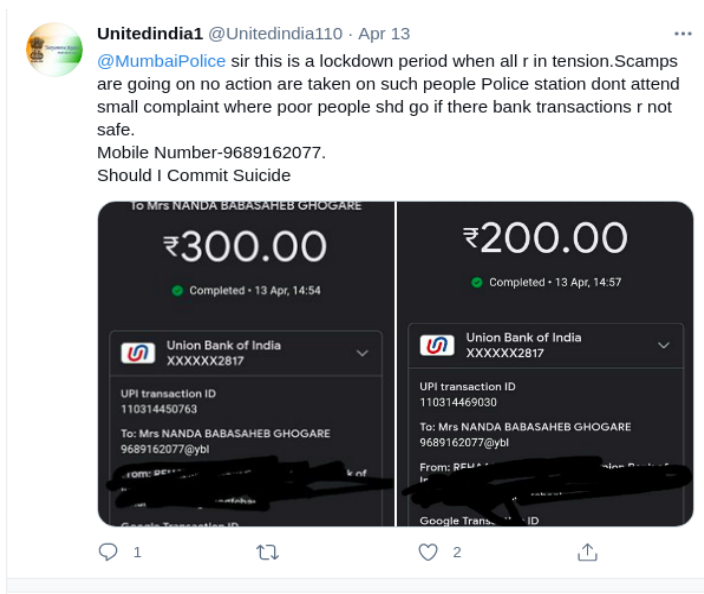
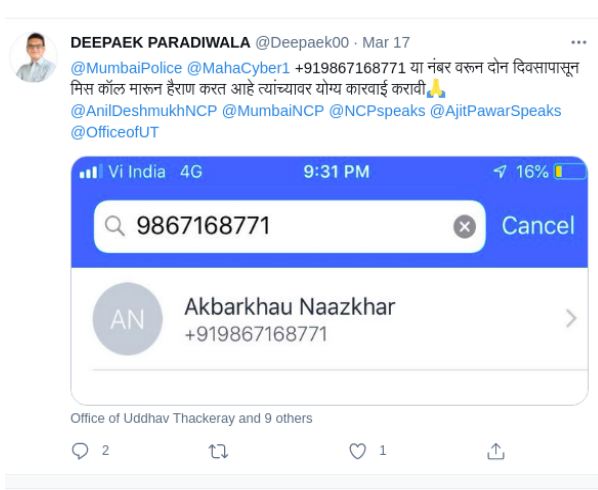


The police handle which tweets I collected is = @MumbaiPolice

Type Of PII	Number Of PII Found
Phone Number	125
Email	0
Adhaar Card Number	0
Vehicle Number Plate	56





b)
Number tweets containing media - 1204

Type Of PII	Number Of PII Found
Phone Number	21
Email	0
Adhaar Card Number	0
Vehicle Number Plate	50



Analysis on time taken by police handle to reply a tweet

Standard Deviation = 5052.532409561489 seconds = 82.208 minutes

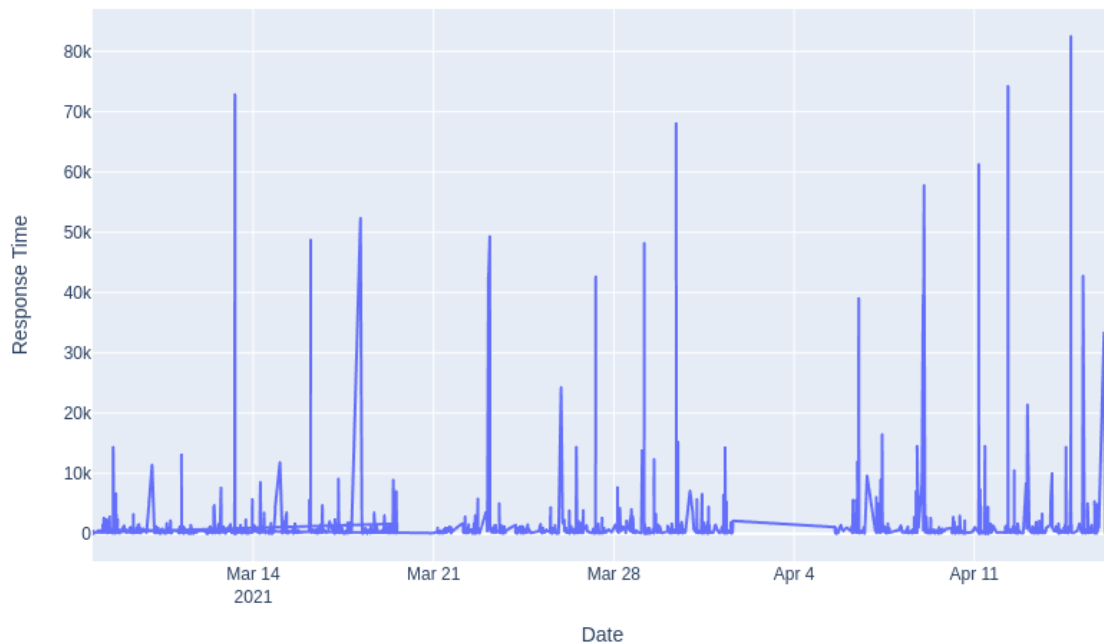
Mean = 1196.5507637017072 seconds = 19.94 minutes

Maximum = 82469 = 22.90 hours

Minimum = 17 seconds

Inferences-

We can see that mean value is 19 minutes with standard deviation of 82 minutes which is too high for a bot account which can reply to most of the tweets within seconds . These relatively high values show that human is first reading and assessing and reading tweets that's why it is taking time. Also the highest time is approximately a day which also support that it is not a bot account and the minimum time is 17 sec which is not very low and a human can reply to a tweet that fast.



If we look at the plot we will see that response time is highest during night hours that is 12 in the night to 8 in the morning while it is quickest around 12 noon to 7 in the evening. This tells us that tweets made at night take more time to get a reply as at night there is less staff in police offices or they are closed. We can then say that the best time to tweet would be during afternoon or early evening (12-7) to get a quick reply.

Also we can see that on 14 april there is a peak at 5 in the evening which is unusual but checking the calendar found out that it was a public holiday on 14th (Ambedkar Jayanti) so office might be closed thats why so late responses.

S. No.	Tweet	Category
1	@MumbaiPolice @Adamsayyed3 Received a fraud call right now @MumbaiPolice from +917528848681 claiming to be calling from Axis Bank Branch for Credit Card offer	Report
2	@CPMumbaiPolice @MumbaiPolice covid cases riding Govt has enforced night curfew And 6 boys are playing in Bhagya Apt Bhardawadi Andheri west without masks https://t.co/e2DTlvreoi	Report
3	.@MumbaiPolice @MumbaiMirror @RoadsOfMumbai This is my 10th tweet regarding the menace of vehicles constantly entering a no entry zone on 11th road #Khar. #HindujaHealthcareSurgical hospital is also guilty of allowing this to happen. Pls put a stop to this. There's always a jam.	Request
4	@MumbaiPolice @mybmc traffic flow from kemp's corner bridge to the church is shut at this peak hour.causing chaos. Why no intimation in advance? #poormanagement	Accountability
5	Are wine shops allowed to sell liquor at the store by keeping shutter half down ? If not then Globe Wine Shop at MG Road, Goregaon is doing this. There were 25-30 men outside waiting to buy liquor. Please take action	Request
6	Tiktoker Muskan sharma negligently riding bullet bike MH 04 HA 8625 and doing dangerous stunts on the public road by endangering lives of many,thereby promoting	Report

	criminal acts in the public attracting Sec 279 of IPC @MumbaiPolice @ThaneCityPolice @Thane_R_Police @AnilDeshmukhNCP https://t.co/LdLZffeUPV	
7	@MumbaiPolice my friend and his wife recieving calls from following numbers 24x7 and harras them. Asking to pay loan which they have not taken some relative has taken without knowledge of friend. Abused languages using threatening too. @Lovemykountry @remedy_indian @MNCDFbombay https://t.co/CZdsGHKBLv	Report
8	This victim of assault & attempted rape has been made to wait in VB Ngr Police Stn since 12 noon today 13th March. Police has recd the Medical Report frm Bhabha Hospi, yet no FIR has been filed agnst the culprits. Urge @CPMumbaiPolice @MumbaiPolice to take immediate action.	Report
9	@MumbaiPolice @CPMumbaiPolice @MumbaiPolice could you please send a reminder to the concerned team? The crowd continues to increase. No masks, no social distancing and more the 30 people. Loud noise and abuses	Request
10	@MumbaiPolice need to control traffic at 4 bungalows Rto signal. Stuck for more than an hour. Some repair work happening SOS	Accountability
11	Location and pictures were crystal clear. Basis of rejection of the report is unjustified. https://t.co/J2hiuyjCcJ	Other
12	@MumbaiPolice Hey Mumbai Police, I Spotted A Group Of 7 to 8 People Standing Near Malad Gymkhana, Marvel Road, Malad West They Are Celebrating Something And Cutting Cake Too Without mask. Standing outside Poonam Apartments Hope You come before they leave and Investigate The Matter	Report

13	@MumbaiPolice Kolivery Road, Kalina. I'd be happy to guide you on a call if needed	Other
14	@MumbaiPolice @Adamsayyed3 Received a fraud call right now @MumbaiPolice from +917528848681 claiming to be calling from Axis Bank Branch for Credit Card offer	Report
15	Can you'll please send some police force to remove traffic at Andheri Subway S.V Road. Ambulance stuck & the traffic has reached till Jogeshwari @MumbaiPolice @CPMumbaiPolice @AUPhackeray @Lokhandwala_Bom	Request
16	@MumbaiPolice Thanks for reply. They were given first vaccine in Jamnagar, Gujarat. And that's where they are traveling. As we need to have RT-PCR report, we gave the samples on Friday at a private lab that assured us of the reports by today. However now they are not responding.	Other
17	@MumbaiPolice HELP! One of our friend is suicidal. We don't know where he stays. No one is picking up on 100. Please help!!	Request
18	Team @MumbaiPolice please remove this vehicle on urgent basis..	Request
19	Panshikar, Hanuman Road, Vile Parle East. No social distancing. Who shud blame whom @MumbaiPolice @mybmcWardKE	Accountability
20	Illegal gambling on the footpath outside the public toilet near Famous studio , mahalaxmi. @MumbaiPolice @mybmc @AUPhackeray it's 'poor' people of Worli people getting conned. https://t.co/5N8A7e7BvP	Report

21	<p>Hi @MumbaiPolice @MahaCyber1,</p> <p>From this no has been threatening me by making my fake dirty videos. Also threatening to post on YouTube. He also share that video to my family members.</p>	Report
22	<p>@MumbaiPolice we are distributing free food to needy, every Sunday, due to lockdown we are thinking of distributing parcel only,. Is that allowed or we need permission?</p>	Other
23	<p>@MumbaiPolice I'm being harassed by this person +919456837339. Trucaller shows someone named Sunder Bhati. The person claims his name is Rahul. I don't know who it is and he is still calling.</p>	Report
24	<p>@MumbaiPolice आप से निवेदन है यह नंबर से जान से मारने की धमकी मिल रही है +917841869717 मेरे पत्नी को ये महाराष्ट्र का लड़का है</p>	Report
25	<p>Mumbai police this is my Humble request please Help this man I Don't know who's is this but he's in very serious condition Add Dharavi Sion stn Behind Big gate so please asked Dharavi police 🚓 to Admit in Hospital.... https://t.co/kmLMeLXr9v</p>	Request
26	<p>@MumbaiPolice Sir are u given challan for this , and are u taking fine cash or digitally</p>	Other
27	<p>I know it's my fault also that fell for such fraud but you can't just tell me that don't this again and tell me to go. You need to do something @MumbaiPolice @CPMumbaiPolice Goregaon Police station. They are waiting for the bigger scam to happen.</p>	Accountability

28	@MumbaiPolice My PCC application MUCT03213000017 is pending CFC approval for more than 10 days. please help me with how to get the CFC approval completed	Request
29	@MumbaiPolice Person with this number +918376068560 has hacked my data and threatening me, when informed that will file complain he is saying that Police waale hamare apne hai ja tu jaha complain karega kar..	Report
30	@MumbaiPolice My Bike Stolen on 18th of March in just 10 minutes while i was purchasing Medicine from chemist Store Fir Registered in Meghwadi praying so that police will catch the thief how can i send the fir to all mumbai Police station house https://t.co/MitUPdkDew https://t.co/bGrAMHkSud	Report

We can model different categories by looking at the words that are present in the tweets for example

Mumbai police this is my **Humble request please** Help this man
I Don't know who's is this but he's in very serious condition
Add Dharavi Sion stn Behind Big gate so **please** asked Dharavi police 🚓 to
Admit in Hospital....

In this tweet highlighted words like humble , request , please tell us that it is a tweet for request and we can search for PII like phone numbers , challan numbers etc. to extract actionable information.

One example for modelling tweet into report category would be

@MumbaiPolice
Person with this number +918376068560 has **hacked** my data and **threatening** me, when **informed** that will **file complain** he is saying that Police waale hamare apne hai ja tu jaha complain karega kar..

For modelling a tweet in to report category we can look for words like hacked , complain ,

threatening etc and put it into report category we can then look For PII's like phone number , address , vehicle number this can provide police with the vital information like culprits phone number etc. so filtering these tweets on basis of category and looking for PII's can reduce amount of unuseful tweets.

One example for accountability category would be-

I know it's my fault also that fell for such fraud but you can't just tell me that don't this again and tell me to go. **You need to do something**
@MumbaiPolice @CPMumbaiPolice

Goregaon Police station. They are waiting for the bigger scam to happen.

Words like do something , responsible etc. can help us to categories tweets into accountability category police can look at these tweets and find out which areas they need to improve upon to serve public better,

Also in all these tweets looking for media can provide lots of information like images and videos can tell about registration number of cars and also act as proof of the crime which can be later used for investigation.

Apart from this we can also look at the spatial and temporal information of the tweets to get more insights like at what time more complaints tend to come and provide more employees to look at tweets at that time and looking at the spatial information can give the information of the location of crime and also give information like if many tweets are coming from a certain areas there might be some problem there and police can take action.

This type of system can really help police because in twitter there are huge number of tweets are made referring to public services like police and many of the are also irrelevant and it is not possible for the police to look at all the tweets . The classification system will help police in prioritising the tweets like tweets with category of report and request will be needing quicker response than an appreciation post this will allow police to response to tweets in lesser time and retrieving important actionable information would further help police to resolve the problem efficiently and this will in turn bridge the communication gap between police and people.

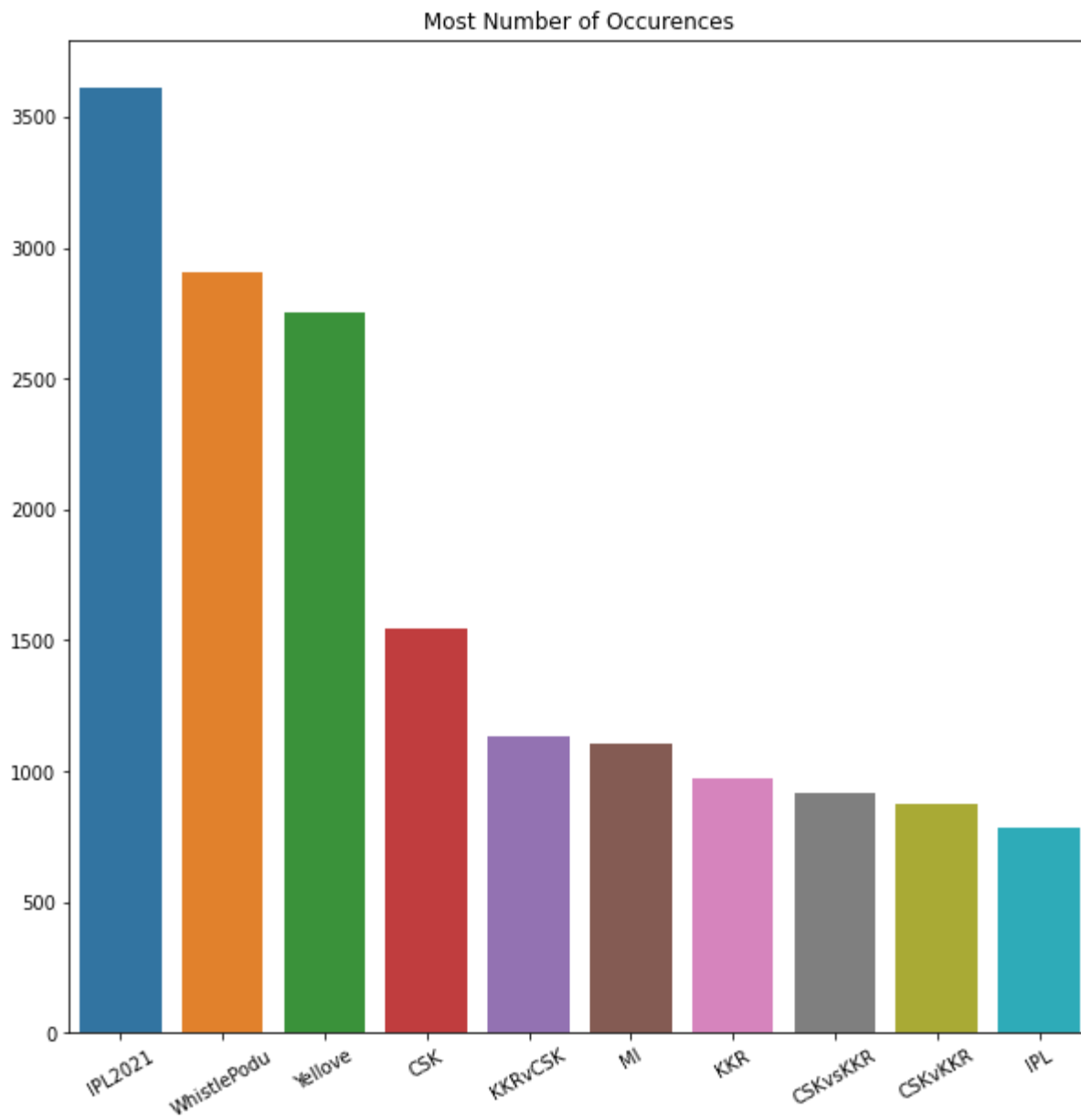
Also police can look into the tweets that refer to accountability and can infer from that in which areas there is a lack of police attention and they can pay attention to these issues and improve their accountability.

This also helps police as giving them a sort of feedback system that can help police know how they are performing like increasing in number of appreciation post signifies that they are performing better and with help of this they can look at feedback and keep improving.

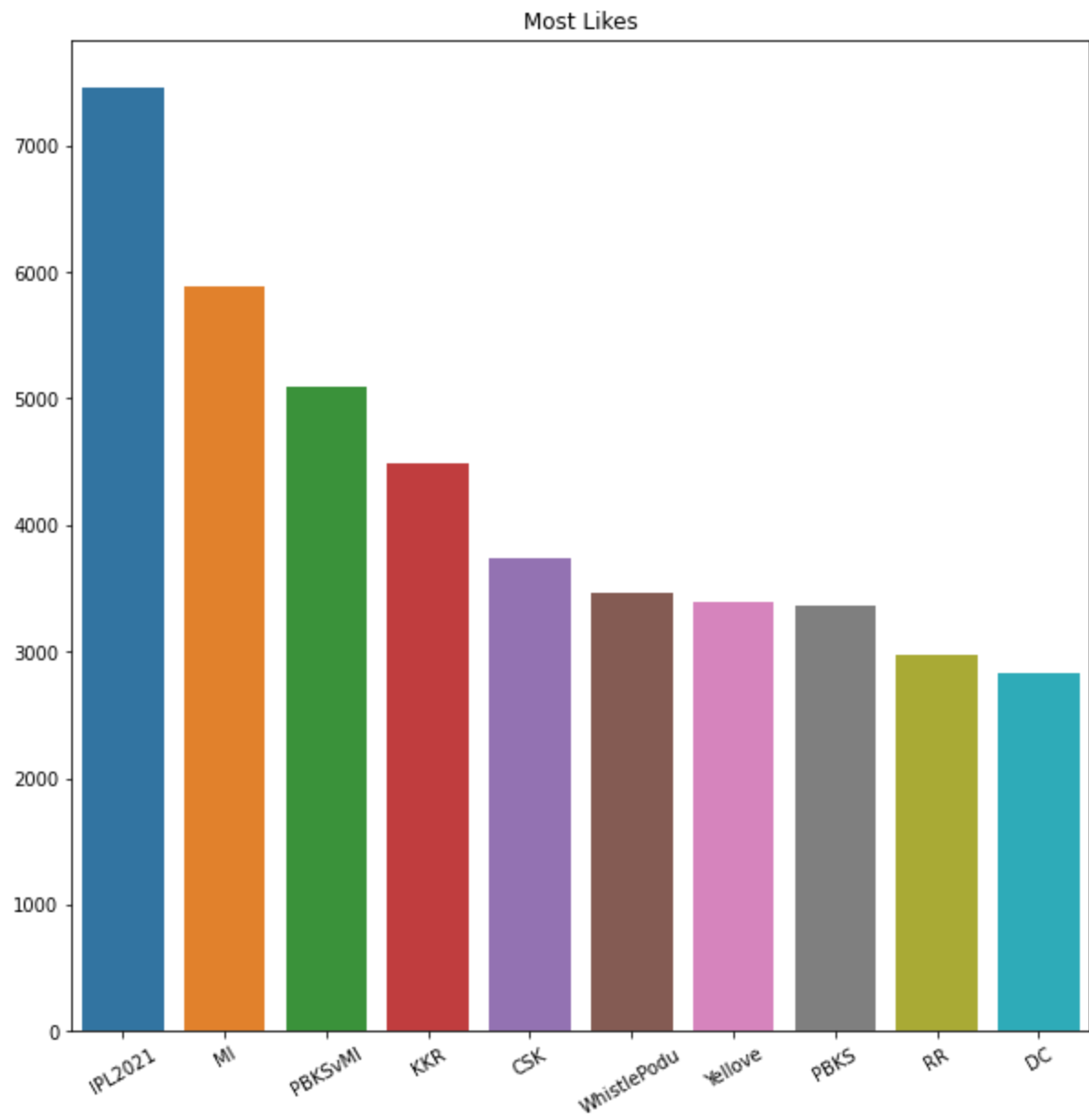
Our Original hashtag was = #CSKvKKR

Bar Plots

a) Most number of occurrences

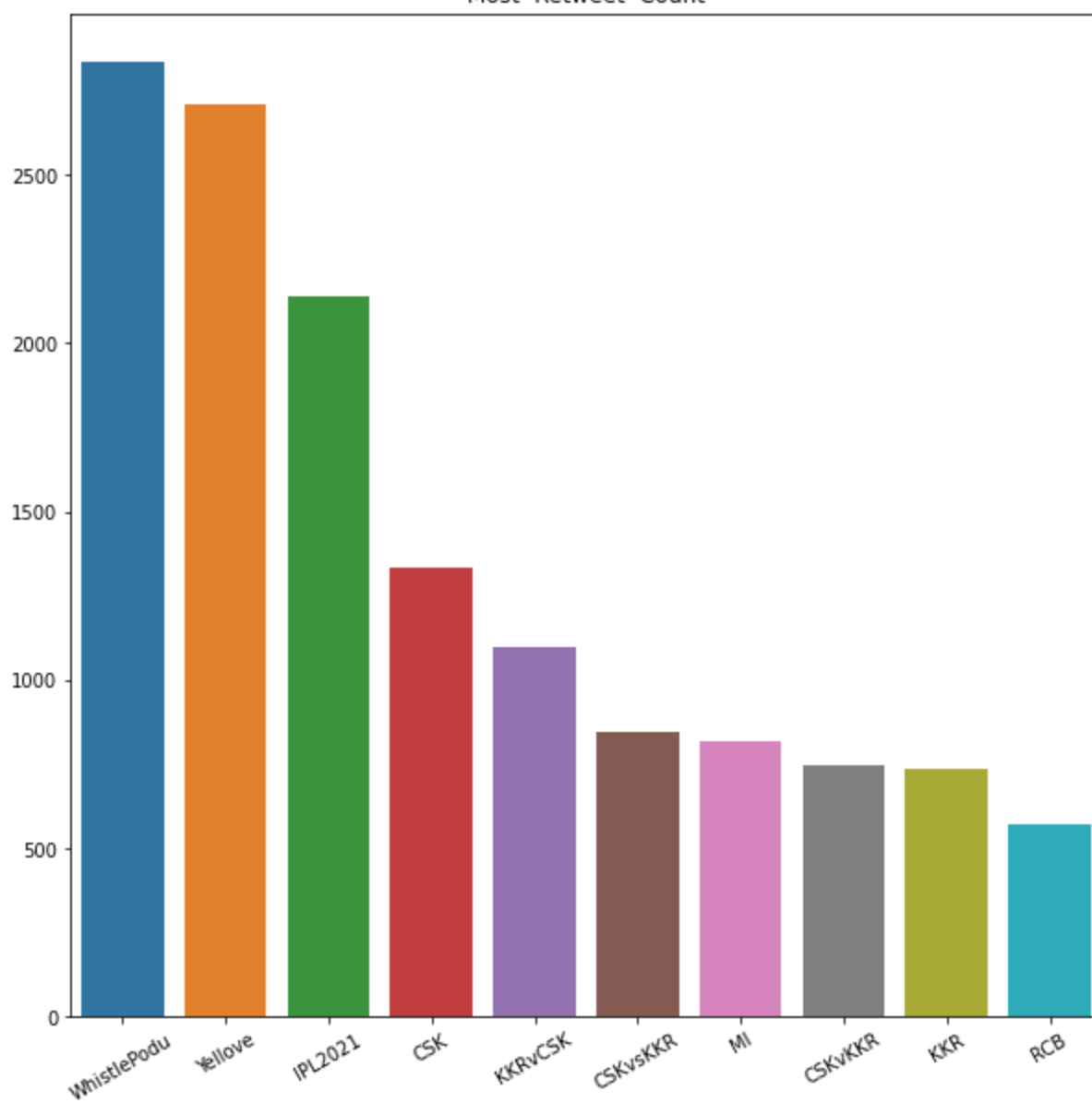


b) Most Number of Likes



c) most number of retweets.

Most Retweet Count



Coefficient of Traffic Manipulation Table-

a) Most Number of occurrence

	Hashtag	R/10	F	U	C
0	IPL2021	5.921417	16.325401	1.547752	23.794570
1	WhistlePodu	9.755846	12.345254	1.539439	23.640539
2	Yellove	9.850909	11.672727	1.506849	23.030486
3	CSK	8.611111	12.726098	1.333333	22.670543
4	KKRvCSK	9.717065	14.146773	1.140121	25.003958
5	MI	7.398005	19.492294	1.426908	28.317207
6	KKR	7.553957	14.902364	1.318428	23.774749
7	CSKvsKKR	9.245902	15.409836	1.186770	25.842508
8	CSKvKKR	8.527397	21.689498	1.242553	31.459448
9	IPL	5.579618	23.949045	1.328257	30.856920

b) Most Number of Likes

	Hashtag	R/10	F	U	C
0	IPL2021	59.214167	16.325401	1.547752	23.794570
1	MI	73.980054	19.492294	1.426908	28.317207
2	PBKSVMI	57.945205	28.767123	1.468813	36.030457
3	KKR	75.539568	14.902364	1.318428	23.774749
4	CSK	86.111111	12.726098	1.333333	22.670543
5	WhistlePodu	97.558459	12.345254	1.539439	23.640539
6	Yellove	98.509091	11.672727	1.506849	23.030486
7	PBKS	62.283237	19.653179	1.346304	27.227806
8	RR	84.076433	17.834395	1.302905	27.544943
9	DC	91.686461	23.990499	1.303406	34.462550

c) Most Number of Retweets

	Hashtag	R/10	F	U	C
0	WhistlePodu	9.755846	12.345254	1.539439	23.640539
1	Yellove	9.850909	11.672727	1.506849	23.030486
2	IPL2021	5.921417	16.325401	1.547752	23.794570
3	CSK	8.611111	12.726098	1.333333	22.670543
4	KKRvCSK	9.717065	14.146773	1.140121	25.003958
5	CSKvsKKR	9.245902	15.409836	1.186770	25.842508
6	MI	7.398005	19.492294	1.426908	28.317207
7	CSKvKKR	8.527397	21.689498	1.242553	31.459448
8	KKR	7.553957	14.902364	1.318428	23.774749
9	RCB	8.042254	21.126761	1.342155	30.511169

Some of the hashtags have coefficients over 30 which give us indication that some of the data was generated inorganic for these tweets namely tweets like #RCB , #DC , #PBKSvsMI are some of the hashtags with inorganic data and these hashtags might be fan bots for teams as during a CSK KKR match having these hashtags related to other teams are a bit suspicious and might be work of bots .

None of the hashtags present are completely unrelated as our original hashtag #CSKvKKR is a ipl related hashtags and all other hashtags are IPL related some hashtags like #DC #RCB can be argued as unrelated as the match is between CSK and KKR but they still have some relation with #CSKvKKR