserv
10	marianatr	2022-09-1	FALSE	#Journalis	1440	3461	183286	3	This	[]	['UNICEFDRC']	UNICEFDRC
11	inchbyinch	2022-09-1	FALSE	My tweets	4350	1442	12111	6	1/3	[{'text': 'VaccinEquity', 'indices': [106, 115	['blaserv', 'sabinvaccine', 'devex']	blaserv
12	drzeeshan	2022-09-1	FALSE	National C	885	191	535	2	Inauguratı	[{'text': 'Islamabad', 'indices': [62, 72]}, {'t	['DrNaveed9']	DrNaveed9
13	KattarActi	2022-09-1	FALSE	Retweets	5	159	15323	160	#Announc	[{'text': 'Announcement', 'indices': [19, 32	['BharatBiotech']	BharatBiotech
14	StarGal065	2022-09-1	FALSE	New acct!	4559	4049	30939	1	@tribela	[]	['Peter_the_Gr8', 'tribelaw']	Peter_the_Gr8
15	Alish32441	2022-09-1	FALSE	Athlete	151	36	3133	160	#Announc	[{'text': 'Announcement', 'indices': [19, 32	['BharatBiotech']	BharatBiotech
16	RileySams	2022-09-1	FALSE	Award win	3009	2634	1215	0	@CovidDa	[{'text': 'GetVaccinated', 'indices': [167, 1	['CovidDataReport']	
17	themohwg	2022-09-1	FALSE	The officia	385	52685	15419	2	Have you g	[{'text': 'GetDiJook', 'indices': [75, 85]}, {'t	['wrhagovjm']	wrhagovjm
18	NazuukSur	2022-09-1	FALSE	An unnatu	939	51	2261	2	Inauguratı	[{'text': 'Islamabad', 'indices': [62, 72]}, {'t	['DrNaveed9']	DrNaveed9
19	ThorneLM	2022-09-1	FALSE	Managing	1430	264	2046	2	Have you g	[{'text': 'GetDiJook', 'indices': [75, 85]}, {'t	['wrhagovjm']	wrhagovjm
20	MaryYep2	2022-09-1	FALSE	5 year for	84	7	308	37	Mysterio	[]	['2Married4Ever']	2Married4Ever
21	Immunizec	2022-09-1	FALSE	A national	1310	4965	38446	0	Itâ€™s #M	[{'text': 'MythbustingMonday', 'indices': [	[]	
22	DrNaveed	2022-09-1	FALSE	#HealthA	4976	2420	10463	2	Inauguratı	[{'text': 'Islamabad', 'indices': [47, 57]}, {'t	[]	
23	SteveShav	2022-09-1	FALSE	â€œIt may	857	717	16023	0	@PeterH	[{'text': 'GetVaccinated', 'indices': [230, 2	['PeterHotez', 'kylamb8']	
24	SharonUrq	2022-09-1	FALSE	School imr	535	216	1004	0	The flu imı	[{'text': 'flu', 'indices': [213, 217]}, {'text':	['BaljaffrayPS', 'CastlehillPri', 'GartconnerP', 'TwecharPS', 'AmandaM46395499']	

1.4.2 Anti Vaccine Tweets in CSV:



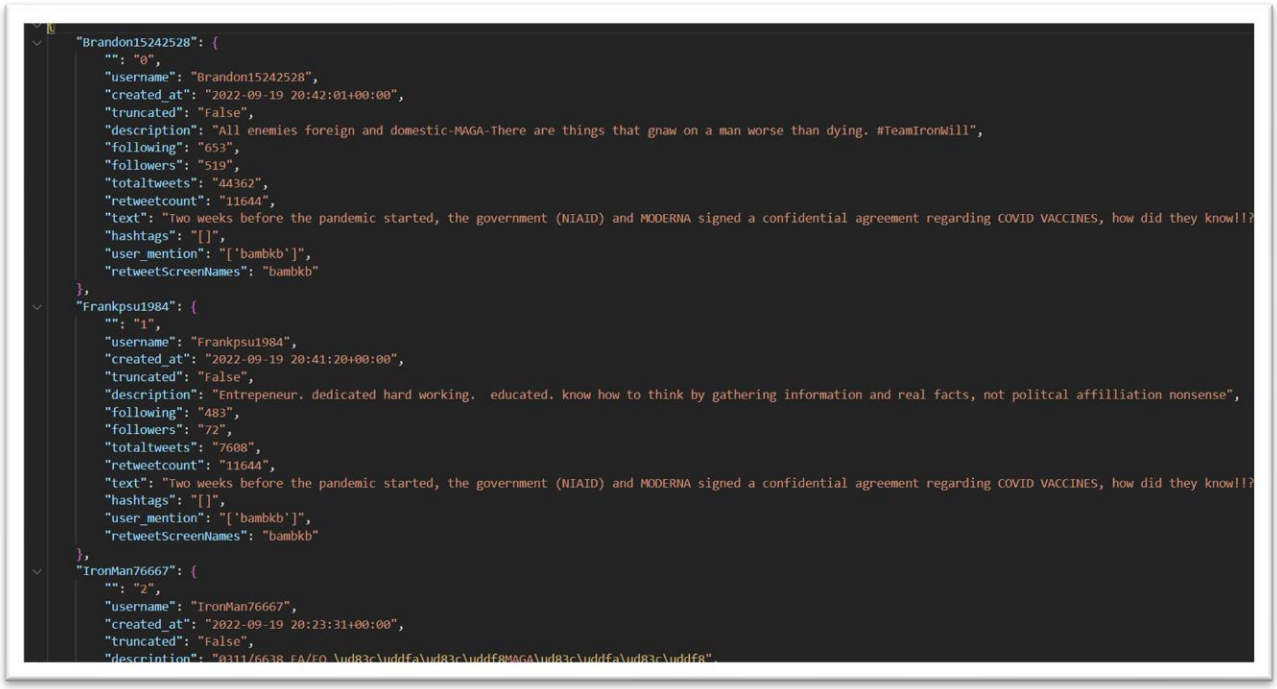
	username	created_a	truncated	descriptio	following	followers	totaltweet	retweetco	text	hashtags	user_mention	retweetScreenName
0	Brandon15	2022-09-1	FALSE	All enemie	653	519	44362	11644	Two	[]	['bambkb']	bambkb
1	Frankpsu1	2022-09-1	FALSE	Entrepene	483	72	7608	11644	Two	[]	['bambkb']	bambkb
2	IronMan7(	2022-09-1	FALSE	0311/6638	1810	1739	28217	24	#bloodclot	[{'text': 'bloodclots', 'indices': [14, 25]}, {'text': 'vaccine', 'indices': [64, 72]}, {'text'	['tsubject']	tsubject
3	NadiaThile	2022-09-1	FALSE		514	412	38296	2	Needed:	[{'text': 'cdnpoli', 'indices': [106, 114]}, {'text': 'onpoli', 'indices': [115, 122]}, {'text	['kittyhundal', 'INTERPOL_HQ']	kittyhundal
4	happymelc	2022-09-1	FALSE		197	148	18566	2	@Donnell	[]	['ElectricianDub', 'DonnellyStephen', 'roin	ElectricianDub
5	you_de_m	2022-09-1	FALSE		298	54	3211	0	@OshZos	[{'text': 'COMIRNATY', 'indices': [9, 19]}, {'text': 'myocarditis', 'indices': [68, 80]}, {	['OshZosh']	
6	lizduffy22	2022-09-1	FALSE	Passionate	1893	675	1764	0	Authorities	[{'text': 'antivaccine', 'indices': [62, 74]}]	[]	
7	annedraya	2022-09-1	FALSE	Anxious &	4326	5769	66744	77	A vaccine i	[{'text': 'Vaccineinjury', 'indices': [95, 109]}]	['fearnley_k']	fearnley_k
8	AndrewShi	2022-09-1	FALSE		103	57	6340	2	#POTUS ar	[{'text': 'POTUS', 'indices': [17, 23]}]	['cluttrbustr']	cluttrbustr
9	HeyJanae1	2022-09-1	FALSE	she/her |	1331	612	3002	77	A vaccine i	[{'text': 'Vaccineinjury', 'indices': [95, 109]}]	['fearnley_k']	fearnley_k
10	lizduffy22	2022-09-1	FALSE	Passionate	1893	675	1764	0	Navigating	[{'text': 'vaccinehesitant', 'indices': [50, 66]}, {'text': 'antivaccine', 'indices': [210, 2	[]	
11	lizduffy22	2022-09-1	FALSE	Passionate	1893	675	1764	0	benefit an	[{'text': 'antivaccine', 'indices': [162, 174]}, {'text': 'vaccine', 'indices': [219, 227]}]	[]	
12	Resisstanc	2022-09-1	FALSE	Monde de	98	16	1640	24	#bloodclot	[{'text': 'bloodclots', 'indices': [14, 25]}, {'text': 'vaccine', 'indices': [64, 72]}, {'text'	['tsubject']	tsubject
13	rabuelrees	2022-09-1	FALSE		35	1	53	24	#bloodclot	[{'text': 'bloodclots', 'indices': [14, 25]}, {'text': 'vaccine', 'indices': [64, 72]}, {'text'	['tsubject']	tsubject
14	PoopyButt	2022-09-1	FALSE	This brain-	4048	1410	11540	18	#vaccined	[{'text': 'vaccinedeath', 'indices': [20, 33]}, {'text': 'vaccineinjury', 'indices': [42, 56	['ChoicesMatter_']	ChoicesMatter_
15	MugginsM	2022-09-1	FALSE	GrumpyGa	1406	905	25364	0	@deb_vien	[{'text': 'NoVaccineMandates', 'indices': [229, 247]}]	['deb_vienneau', 'JustinTrudeau']	
16	Bork10Bo	2022-09-1	FALSE	Huntgathe	2783	1586	21361	8	@Spartacu	[]	['MugginsMrs', 'SpartacusJustic']	MugginsMrs
17	manifestgı	2022-09-1	FALSE	The goal	42	9	18047	0	Product	[{'text': 'antivaccine', 'indices': [36, 48]}, {'text': 'antivax', 'indices': [49, 57]}, {'text	[]	
18	PoopyButt	2022-09-1	FALSE	This brain-	4048	1410	11540	24	#bloodclot	[{'text': 'bloodclots', 'indices': [14, 25]}, {'text': 'vaccine', 'indices': [64, 72]}, {'text'	['tsubject']	tsubject
19	Betterd64(	2022-09-1	FALSE	#OutOfNa	2628	1097	52530	35	PPC out at	[]	['DwayneHolubPPC']	DwayneHolubPPC
20	Mae52201	2022-09-1	FALSE	Mom, Spe	1821	858	4649	77	A vaccine i	[{'text': 'Vaccineinjury', 'indices': [95, 109]}]	['fearnley_k']	fearnley_k
21	Matt0219	2022-09-1	FALSE	Science Ph	200	36	973	24	#bloodclot	[{'text': 'bloodclots', 'indices': [14, 25]}, {'text': 'vaccine', 'indices': [64, 72]}, {'text'	['tsubject']	tsubject
22	FlorHumar	2022-09-1	FALSE	QUE no te	1040	397	23685	11644	Two	[]	['bambkb']	bambkb
23	hephaistos	2022-09-1	FALSE	HÃ©phaÃ	207	4515	383900	1	#BigPharm	[{'text': 'BigPharma', 'indices': [15, 25]}, {'text': 'covid', 'indices': [108, 114]}, {'text	['heavyed65', 'YouTube']	heavyed65
24	heavyed65	2022-09-1	FALSE	Activist fo	293	641	54199	1	#BigPharm	[{'text': 'BigPharma', 'indices': [0, 10]}, {'text': 'covid', 'indices': [93, 99]}, {'text': 'vi	['YouTube']	
25	banditlink	2022-09-1	FALSE		1434	998	209293	11644	Two	[]	['bambkb']	bambkb

1.4.3 Pro Vaccine Tweets in JSON:



```
{
    "janet60286241": {
        "": "0",
        "username": "janet60286241",
        "created_at": "2022-09-19 20:38:24+00:00",
        "truncated": "False",
        "description": "\ud83d\uddf3#VoteBlue\ud83d\udc92#Married\ud83e\udd8b#LupusWarrior\ud83d\udeba#ProChoice\ud83d\udd2b#GunReform\ud83d\udeba#Womensrights\ud83d\udc
        "following": "18140",
        "followers": "18453",
        "totaltweets": "20674",
        "retweetcount": "1",
        "text": "I signed up for booster  #3. #GetVaccinated",
        "hashtags": "[{'text': 'GetVaccinated', 'indices': [45, 59]}]",
        "user_mention": "['isaac_capt']",
        "retweetScreenNames": "isaac_capt"
    },
    "PfaffSC": {
        "": "1",
        "username": "PfaffSC",
        "created_at": "2022-09-19 20:33:42+00:00",
        "truncated": "False",
        "description": "",
        "following": "1114",
        "followers": "12358",
        "totaltweets": "407765",
        "retweetcount": "9",
        "text": "@yodifiji says it straight - #healthworkers need actual money, not just deeds to deliver #vaccines &amp;amp; other essential services. HWs are the core of l
        "hashtags": "[{'text': 'healthworkers', 'indices': [42, 56]}, {'text': 'vaccines', 'indices': [102, 111]}]",
        "user_mention": "['blaserv', 'yodifiji']",
        "retweetScreenNames": "blaserv"
    },
    "MarkFaberDO": {
        "": "2",
        "username": "MarkFaberDO",
        "created_at": "2022-09-19 20:20:56+00:00",
        "truncated": "False",
        "description": "Long Islander living in the great city of Buffalo. Second-year Heme/Onc fellow at @RoswellPark / @RoswellHemOnc. Focus is heme malignancies. View
```


1.4.4 Anti Vaccine Tweets in JSON:



```
{
    "Brandon15242528": {
        "": "0",
        "username": "Brandon15242528",
        "created_at": "2022-09-19 20:42:01+00:00",
        "truncated": "False",
        "description": "All enemies foreign and domestic-MAGA-There are things that gnaw on a man worse than dying. #TeamIronWill",
        "following": "653",
        "followers": "519",
        "totaltweets": "44362",
        "retweetcount": "11644",
        "text": "Two weeks before the pandemic started, the government (NIAID) and MODERNA signed a confidential agreement regarding COVID VACCINES, how did they know!!?
        "hashtags": "[]",
        "user_mention": "['bambkb']",
        "retweetScreenNames": "bambkb"
    },
    "Frankpsu1984": {
        "": "1",
        "username": "Frankpsu1984",
        "created_at": "2022-09-19 20:41:20+00:00",
        "truncated": "False",
        "description": "Entrepeneur. dedicated hard working.  educated. know how to think by gathering information and real facts, not politcal affilliation nonsense",
        "following": "483",
        "followers": "72",
        "totaltweets": "7608",
        "retweetcount": "11644",
        "text": "Two weeks before the pandemic started, the government (NIAID) and MODERNA signed a confidential agreement regarding COVID VACCINES, how did they know!!?
        "hashtags": "[]",
        "user_mention": "['bambkb']",
        "retweetScreenNames": "bambkb"
    },
    "IronMan76667": {
        "": "2",
        "username": "IronMan76667",
        "created_at": "2022-09-19 20:23:31+00:00",
        "truncated": "False",
        "description": "9311/6638 FA/EO \ud83c\uddfa\ud83c\uddf8MAGA\ud83c\uddfa\ud83c\uddf8",
```

Chapter 2
Relationship Definition

2.1 Building Diffusion Network:

1. The graph will be built between users who has posted tweets related to covid 19.
2. A directed edge will be present between those users:
    a. A->B: an edge from A to B is present when B is mentioned in A's tweet
    b. A->B: an edge from A to B is present when A has retweeted B's tweet.

```
#developing a diffusion graph
#here the directed graph is being implemented
#the direction are defined as :
# if A mentions B in 'A' tweet: then A->B edge will be present
# if A retweets B's Tweet :  then A->B edge will be present
def generateGraph(df):
    DG=nx.DiGraph()
    for _,row in df.iterrows():
        if row['user_mention']:
            for x in row['user_mention']:
                if x!=row['username']:
                    DG.add_edge(row['username'],x)
        else:
            DG.add_node(row['username'])
        if row['retweetScreenNames'] != '' and row['retweetScreenNames']!=row['user_mention']:
            DG.add_edge(row['username'],row['retweetScreenNames'])
    return DG
```

Chapter 3

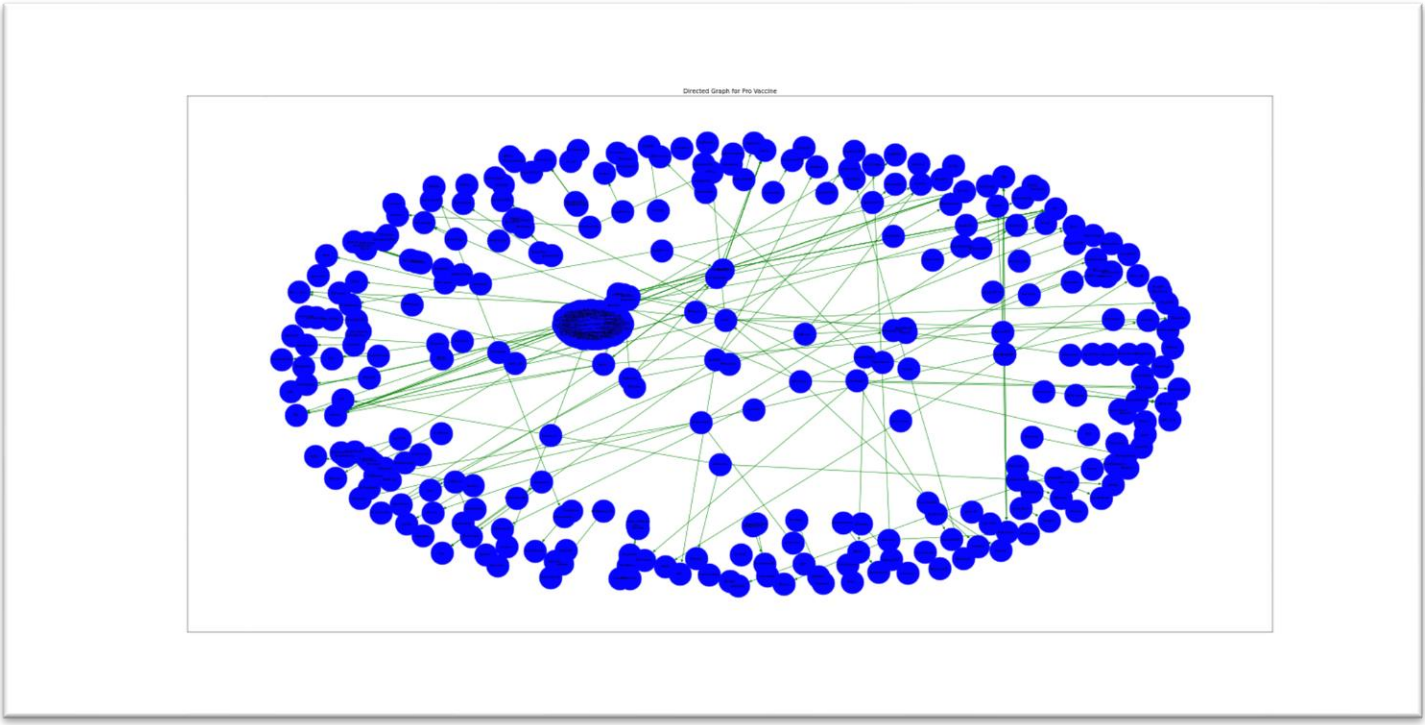
Build Graph using Relationship

3.1 Graph Algorithm:

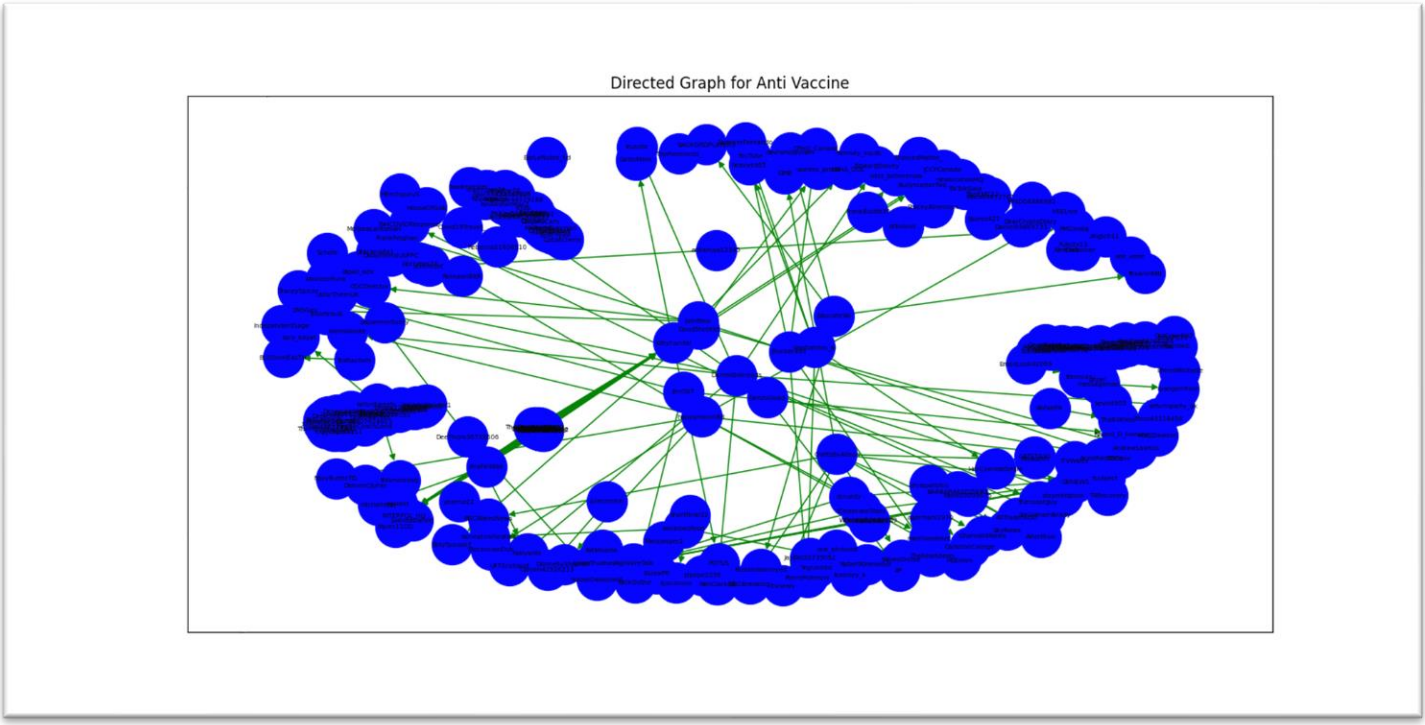
1. Graph will be developed using networkx third party library in python.
2. Here a directed graph will be formed based on the relations defined in chapter 2.
3. Each directed graph will be built for pro-vaccine data and anti-vaccine data.
4. We can use **draw_networkx** API of **networkx** to plot the graph for pro-vaccine and anti-vaccine

```
ig = plt.figure(1, figsize=(100, 80), dpi=40)
x.draw_networkx(Graphs[0],node_size=2000,node_color='b',edge_color='g',width=1,font_size=5)
lt.show()
lt.clf()
ig = plt.figure(1, figsize=(1000, 800), dpi=40)
x.draw_networkx(Graphs[1],node_size=1000,node_color='b',edge_color='g',width= 1,font_size=5)
lt.show()
```

5. **Graph for pro-vaccine for 300 tweets:**



6. Graph for anti-vaccine for 300 tweets



Chapter 4

Network Measures

4.1 Code for calculating the indegree and outdegree

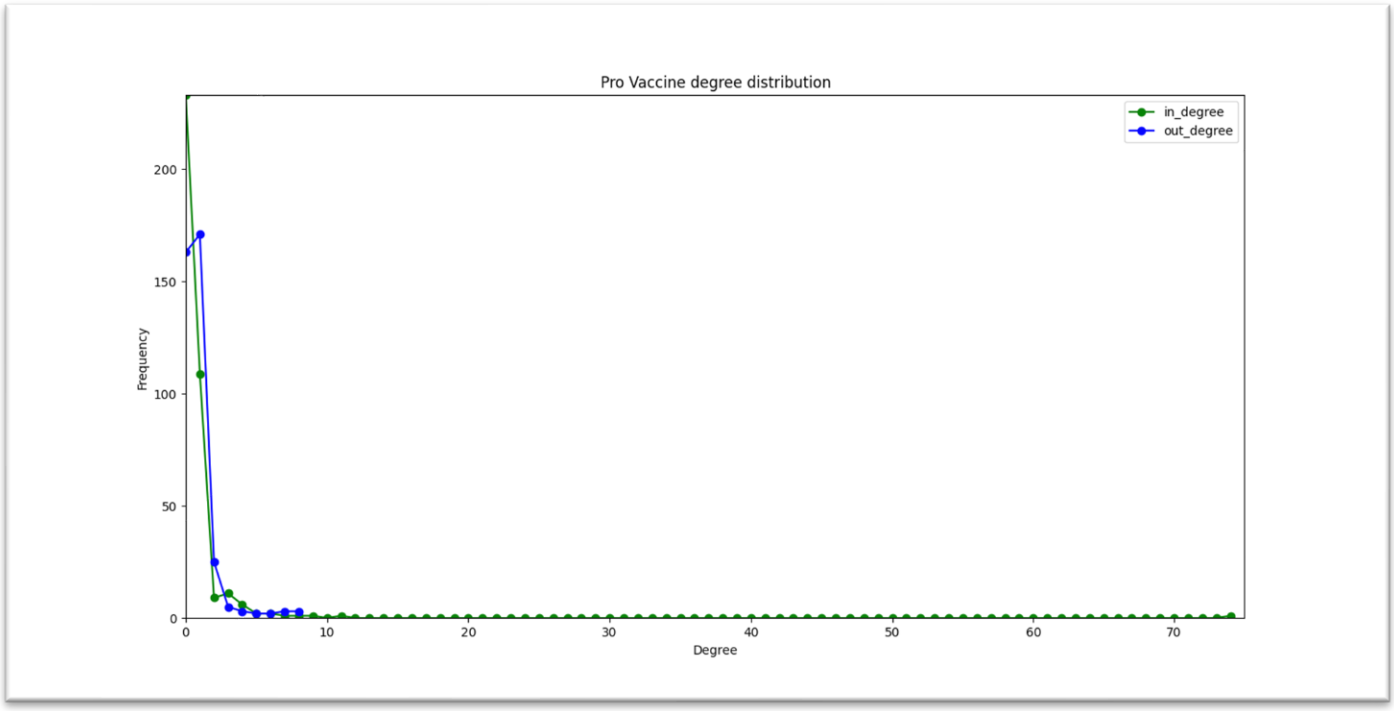
```
def degree_histogram_directed(G, in_degree=False, out_degree=False):
    nodes = G.nodes()
    if in_degree:
        in_degree = dict(G.in_degree())
        degseq=[in_degree.get(k,0) for k in nodes]
    elif out_degree:
        out_degree = dict(G.out_degree())
        degseq=[out_degree.get(k,0) for k in nodes]
    else:
        degseq=[v for k, v in G.degree()]
    dmax=max(degseq)+1
    freq= [ 0 for d in range(dmax) ]
    for d in degseq:
        freq[d] += 1
    return freq
```

4.2 Code for plotting in_degree and outdegree frequency using matplotlib:

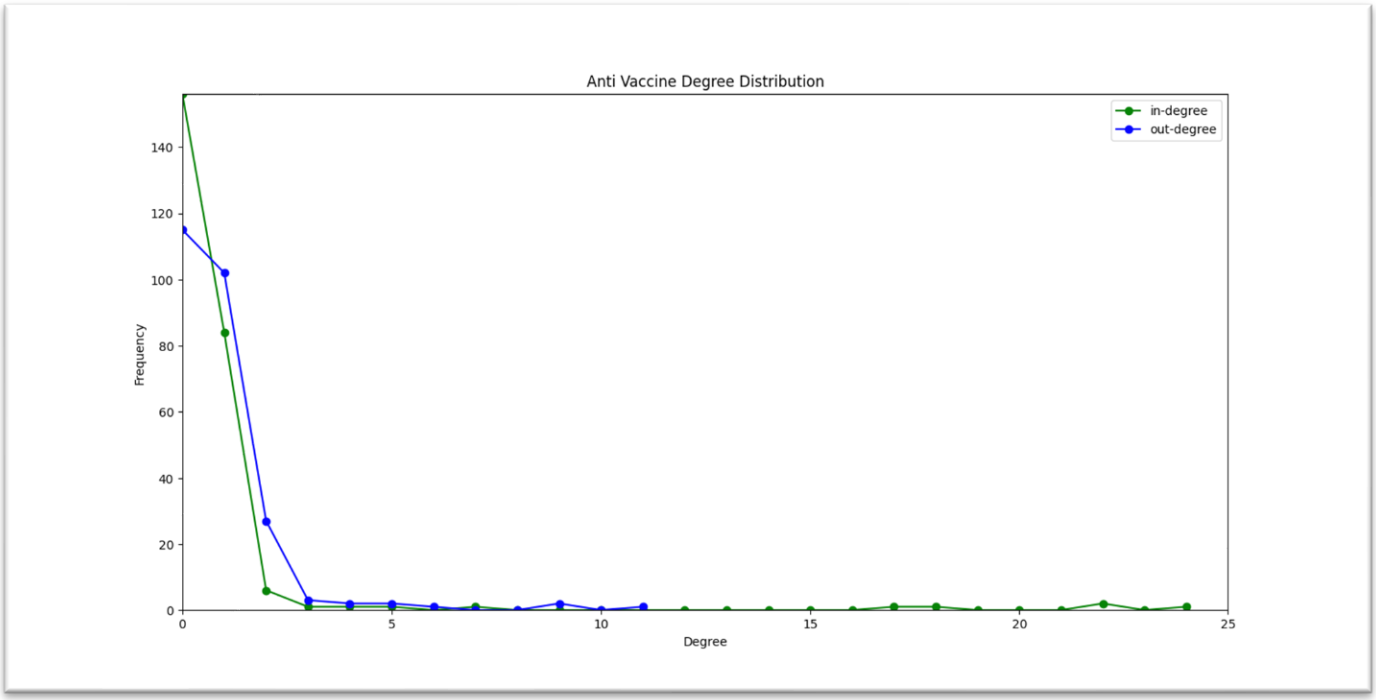
```
def plotDegreeHistogram(DGs):
    g1=DGs[0]
    g2=DGs[1]
    in_degree_freq = degree_histogram_directed(g1, in_degree=True)
    out_degree_freq = degree_histogram_directed(g1, out_degree=True)
    plt.figure(figsize=(12, 8))
    plt.plot(range(len(in_degree_freq)), in_degree_freq, "go-", label='in_degree')
    plt.plot(range(len(out_degree_freq)), out_degree_freq, "bo-", label='out_degree')
    plt.legend(loc="upper right")
    y_max=max(max(in_degree_freq),max(out_degree_freq))
    plt.axis([0,len(in_degree_freq),0,y_max])
    plt.xlabel('Degree')
    plt.ylabel('Frequency')
    plt.show()
    plt.clf()

    in_degree_freq = degree_histogram_directed(g2, in_degree=True)
    out_degree_freq = degree_histogram_directed(g2, out_degree=True)
    plt.figure(figsize=(12, 8))
    y_max=max(max(in_degree_freq),max(out_degree_freq))
    plt.plot(range(len(in_degree_freq)), in_degree_freq, 'go-', label='in-degree')
    plt.plot(range(len(out_degree_freq)), out_degree_freq, 'bo-', label='out-degree')
    plt.legend(loc="upper right")
    plt.axis([0,len(in_degree_freq),0,y_max])
    plt.xlabel('Degree')
    plt.ylabel('Frequency')
    plt.show()
```

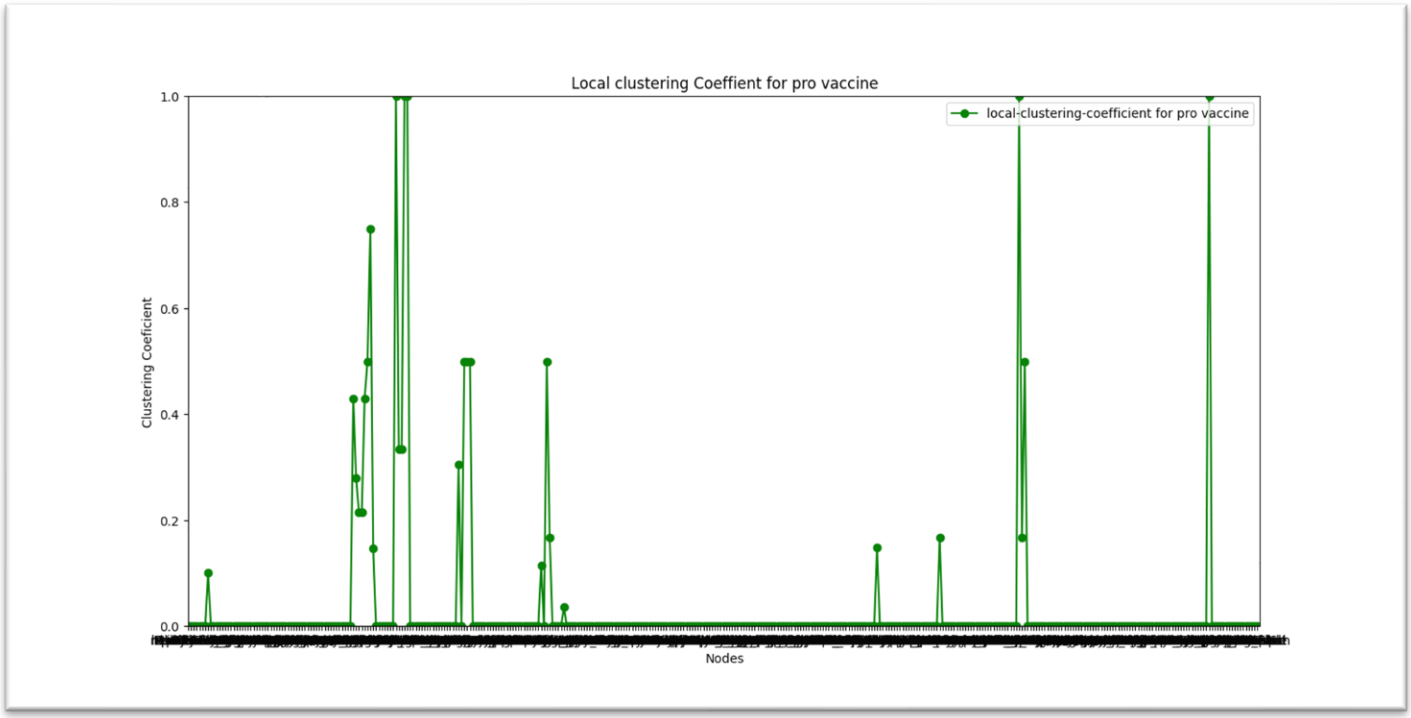
4.5 Histogram of in degree and out degree for pro-vaccine graph is (300 tweets):



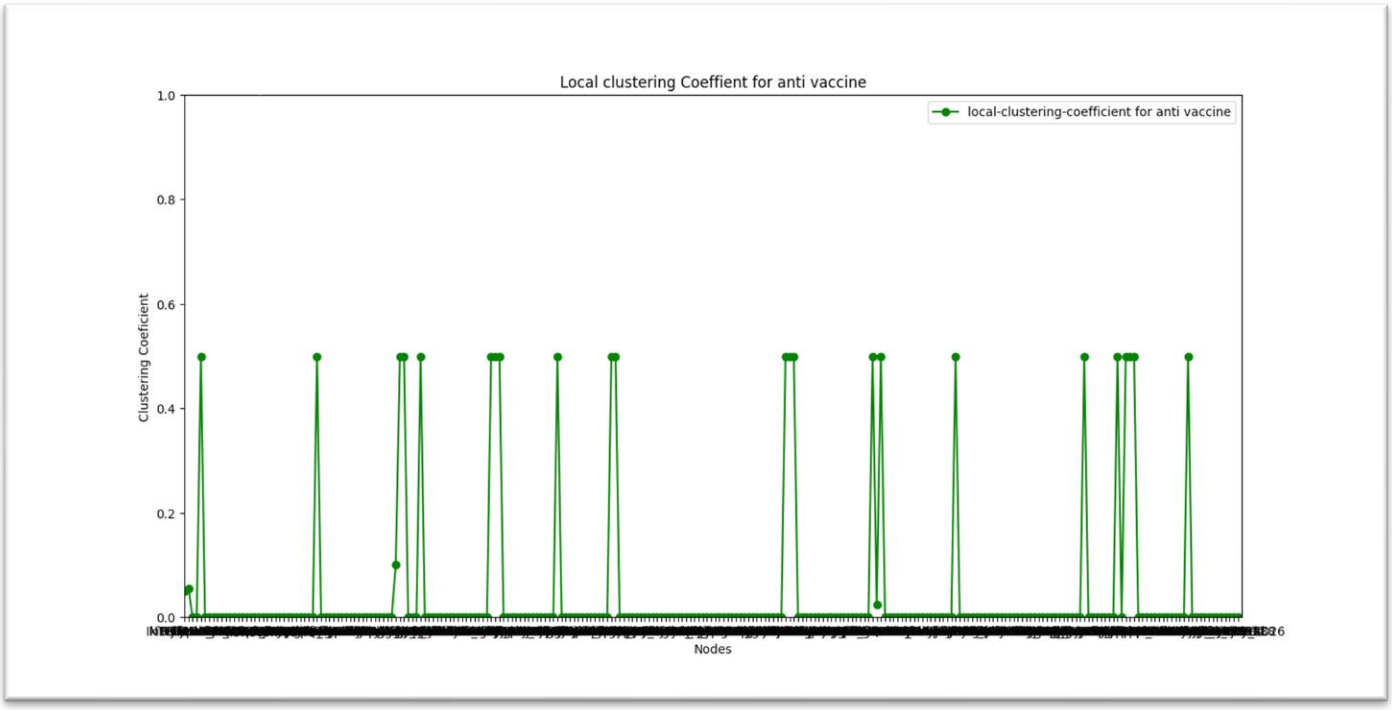
4.6 Histogram of in degree and out degree for anti-vaccine graph is (300 tweets):



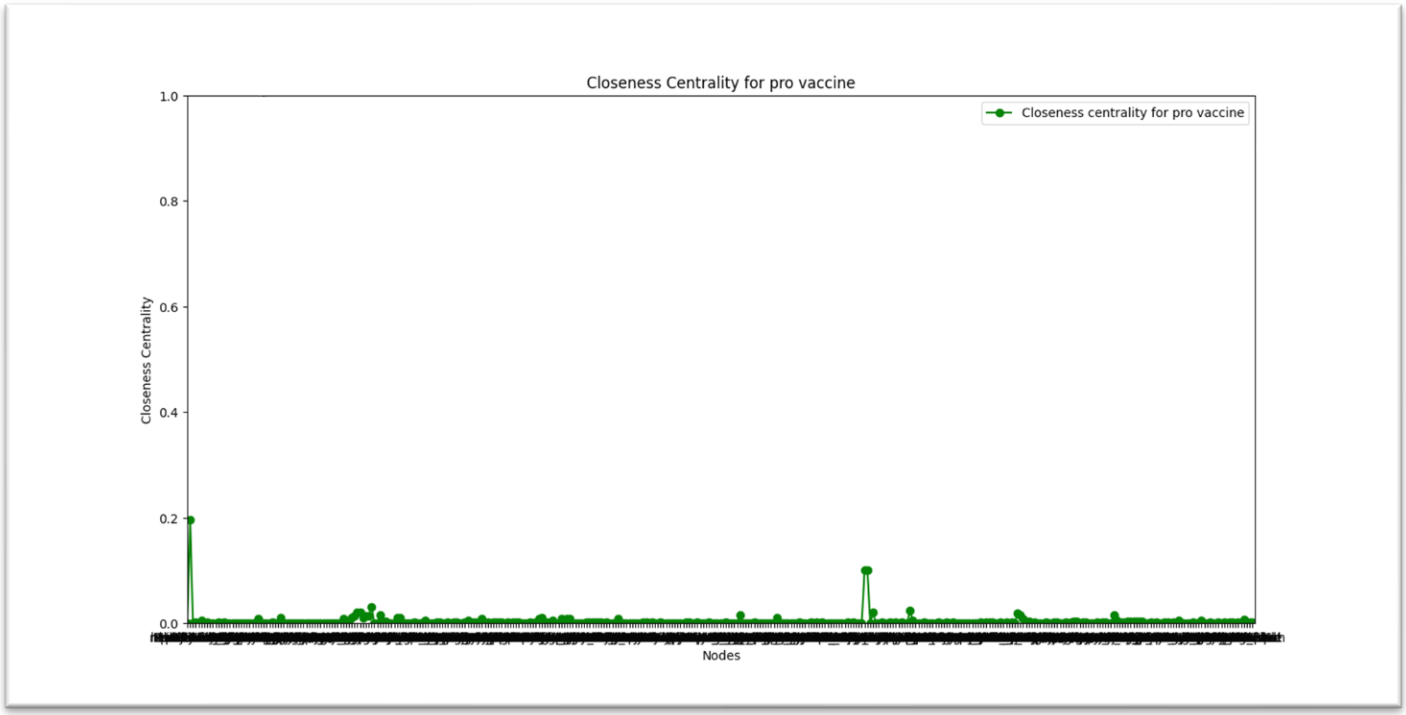
4.7 Histogram of local clustering coefficient for pro-vaccine graph is (300 tweets):



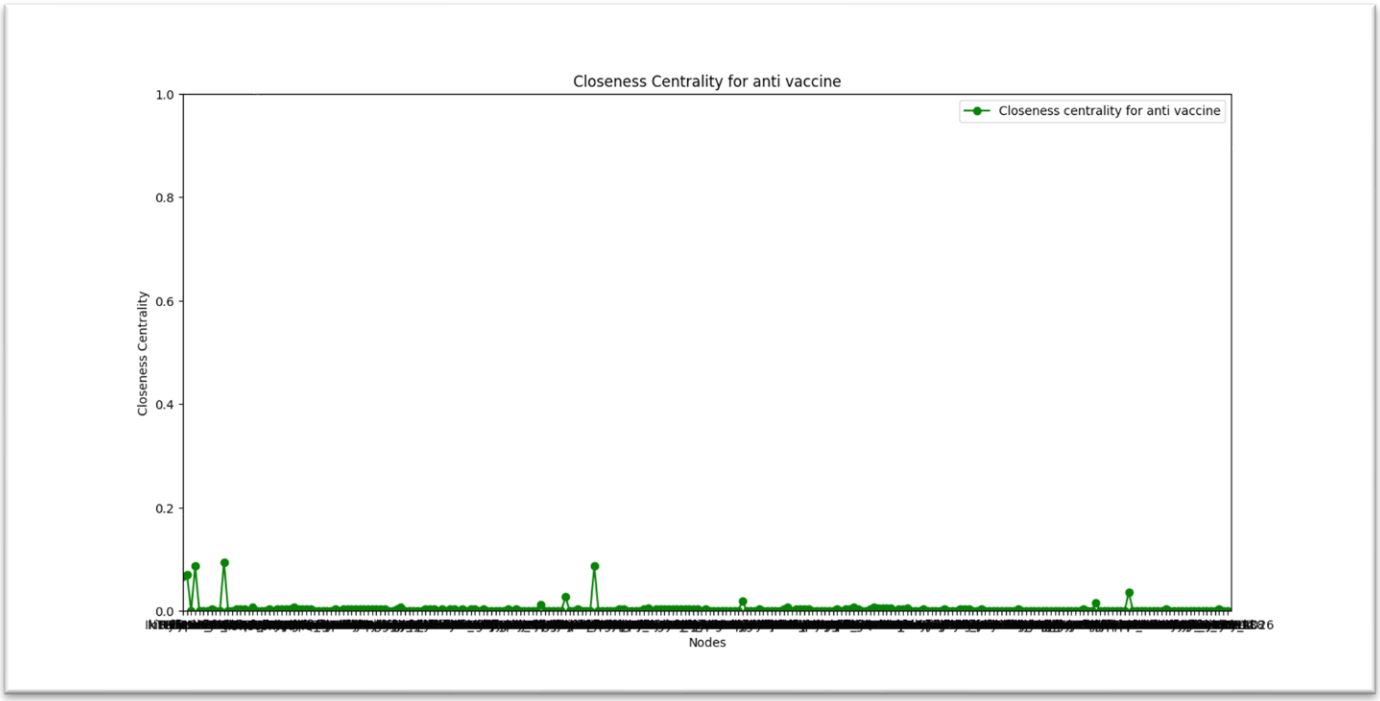
4.8 Histogram of local clustering coefficient for anti-vaccine graph is (300 tweets):



4.8 Histogram of closeness centrality for pro-vaccine graph is (300 tweets):



4.9 Histogram for closeness centrality for anti-vaccine graph is (300 tweets):



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