

Final_Project_3

March 10, 2023

Influence 2

```
[1]: import pandas as pd
import numpy as np
pd.set_option('display.max_colwidth', None)
pd.reset_option('display.max_rows')
from pyspark.sql.functions import *
from pyspark.sql.types import *
import matplotlib.pyplot as plt
warnings.filterwarnings(action='ignore')
```

```
[2]: from pyspark.sql import SparkSession
from pyspark import SparkContext
from pyspark.sql import SQLContext
from pyspark.sql import Row
from pyspark.sql.functions import col
```

```
[3]: spark.conf.set("spark.sql.repl.eagerEval.enabled", True)
```

```
[4]: %%time
twitter = spark.read.parquet('gs://chen26-bdp/original_data')
```

CPU times: user 9.42 ms, sys: 863 µs, total: 10.3 ms

Wall time: 8.68 s

23/03/05 22:05:01 WARN org.apache.spark.sql.catalyst.util.package: Truncated the string representation of a plan since it was too large. This behavior can be adjusted by setting 'spark.sql.debug.maxToStringFields'.

```
[5]: %%time
influencer = spark.read.parquet('gs://chen26-bdp/infl')
```

CPU times: user 0 ns, sys: 4.35 ms, total: 4.35 ms

Wall time: 566 ms

```
[ ]: # new metrics
# average reach of the user's post per post
# average reach * the number of followers of the user as score
```

```
[39]: influence = influencer.withColumn('t_avg_reach', col('total_rct')/col('count'))\
      .withColumn('inf_score',
      ↪col('t_avg_reach')*col('Max_reach'))
```

```
[12]: influence
```

```
[12]: +-----+-----+-----+-----+-----+-----+
      |count|          user_id|      user_name|Max_reach|
      |user_descrip|total_rct|      t_avg_reach|      inf_score|
      +-----+-----+-----+-----+-----+-----+
      |  4|          484980949|    000Dillon000|      3504|      Independent, Chri...|
3|          0.75|          2628.0|
      |  2|1533841444225839104|    000Shub000|          1|          null|
1|          0.5|          0.5|
      |  1|          129785606|    000fukumoto|      3078|      Political science...|
8|          8.0|          24624.0|
      |  1|          348591369|    001Sardar|          680|          null|
1|          1.0|          680.0|
      |  1|          4636687154|    0027Woo|      58513|      PROBLEMATIC CON...|
15|          15.0|          877695.0|
      | 132|          2583636176|003rohitsuami|          211|          null|
458|3.4696969696969697| 732.1060606060606|
      |  1|1399826340099112964|    007Plangzak|          77|      Journalist, photo...|
4|          4.0|          308.0|
      |  3|          43588936|    007__NIL|      12616|      I Like Scotland &...|
2|0.6666666666666666| 8410.666666666666|
      |  2|1317159854977462274|007enterprises|          78|      Your plug for War...|
1|          0.5|          39.0|
      |  2|1286450080485126146|    007girl12|          457|      Child of God. Wal...|
2|          1.0|          457.0|
      |  5|          276525537|    007mss|      3898|      Conservative, Chr...|
9|          1.8| 7016.400000000001|
      |  2| 9944644446486532097|    007saifalam|          498|      A Civil Engineer ...|
1|          0.5|          249.0|
      |  1|1557695863883014145|    009Ahmadi|          11|          null|
4|          4.0|          44.0|
      |  1|1395721565019459589|    00_EM01|      1047|      Too ambitious to ...|
14|          14.0|          14658.0|
      |  1|          1396776462|    00daize|          527|      22 • nicki • no...|
3|          3.0|          1581.0|
      |  1|          246031716|    00nicolette|          571|      I'm So Meta, Even...|
6|          6.0|          3426.0|
      |  8| 726104454982836224|    00xxvv650|      6547|          |...|
121|          15.125|          99023.375|
      |  5|1582606339330768898|    01DuaF|          389|          null|
```

```

13|          2.6|1011.4000000000001|
|  1|1286742038923313152|      01rinette|      876|      intp  r...|
113|          113.0|          98988.0|
|  2|          4613659461|      01sth02|      18440|      person / ltd. edi...|
11|          5.5|          101420.0|
+-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+-----+
only showing top 20 rows

```

```
[14]: desc_score = influence.orderBy(col('inf_score').desc())
```

```
[16]: top50_inf = desc_score.limit(50)
top50_inf_df = top50_inf.toPandas()
```

```
[17]: top50_inf_df
```

```
[17]:
```

	count	user_id	user_name	Max_reach \
0	1	44196397	elonmusk	106476100
1	3	18839785	narendramodi	84850082
2	1	19725644	neiltyson	14805242
3	1	23375688	selenagomez	65889944
4	1	1339835893	HillaryClinton	31426778
5	1	122453931	ImranKhanPTI	17789483
6	1	104040220	theestallion	7600799
7	10	26257166	SportsCenter	41400369
8	4	1349149096909668363	POTUS	29370914
9	2	216776631	BernieSanders	15731059
10	1	884378714	SMTOWNGLOBAL	11294965
11	2	30354991	KamalaHarris	19817342
12	3	19923144	NBA	42052619
13	4	5402612	BBCBreaking	51629170
14	1	409486555	MichelleObama	22224422
15	1	192947735	davido	11358735
16	1	139162440	pattonoswalt	4759822
17	1	16548023	9GAG	16834659
18	1	2893511188	VancityReynolds	21111665
19	28	2557521	espn	44930065
20	1	2233154425	StephenKing	6898034
21	2	39344374	DonaldJTrumpJr	9570559
22	1	471741741	PMOIndia	51115349
23	1	3004231	SnoopDogg	21008579
24	1	256883252	sza	7023472
25	1	348379865	Dior	8794149
26	1	2455740283	MrBeast	13958152
27	6	428333	cnnbrk	64160677

28	1	1349154719386775552	FLOTUS	3945634
29	1	14335586	Public_Citizen	535244
30	1	226222147	PeteButtigieg	3715458
31	24	890891	BleacherReport	13501984
32	1	737453313352962048	griffinbarrowsx	937968
33	7	803694179079458816	VP	13793901
34	1	1006419421244678144	GretaThunberg	5068177
35	1	2719753171	PawanKalyan	5173372
36	1	783792992	IlhanMN	3066097
37	1	152251488	dhanushkraj	10743392
38	1	36686040	RepMaxineWaters	1696868
39	2	51263592	AdamSchefter	10076219
40	1	4914384040	TheBabylonBee	2112259
41	1	453507741	MaryamNSharif	7634548
42	1	2526794479	MamataOfficial	6754321
43	2	1447949844	AmitShah	29472484
44	1	259001548	kayleighmcenany	3120884
45	3	34197952	anandmahindra	9279566
46	1	304679484	MarkHamill	5225664
47	1	1346439824	rajnathsingh	23339829
48	1	1032978119370723329	tommyinnit	3973324
49	1	216881337	RandPaul	4370941

user_descrip

\

0

None

1

Prime Minister of India

2

Astrophysicist

3

REVELACIÓN out now: <http://smarturl.it/REVELACIONSG>

4 2016 Democratic Nominee, SecState, Senator, hair icon. Mom, Wife, Grandma x3, lawyer, advocate, fan of walks in the woods & standing up for our democracy.

5

Chairman Pakistan Tehreek-e-Insaf & former Prime Minister of Islamic Republic of Pakistan

6

thee real Htown Hottie

7

Download the ESPN App

8 46th President of the United States, husband to @FLOTUS, proud dad & pop. Tweets may be archived: <http://whitehouse.gov/privacy>\nText me: (302) 404-0880

9

U.S. Senator for Vermont. Not me, us.

10

SMEntertainment Group Official Twitter

11

Fighting for the people. Wife, Momala, Auntie. She/her. Official account is @VP.

12

The 2022-23 NBA season continues

Monday on NBA TV! 7:30pm/et: @Lakers/@BrooklynNets | 10pm/et:

@ATLHawks/@trailblazers

13 Breaking news alerts and updates from the BBC. For news, features, analysis follow @BBCWorld (international) or @BBCNews (UK). Latest sport news @BBCSport.

14

Girl from the South Side and

former First Lady. Wife, mother, dog lover. Always hugger-in-chief.

#TheLightWeCarry

15

STAND STRONG OUT NOW! Link below! inquiries: davido@bfaandcolegal.com

16

New @Netflix special WE ALL SCREAM now

streaming!!!MINOR THREATS from @DarkHorse out now! I like making stuff. IG: pattonoswalt

17

Building @MEMELAND one meme at a time • 9gag@9gag.com • CEO @9gagceo

18

owner: @aviationgin - @MintMobile - @maximumeffort - @Wrexham_AFC

19

Serving sports fans. Anytime. Anywhere.

20

Author

21 Future leader Ministry of Truth, Father, Outdoorsman, Meme War General, founder: MxM News, Field Ethos Journal, Winning Team Publishing Pronouns:

The/she/it

22

Office of the Prime Minister of India

23

"I STILL GOT IT" mixtape OUT NOW

24

None

25

"Women, with their intuitive instinct, understood that I dreamed not only of making them more beautiful, but happier too." Christian Dior

26

I want to make the world a better place before I die

27

Breaking news from CNN Digital. Now 64M strong. Check @cnn for all things CNN, breaking and more. Download the app for custom alerts: <http://cnn.com/apps>

28

First Lady of the United States Jill

Biden. Community college educator. Military mother. Grandmother. Wife of @POTUS.

29

Public Citizen has been standing up to corporate power and holding government accountable for 50 years. We're people-powered and accept no corporate money.

30

Personal account. For official updates, follow

@SecretaryPete. Husband, father, veteran, writer, South Bend's former Mayor Pete. (he/him)

31

Become a B/R Insider and help shape the future of the app

32 <http://OnlyFans.com/GriffinBarrows> - <http://tumblr.com/griffin-barrows-x> - Instagram: GriffinBarrowsXX - Email: griffinbarrowscontact@gmail.com

33

Vice President of the United States. Wife to the first @SecondGentleman. Momala. Auntie. Fighting for the people.

34

Climate- and environmental activist with Asperger's Born at 375 ppm

35

, , .. JaiHind!

36 Mom, Refugee and Congresswoman for #MN05. Progressive Caucus Whip. Fighting for a more just world. Grassroots funded progressive <http://HC.com/IlhanOmar>

37

ASURAN/Actor

38

Proudly serving the people of California's 43rd District in Congress. Chairwoman of the House Financial Services Committee (@FSCDems).

39

ESPN Senior NFL Insider. \nInterview & Podcast Requests: ESPNPR@espn.com\nHost of the Adam Schefter Podcast\n<http://Instagram.com/AdamSchefter>

40

Fake news you can trust. Follow our podcast account @babylonbeepod JOIN US at #BeeLIVE Feb. 24.

41 We cloak our cowardice with the ill-fitting garment of political correctness. To a coward, courage always looks like stupidity. Fortune favours the brave.

42

The Official Twitter of Mamata Banerjee, founder Chairperson All India Trinamool Congress. Honourable Chief Minister, West Bengal.

43

Union Home Minister, Minister of Cooperation and MP, Gandhinagar Lok Sabha. <http://www.instagram.com/amitshahofficial>

44

Co-host @OutnumberedFNC. Fmr. White House Press Secretary. Author of "For Such a Time as This." Harvard Law. Georgetown SFS.

45

Chairman & Team member, Covid-19 Fighters, Mahindra Group

46

Believe in yourself! Work hard, never give up & anything's possible! OR: Kick back, relax & aim low: You'll never be disappointed... I IGNORE ALL DMs!

47

, Defence Minister of India

48

incredibly influential gamer - you can pre-order mine & wilbur's book here <http://tommyinnit.com/>

49

U.S. Senator for Kentucky | I fight for the

Constitution, individual liberty and the freedoms that make this country great.

	total_rct	t_avg_reach	inf_score
0	116620	116620.000000	1.241724e+13
1	80295	26765.000000	2.271012e+12
2	140754	140754.000000	2.083897e+12
3	25761	25761.000000	1.697391e+12
4	48751	48751.000000	1.532087e+12
5	65561	65561.000000	1.166296e+12
6	142205	142205.000000	1.080872e+12
7	250517	25051.700000	1.037150e+12
8	92863	23215.750000	6.818678e+11
9	84233	42116.500000	6.625371e+11
10	55483	55483.000000	6.266785e+11
11	40615	20307.500000	4.024407e+11
12	24773	8257.666667	3.472565e+11
13	24352	6088.000000	3.143184e+11
14	13839	13839.000000	3.075638e+11
15	26465	26465.000000	3.006089e+11
16	59394	59394.000000	2.827049e+11
17	16293	16293.000000	2.742871e+11
18	12227	12227.000000	2.581323e+11
19	155383	5549.392857	2.493346e+11
20	33423	33423.000000	2.305530e+11
21	45641	22820.500000	2.184049e+11
22	4020	4020.000000	2.054837e+11
23	8938	8938.000000	1.877747e+11
24	25846	25846.000000	1.815287e+11
25	13342	13342.000000	1.173315e+11
26	7842	7842.000000	1.094598e+11
27	10052	1675.333333	1.074905e+11
28	26422	26422.000000	1.042515e+11
29	193203	193203.000000	1.034107e+11
30	27446	27446.000000	1.019745e+11
31	176982	7374.250000	9.956701e+10
32	102388	102388.000000	9.603667e+10
33	46501	6643.000000	9.163288e+10
34	17972	17972.000000	9.108528e+10
35	17411	17411.000000	9.007358e+10
36	28348	28348.000000	8.691772e+10
37	7900	7900.000000	8.487280e+10
38	49622	49622.000000	8.420198e+10
39	16547	8273.500000	8.336560e+10
40	38996	38996.000000	8.236965e+10
41	10718	10718.000000	8.182709e+10
42	11817	11817.000000	7.981581e+10
43	5327	2663.500000	7.849996e+10

```

44      24875      24875.000000      7.763199e+10
45      25028      8342.666667      7.741633e+10
46      13912      13912.000000      7.269944e+10
47       2662       2662.000000      6.213062e+10
48      14263      14263.000000      5.667152e+10
49      12875      12875.000000      5.627587e+10

```

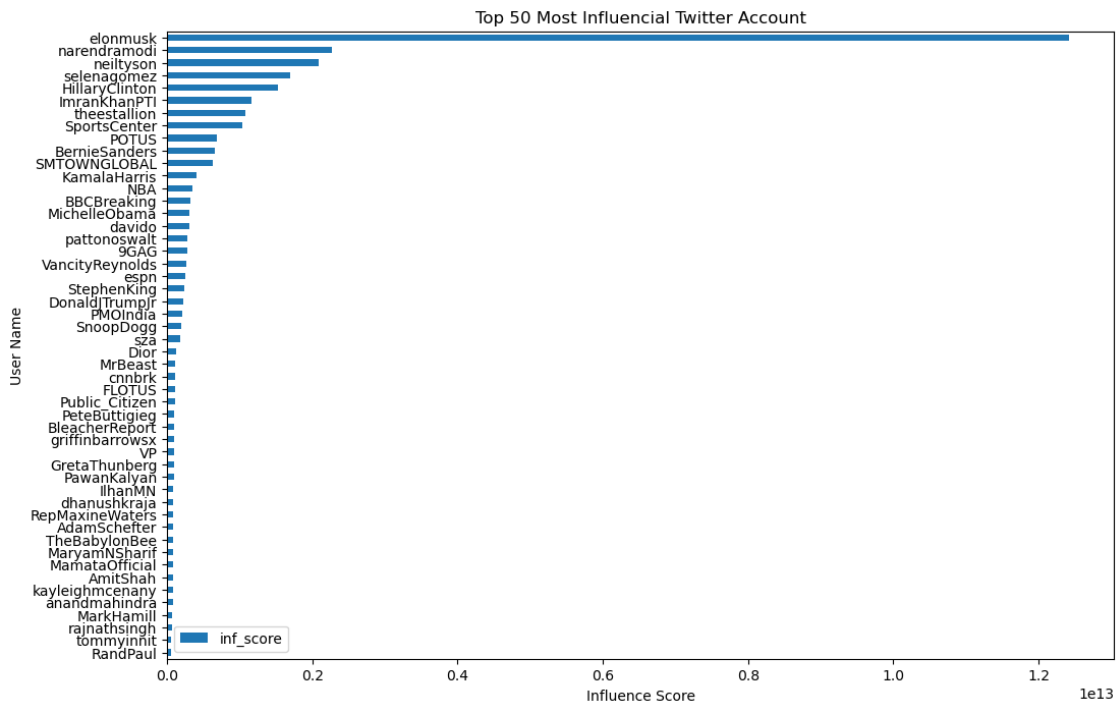
```

[18]: ax = top50_inf_df.plot(x='user_name', y= 'inf_score', kind='barh', figsize = (12, 8))

ax.set_ylabel('User Name')
ax.set_xlabel('Influence Score')
ax.set_title('Top 50 Most Influential Twitter Account')
ax.invert_yaxis()

# show the plot
plt.show()

```



```

[ ]: # k-12

```

```

[6]: keywords = ['k12', 'k-12']
twitter = twitter.withColumn('lower', lower(col('text')))
k12 = twitter.filter(col('lower').rlike(''.join(keywords)))
k12 = k12.filter(col('lang') == 'en')

```



```

from pyspark.sql import functions as F
from pyspark.sql import types as t
from pyspark.sql.types import ArrayType, IntegerType, BooleanType

eng_ord=F.udf(lambda x: [ord(a) for a in x],t.ArrayType(IntegerType()))

def english_filter(x):
    for index in range(len(x)):
        if x[index] > 128:
            return False
        else:
            return True

filter_udf = F.udf(english_filter, BooleanType())
k12 = k12.filter(filter_udf(eng_ord('text')) == True)

```

```
[7]: k12.count()
```

```
[7]: 175739
```

```
[36]: k12_df = k12.
      ↪select('user','created_at','extended_tweet','retweeted_status','text','id','retweeted_from'
```

```
[37]: k12_df = k12_df.withColumn("user_id", col("user").getItem("id")).\
      withColumn('user_name', col('user').getItem('screen_name')).\
      withColumn('user_location',col('user').getItem('location')).\
      withColumn('user_description',col('user').\
      ↪getItem('description')).\
      withColumn('followers_count',col('user').\
      ↪getItem('followers_count')).\
      withColumn('retweet_count', col('retweeted_status').\
      ↪getItem('retweet_count')).\
      withColumn('retweet', col('retweeted_status').\
      ↪getItem('retweeted')).\
      select('user_id', 'user_name', 'user_location',\
      ↪'user_description','followers_count',
      'created_at','text' , 'retweet_count',\
      ↪'retweeted_status','retweet','id','retweeted_from')
```

```
[38]: k12_df
```

```
[38]: +-----+-----+-----+-----+-----+
      +-----+-----+-----+-----+-----+
```

```

-----+-----+-----+-----+-----+
|          user_id|    user_name|    user_location|
user_description|followers_count|    created_at|
text|retweet_count|    retweeted_status|retweet|    id|
retweeted_from|
-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+
|1278113146784358400|  brandonhbk_|    null|    null|
5|Sun Dec 18 00:56:...|@pulte $brandonhb...|    null|    null|
null|1604279508865007617|    null|
|    97213130| ashleyeleigh|    null|I'm just here so ...|
984|Sun Dec 18 01:00:...|RT @ShanaVWhite: ...|    27|{null, Sat Dec
17...| false|1604280408471904258|    ShanaVWhite|
|    892767878|    nikicaga|Serbia, The 52nd ...|23, from , st...|
10549|Sun Dec 18 01:02:...|@mxvnsn German K1...|    null|
null|    null|1604280895170560002|    null|
|    3056996579|    ncsupers|    null|Executive Directo...|
5211|Wed Jan 04 14:00:...|RT @tsmarkley: Le...|    1|{null, Wed Jan
04...| false|1610637266510037004|    tsmarkley|
| 946895823350022144| levantophile|    null|lebanese abroad. ...|
1156|Wed Jan 04 14:04:...|@omar_ghxd Otherw...|    null|
null|    null|1610638241941852160|    null|
| 701136412700073984|    fetting45|Colorado Springs, CO|Feminist, environ...|
4349|Fri Apr 29 14:22:...|RT @KyleClark: "F...|    6|{null, Fri Apr
29...| false|1520045897064714240|    KyleClark|
|1019623605942882304|TurnUSBBlue117|    United States|I am a Democrat w...|
231|Fri Apr 29 14:23:...|It also allows th...|    null|
null|    null|1520046115877318656|    null|
|    66263683| NJSchoolJobs|    New Jersey, USA|The leading adver...|
4086|Thu Jul 21 14:04:...|Acting Executive ...|    null|
null|    null|1550119464980492288|    null|
|1461074752869646340|    MidCJB|    Chicago, IL|Ed Tech Guy / Lov...|
38|Thu Jul 21 14:05:...|TODAY'S THE DAY!
...|    null|    null|    null|1550119805495128069|EVERFIK12 for
our...|
|1515645342267899910|    Iris4676|    null|    null|
4|Thu Jul 21 14:06:...|RT @iKeepSafe: So...|    4|{null, Wed Jul 20...|
false|1550119939335266304|    iKeepSafe|
|1493539642225868801|    UniqueGav|    null|    null|
95|Thu Jul 21 14:07:...|@PushBack123 @Bob...|    null|    null|
null|1550120170659622915|Boblet3001 @PowWo...|
|1547201591840849923|    TerryWitte5|St Charles , Illi...|    null|
0|Thu Jul 21 14:07:...|RT @EducationFL: ...|    2|{null, Thu Jul 21...|
false|1550120269586448385|    EducationFL|
|    2796070787|    edCircuit|    Planet Earth|Powering the Glob...|
7676|Thu Sep 29 19:21:...|Doug Thompson joi...|    null|

```

```

null|    null|1575566331751137280|    null|
|          551970824|    ElevateK12|    Chicago, IL|Connecting teache...|
448|Thu Sep 29 19:22:...|RT @akperera: The...|    3|{null, Thu Sep
29...| false|1575566611745951747|    akperera|
|          284579333|    stick631|    United States|VP of Intelligenc...|
5988|Thu Sep 29 19:22:...|RT @K12ssdb: At l...|    2|{null, Thu Sep
29...| false|1575566683796013056|    K12ssdb|
|1424861815066947602|paulos4nevada|    Las Vegas, Nevada|Husband, Father, ...|
322|Thu Sep 29 19:22:...|RT @ValeriaGurr: ...|    2|{null, Thu Sep
29...| false|1575566702091198464|    ValeriaGurr|
|          9696142|    techlearning|NY, CA and elsewhere|Since 1980, Tech ...|
63187|Thu Aug 11 13:28:...|CDC To Loosen Sch...|    null|
null|    null|1557720525539053568|    null|
|          2999624400|    kyle_stenson|    Utah, USA|Husband. Father o...|
211|Thu Aug 11 13:29:...|RT @edwebnet: 5 T...|    2|{null, Thu Aug
11...| false|1557720959347351555|    edwebnet|
|    809566594900836352|    K12Prospects|    Tampa, FL|K12Prospects help...|
2292|Thu Aug 11 13:30:...|Are inactive K12 ...|    null|
null|    null|1557721163341733889|    null|
|          327745220|    DeuceThomas|    W|TheSitDown Show ?...|
4455|Thu Aug 11 13:31:...|RT @CoachReedLive...|    12|{null, Thu Aug
11...| false|1557721361551953920|    CoachReedLive|
+-----+-----+-----+-----+-----+
+-----+-----+-----+-----+-----+
+-----+-----+-----+-----+-----+
only showing top 20 rows

```

```
[40]: k = k12_df.select('user_id', 'user_name', 'user_description', 'id')
```

```
[41]: distinct_users = k.select('user_id').distinct()
score = influence.select('user_id', 'user_name' , 'Max_reach', 'user_descrip',
↳ 'inf_score')
```

```
[42]: k12_score = distinct_users.join(score, distinct_users.user_id == score.user_id,
↳ 'inner').drop(score.user_id)
```

```
[45]: top50_influencer_k12 = k12_score.orderBy(col('inf_score').desc()).limit(50)
top50_influencer_k12_df = top50_influencer_k12.toPandas()
```

```
[46]: top50_influencer_k12_df
```

```
[46]:
```

	user_id	user_name	Max_reach	\
0	759251	CNN	61179807	
1	29417304	deray	1023675	
2	1326229737551912960	libsoftiktok	1893691	

3	51241574	AP	16078817
4	95092020	jordanbpeterson	3768807
5	28785486	ABC	17804328
6	26548315	soledadobrien	1362825
7	1367531	FoxNews	23697482
8	738779772	LakotaMan1	442384
9	18266688	TomFitton	2055758
10	806906355214852096	RepRaskin	611043
11	5392522	NPR	9018858
12	2417586104	SebGorka	1253517
13	24165761	MichaelSkolnik	275298
14	812135885328236551	RealSaavedra	322211
15	48459553	KatiePavlich	944012
16	18831926	DrEricDing	729021
17	26520948	ARmastrangelo	230565
18	74286565	Microsoft	12250352
19	18005085	MZHemingway	944712
20	15012486	CBSNews	8894778
21	7702542	DLoesch	1211713
22	194984676	TakaTina1	595928
23	3066800573	realchrisrufo	490037
24	286998245	Phil_Lewis_	300076
25	246939630	shannonrwatts	601731
26	196168350	AnnCoulter	2113935
27	30900841	agentbizzle	144707
28	358545917	Cernovich	1107623
29	1344951	WIRED	10268400
30	15872418	ABSCBNNews	8895337
31	25598396	nhannahjones	694008
32	15907183	cmclymer	399568
33	25235151	RitaPanahi	349644
34	836953913207185413	MeliMels99	50428
35	188793260	ninaturner	591798
36	926164634570067968	MuellerSheWrote	504252
37	15207668	HouseGOP	1356394
38	16714347	jason_koebler	28862
39	601535938	RealMattCouch	575551
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41	199399909	NicholasFerroni	129051
42	457984599	BreitbartNews	1885703
43	739844197935644672	AmoneyResists	190870
44	33773592	AstroKatie	426704
45	34713362	business	9160188
46	91478624	Forbes	18711065
47	4541535439	jennycohn1	238554
48	20545835	newsmax	2050260
49	754393222563102720	instablog9ja	1859826

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1 I will never betray my heart. Activist. Organizer. Educator || @PodSaveThePpl || Author || IG: iamderay || deray@campaignzero.org || (410) 204-2013 (text me)

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6 working mom

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9 President, Judicial Watch. Fact checker. "Expert" (These are my personal views only!) LATEST BEST SELLER BOOK: A Republic Under Assault: <https://t.co/OSmAJ7aAGp>

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11 News. Arts & Life. Music & more. This is NPR. Securely send us news tips: <http://securedrop.npr.org>

12 A nice old lady once called me Mr. MAGA.

13 Founding Partner of @WeAreSoze. Father to Mateo Ali. Board: Trayvon Martin Fdn, @NYJusticeLeague + @RockTheVote Jr. Board: @PublicTheaterNY info@mskolnik.com

14 Senior Reporter at @realDailyWire. Retweets endorsement.

15 Proud American Woman Don't panic! Si se pwodway! Retweets are probably endorsements."The road to hell is paved with good intentions."

16 Epidemiologist, health economist. Co-founder @TheWHN. Former 16 yrs
 @Harvard. Alum @JohnsHopkins|@HarvardEPI. COVID updates since Jan
 '20-<http://nym.ag/3olszuo>

17 @BreitbartNews reporter /
 @JohnCarrollU alumna / daughter of immigrants / descendant of gladiators /
 tweets are my own

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 every person and every organization on the planet to achieve more. Support:
 @MicrosoftHelps

19 Editor-in-chief, @FDRLST. Senior Journalism
 Fellow, @Hillsdale. Fox News Contributor. "Be lovers of freedom, and anxious for
 the fray!"

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 original reporting and trusted news.\n\n CBS | Streaming on the CBS News app |
 @ParamountPlus

21 Host of the nationally syndicated @DanaLoeschRadio #1 midday
 12-3pET M-F. Bestselling author, 2A advocate, Daria, shadowbanned.
<http://danaloesch.substack.com>

22 Stand up comedian°Role models
 @Leratokganyago°@RealBlackCoffee°°@lamiezHolworthy Bookings
 °Afritrendz.marketing@gmail.com WhtsAp0634521861 Wifey @_Sinombulelo

23 Writer, filmmaker, activist. Manhattan
 Institute and City Journal. Sign up for my newsletter:
<http://christopherrufo.com/newsletter>.

24
 detroit native. senior front page editor @huffpost. subscribe to my newsletter!

25 Founder of @MomsDemand, grassroots army of @Everytown / @AmericanU
 Fellow / Author of Fight Like a Mother / Boards @WeAdvancePeace, @EmergeAmerica
 / #MizzouMade

26
 Author. NEW SUBSTACK: <http://anncoulter.substack.com>

27 Supervising Producer/Writer/Video Host. Makes shows &
 podcasts at IGN & elsewhere. Produces music. Collects toys. Eats pizza. Stays
 busy. He/him.

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 Stories, video, and multimedia for Filipinos worldwide, from ABS-CBN News and
 Current Affairs

31 Reporter @nytmag//Slanderous & nasty-minded mulattress//Co-founder
<http://idabwellssociety.org> //smart&thuggish//Knight Chair @howardu//Creator
 #1619Project//

32 Writer. Lesbian. Veteran. Hoya. She. |Rep: @lynnjohnstonlit |
 @HRC | @GUPolitics | @TeamLPAC | cmclymer@gmail.com | subscribe:

<https://t.co/zZjhwNRmqL> #BLM

33 The truth is incontrovertible.
Malice may attack it, ignorance may deride it, but in the end, there it is.
Winston Churchill

34 Ranking member of the Radical Left. I loathe racism, bigots,
child abuse, elderly abuse, animal abuse. Women control their own bodies. I'm
writing a book!

35 Thought leader. Activist. Senior Fellow at
@RacePowerPolicy. Former Ohio State Senator & Professor. Host of Unbossed on
@TYT (Premiers 10/17)

36
<http://post.news/muellershewrote> Tweets by @allisongill.
<http://muellershewrote.com> She/her. BLM @dailybeanspod

37
We are the Republican Conference in the United States House of Representatives

38
I love the internet :(EIC @motherboard // jason@motherboard.tv Signal:
202-505-1702

39 Christian-Father-Investigator-Political Analyst-Razorback -
<https://t.co/LYhBXdIh63> - Truth Slinger - Si Vis Pacem, Para Bellum -
IG/GETTR/Gab/MeWe: @RealMattCouch

40 Journalist, wife, mother,
dog-lover. Truth-teller @nypost @dailytelegraph @foxnews Author of bestseller
#LaptopFromHell

41 As a kid, I wanted to be a
superhero, psychologist, philanthropist, philosopher, actor and comedian... So I
became a teacher.

42
News, commentary, and destruction of the political/media establishment.

43 Host of @AmericaRisesUp. Gay AF. Dems are pro-America. @GOP is
anti-women, anti-truth, and anti-democracy. We will win. #BlackLivesMatter
#IStandWithUkraine

44 Cosmologist, pilot, connoisseur of cosmic catastrophes. @TEDFellow.
Author: "The End of Everything (Astrophysically Speaking)". Personal account.
She/her. Dr.

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47 I write about elections and the Christian Right for
@bucksco beacon; Mastodon = jennycohn@toad.social; Support my work: <http://ko-fi.com/jennycohn1>

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3	1.412216e+10
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37	5.258287e+08
38	4.972923e+08
39	4.856499e+08
40	4.573565e+08


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41 4.488014e+08
42 4.444900e+08
43 4.401343e+08
44 4.159511e+08
45 4.101869e+08
46 3.933369e+08
47 3.866824e+08
48 3.457673e+08
49 3.427152e+08

```

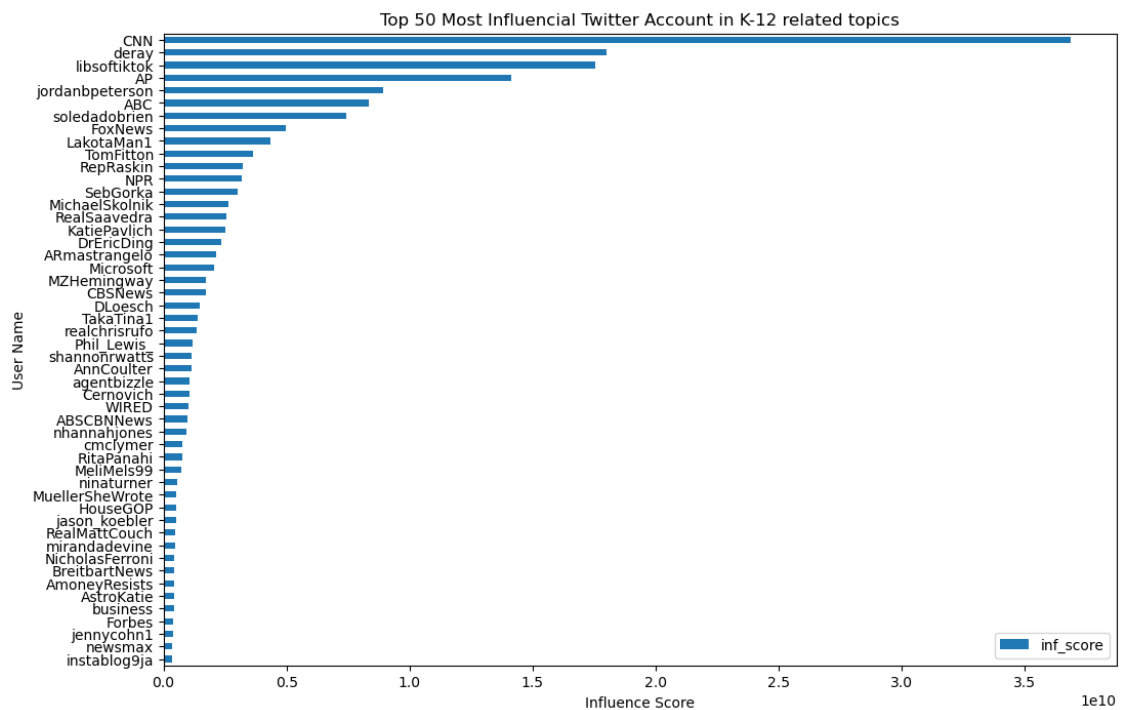
```

[47]: ax = top50_influencer_k12_df.plot(x='user_name', y='inf_score', kind='barh',
    ↳ figsize = (12, 8))

ax.set_ylabel('User Name')
ax.set_xlabel('Influence Score')
ax.set_title('Top 50 Most Influential Twitter Account in K-12 related topics')
ax.invert_yaxis()

# show the plot
plt.show()

```



```

[ ]: #original

```

```
[ ]: k12_df_ori = k12_df.filter(col('retweet').isNull())
k12_df_ori = k12_df_ori.select('user_id', 'user_name', 'user_description', 'id')
distinct_users = k12_df_ori.select('user_id').distinct()
k12_score_ori = distinct_users.join(score, distinct_users.user_id == score.
    ↳user_id, 'inner').drop(score.user_id)
top50_ori_influencer_k12 = k12_score_ori.orderBy(col('inf_score').desc()).
    ↳limit(50)
top50_ori_influencer_k12_df = top50_ori_influencer_k12.toPandas()
```

```
[50]: top50_ori_influencer_k12_df
```

```
[50]:
```

	user_id	user_name	Max_reach \
0	759251	CNN	61179807
1	1326229737551912960	libsoftiktok	1893691
2	51241574	AP	16078817
3	28785486	ABC	17804328
4	1367531	FoxNews	23697482
5	738779772	LakotaMan1	442384
6	18266688	TomFitton	2055758
7	806906355214852096	RepRaskin	611043
8	5392522	NPR	9018858
9	812135885328236551	RealSaavedra	322211
10	48459553	KatiePavlich	944012
11	26520948	ARmastrangelo	230565
12	74286565	Microsoft	12250352
13	7702542	DLoesch	1211713
14	194984676	TakaTina1	595928
15	3066800573	realchrisrufo	490037
16	286998245	Phil_Lewis_	300076
17	246939630	shannonrwatts	601731
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19	1344951	WIRED	10268400
20	25598396	nhannahjones	694008
21	15907183	cmclymer	399568
22	188793260	ninaturner	591798
23	926164634570067968	MuellerSheWrote	504252
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25	601535938	RealMattCouch	575551
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28	33773592	AstroKatie	426704
29	34713362	business	9160188
30	91478624	Forbes	18711065
31	20545835	newsmax	2050260
32	754393222563102720	instablog9ja	1859826

33	15754281	USATODAY	4937290
34	42958829	CBSEveningNews	400081
35	33276161	JohnFugelsang	497571
36	800707492346925056	axios	654241
37	1917731	thehill	4477859
38	21035409	michaelianblack	1863694
39	21728303	keithboykin	257347
40	962650783182331904	SydneyLWatson	370782
41	1683622159	kdnerak33	55568
42	511402689	WorldAndScience	2409070
43	6473022	ChrChristensen	35054
44	1332809596885405702	piper4missouri	81086
45	16664681	latimes	4022357
46	39453212	gmanews	6475965
47	31667539	ChristinaPushaw	271384
48	116579971	GadSaad	629192
49	1417895107915702272	Barbara4NC	56171

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9

Senior Reporter at @realDonaldTrump. Retweets endorsement.

10 Proud American Woman Don't panic! Si se
prowdway! Retweets are probably endorsements."The road to hell is paved with good
intentions."

11 @BreitbartNews reporter /
@JohnCarrollU alumna / daughter of immigrants / descendant of gladiators /
tweets are my own

12 We're on a mission to empower
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13 Host of the nationally syndicated @DanaLoeschRadio #1 midday
12-3pET M-F. Bestselling author, 2A advocate, Daria, shadowbanned.
<http://danaloesch.substack.com>

14 Stand up comedian°Role models
@Leratokganyago°@RealBlackCoffee°°@lamiezHolworthy Bookings
°Afritrendz.marketing@gmail.com WhtsAp0634521861 Wifey @_Sinombulelo

15 Writer, filmmaker, activist. Manhattan
Institute and City Journal. Sign up for my newsletter:
<http://christopherrufo.com/newsletter>.

16
detroit native. senior front page editor @huffpost. subscribe to my newsletter!

17 Founder of @MomsDemand, grassroots army of @Everytown / @AmericanU
Fellow / Author of Fight Like a Mother / Boards @WeAdvancePeace, @EmergeAmerica
/ #MizzouMade

18 Supervising Producer/Writer/Video Host. Makes shows &
podcasts at IGN & elsewhere. Produces music. Collects toys. Eats pizza. Stays
busy. He/him.

19
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20 Reporter @nytmag//Slanderous & nasty-minded mulattress//Co-founder
<http://idabwellssociety.org> //smart&thuggish//Knight Chair @howardu//Creator
#1619Project//

21 Writer. Lesbian. Veteran. Hoya. She. |Rep: @lynnjohnstonlit |
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22 Thought leader. Activist. Senior Fellow at
@RacePowerPolicy. Former Ohio State Senator & Professor. Host of Unbossed on
@TYT (Premiers 10/17)

23
<http://post.news/muellershewrote> Tweets by @allisongill.
<http://muellershewrote.com> She/her. BLM @dailybeanspod

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I love the internet :(EIC @motherboard // jason@motherboard.tv Signal:
202-505-1702

25 Christian-Father-Investigator-Political Analyst-Razorback -
<https://t.co/LYhBXDIh63> - Truth Slinger - Si Vis Pacem, Para Bellum -

IG/GETTR/Gab/MeWe: @RealMattCouch

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comedian-actor-broadcaster & recovering cynic * SiriusXM #127 M-F * <http://instagram.com/johnfugelsang/> * The Sanity-cast:<http://apple.co/38mTKu0>

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37

The Hill is the premier source for policy and political news. Follow for tweets on what's happening in Washington, breaking news and retweets of our reporters.

38

YouTube sensation

39

Author • Race Against Time: The Politics of a Darkening America

40

Very important doctor. Claiming to be American-Australian.

41

Teacher, mother, firefighter wife. My dogs follow me everywhere. Scatter kindness & listen to Pearl Jam. Nerds are cool. M.Ed. Opinions my own. #science

42

Frequently updated assortment of tweets related to the world of science (with some side tracking) - As an Amazon Associate we earn from qualifying purchases

43 American. Professor at Stockholm University.
 Ph.D. University of Texas at Austin. Write stuff about journalism, politics,
 culture. 49ers.

44 Teacher,
 podcaster, and former Democratic Nominee for State Representative in MO HD1.
 #DirtRoadDemocrat

45 News from a West Coast perspective.

46 Welcome to the official Twitter account of GMA News in the Philippines.

47 here to debunk false Narratives
 about Florida & @GovRonDeSantis • John 15:18 • personal views my own; likes !=
 endorsements

48 Professor, Evolutionary Behavioral
 Scientist, Author. Opinions are mine alone. Retweets do not necessarily imply an
 endorsement.

49 Proud Mom furious with Republican Greg Murphy for selling out NC to
 MAGA. I know we can beat him. But I need your help:
<http://secure.actblue.com/donate/bg4us>

	inf_score
0	3.687826e+10
1	1.755550e+10
2	1.412216e+10
3	8.343108e+09
4	4.977012e+09
5	4.327474e+09
6	3.647698e+09
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8	3.166468e+09
9	2.553039e+09
10	2.499744e+09
11	2.142641e+09
12	2.058059e+09
13	1.482652e+09
14	1.380467e+09
15	1.345827e+09
16	1.163924e+09
17	1.146588e+09
18	1.066056e+09
19	1.007159e+09
20	9.151924e+08
21	7.802992e+08
22	5.355170e+08
23	5.332885e+08
24	4.972923e+08
25	4.856499e+08

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26  4.444900e+08
27  4.401343e+08
28  4.159511e+08
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35  2.994667e+08
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48  1.276292e+08
49  1.238360e+08

```

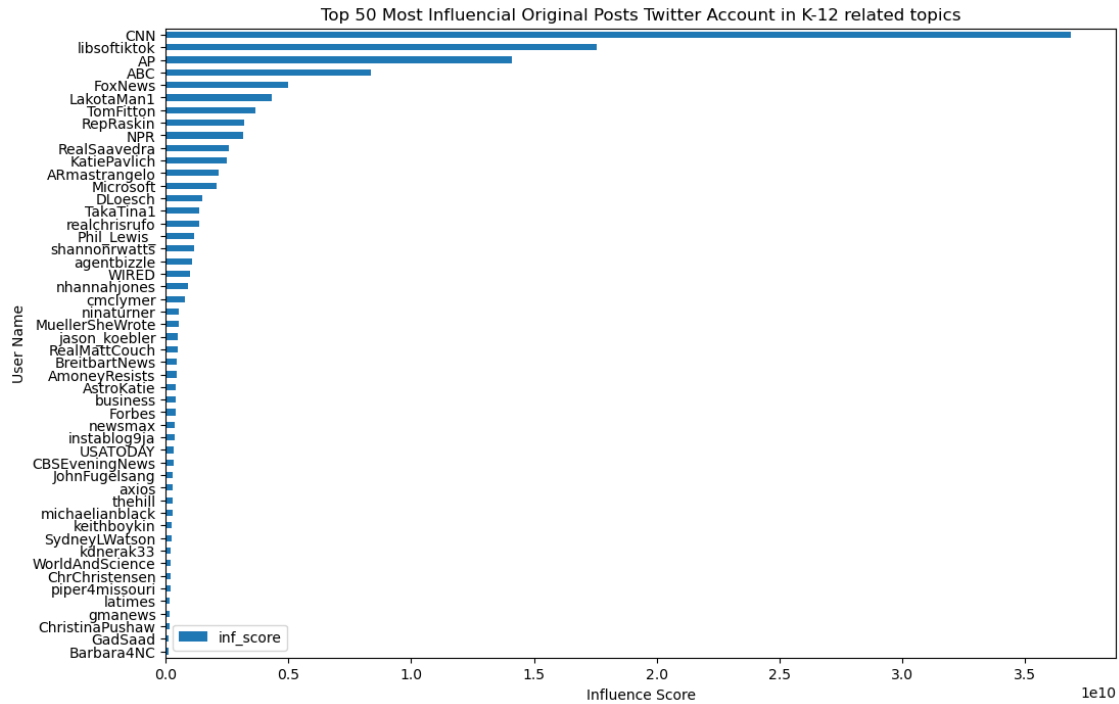
```

[54]: ax = top50_ori_influencer_k12_df.plot(x='user_name', y= 'inf_score',
      ↪kind='barh', figsize = (12, 8))

ax.set_ylabel('User Name')
ax.set_xlabel('Influence Score')
ax.set_title('Top 50 Most Influential Original Posts Twitter Account in K-12_
      ↪related topics')
ax.invert_yaxis()

# show the plot
plt.show()

```



```
[ ]: # Retweet
```

```
[52]: k12_df_rt = k12_df.filter(col('retweet').isNotNull())
k12_df_rt = k12_df_rt.select('user_id', 'user_name', 'user_description', 'id')
distinct_users = k12_df_rt.select('user_id').distinct()
k12_score_rt = distinct_users.join(score, distinct_users.user_id == score.
    ↳user_id, 'inner').drop(score.user_id)
top50_rt_influencer_k12 = k12_score_rt.orderBy(col('inf_score').desc()).
    ↳limit(50)
top50_rt_influencer_k12_df = top50_rt_influencer_k12.toPandas()
```

```
[53]: top50_rt_influencer_k12_df
```

```
[53]:
```

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0	29417304	deray	1023675
1	1326229737551912960	libsofttiktok	1893691
2	95092020	jordanbpeterson	3768807
3	26548315	soledadobrien	1362825
4	2417586104	SebGorka	1253517
5	24165761	MichaelSkolnik	275298
6	18831926	DrEricDing	729021
7	18005085	MZHemingway	944712

8	15012486	CBSNews	8894778
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15	836953913207185413	MeliMels99	50428
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17	601535938	RealMattCouch	575551
18	32201297	mirandadevine	348241
19	199399909	NicholasFerroni	129051
20	739844197935644672	AmoneyResists	190870
21	4541535439	jennycohn1	238554
22	798953701972938752	NickKnudsenUS	237195
23	36529101	seanmdav	336496
24	778763106289758208	JennaEllisEsq	912000
25	2405640916	jiggyjayy2	221298
26	800707492346925056	axios	654241
27	125128723	RaheemKassam	409663
28	1323214644	HC_Richardson	391220
29	91583544	NickAdamsinUSA	479424
30	16523905	robbystarbucks	293376
31	22650211	GMA	3803223
32	1432769984539893760	antifaoperative	81110
33	3930472251	Out5p0ken	96672
34	634075747	koolk123456	252449
35	1683622159	kdnerak33	55568
36	850107536	codeorg	1030564
37	1016054014373519360	PacheduZW	283880
38	39308549	DailyCaller	1045602
39	2393323908	thecjpearson	402305
40	56257903	senatormelendez	53171
41	60606206	ThatTimWalker	139194
42	16664681	latimes	4022357
43	860715570	MalloryMcMorrow	263251
44	810055220	ProudElephantUS	176978
45	2640729706	ImSpeaking13	123801
46	15460048	MIT	1260888
47	1106771843929788419	NotHoodlum	135529
48	31667539	ChristinaPushaw	271384
49	1017637447	MomsDemand	349846

user_descrip \

0 I will never betray my heart. Activist. Organizer. Educator ||
 @PodSaveThePpl || Author || IG: iamderay || deray@campaignzero.org || (410)
 204-2013 (text me)

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 podcast here:

3
 working mom

4
 A nice old lady once called me Mr. MAGA.

5 Founding Partner of @WeAreSoze. Father to Mateo Ali. Board: Trayvon
 Martin Fdn, @NYJusticeLeague + @RockTheVote Jr. Board: @PublicTheaterNY
 info@mskolnik.com

6 Epidemiologist, health economist. Co-founder @TheWHN. Former 16 yrs
 @Harvard. Alum @JohnsHopkins|@HarvardEPI. COVID updates since Jan
 '20-http://nym.ag/3olszuo

7 Editor-in-chief, @FDRLST. Senior Journalism
 Fellow, @Hillsdale. Fox News Contributor. "Be lovers of freedom, and anxious for
 the fray!"

8 Your source for
 original reporting and trusted news.\n\n CBS | Streaming on the CBS News app |
 @ParamountPlus

9 Writer, filmmaker, activist. Manhattan
 Institute and City Journal. Sign up for my newsletter:
<http://christopherrufo.com/newsletter>.

10 Founder of @MomsDemand, grassroots army of @Everytown / @AmericanU Fellow
 / Author of Fight Like a Mother / Boards @WeAdvancePeace, @EmergeAmerica /
 #MizzouMade

11
 Author. NEW SUBSTACK: <http://anncoulter.substack.com>

12
 Writing again, find it on Substack.

13
 Stories, video, and multimedia for Filipinos worldwide, from ABS-CBN News and
 Current Affairs

14 The truth is incontrovertible. Malice
 may attack it, ignorance may deride it, but in the end, there it is. Winston
 Churchill

15 Ranking member of the Radical Left. I loathe racism, bigots, child
 abuse, elderly abuse, animal abuse. Women control their own bodies. I'm writing
 a book!

16
 We are the Republican Conference in the United States House of Representatives

17 Christian-Father-Investigator-Political Analyst-Razorback -
<https://t.co/LYhBXDIh63> - Truth Slinger - Si Vis Pacem, Para Bellum -
 IG/GETTR/Gab/MeWe: @RealMattCouch

18 Journalist, wife, mother, dog-lover. Truth-teller @nypost @dailytelegraph @foxnews Author of bestseller #LaptopFromHell

19 As a kid, I wanted to be a superhero, psychologist, philanthropist, philosopher, actor and comedian... So I became a teacher.

20 Host of @AmericaRisesUp. Gay AF. Dems are pro-America. @GOP is anti-women, anti-truth, and anti-democracy. We will win. #BlackLivesMatter #IStandWithUkraine

21 I write about elections and the Christian Right for @bucksco beacon; Mastodon = jennycohn@toad.social; Support my work: <http://ko-fi.com/jennycohn1>

22 Executive Director @DemCastUSA
Writing: @HuffPost @PatNotPart. Democracy is neat. We have a lot of work to do. #DemCast

23 CEO and Co-Founder of @FDRLST

24 America's Lawyer. Contributor @newsmax. THE JENNA ELLIS SHOW. Special Counsel @ThomasMoreSoc. Fmr Senior Legal Adviser & Counsel @POTUS45. Inquiries: @MicahBock

25 D.V. . I actually don't gaf.

26 Smart Brevity worthy of people's time, attention and trust. Subscribe to our newsletters: <https://bit.ly/3hMCmVn>

27 Editor-in-Chief of The National Pulse. Writer of irate Substack. Unlikely peace advocate.

28 Historian. Author. Professor. Budding Curmudgeon. I study the contrast between image and reality in America, especially in politics.

29 Best selling author endorsed by President Trump. President of @1FLAGUSA. Presidential Appointee. Australian by birth; American by choice. @A1Policy Ambassador.

30 Used To Direct Stars, Now I Fight For Freedom • Cuban American • Director/Producer • Free Thinker • Proud Dad • @LandonStarbuck •

31 Put some GOOD in your morning! Watch @GMA at 7am and around the clock at <http://GoodMorningAmerica.com!>

32 Potty Mouthed Anti-Racist/ Anti Child Trafficking Advocate/ Nonprofit/ Lefty/ #BlackLivesMatter/ Proud Ally / True Crime Addict/ Dallas Cowboys

33 I am not what you think I am. You are what you think I am. <https://masto.ai/@Out5p0ken> <https://out5p0ken.creator-spring.com/>

34 DM me for promos! + @hubsol2\nAlpha Discord locked at 1000 members. \nDm -

Exclusive Whitelist Collabs ^ Marketing | Advisor \nHead of WL Hunting
-walkersynth#6162

35 Teacher, mother, firefighter wife. My dogs follow me everywhere.
Scatter kindness & listen to Pearl Jam. Nerds are cool. M.Ed. Opinions my own.
#science

36 <http://Code.org> is a nonprofit dedicated to giving
every student in every school the opportunity to learn computer science. Anybody
can learn!

37 We are patriotic Zimbabwean citizens who strive to promulgate the
culture of transparency, responsibility and accountability without any fear or
favour.

38 <http://herotozerodoc.com>

39 Host, The CJ Pearson Show | The University of Alabama | Republican Strategist
40 CA Senator
28th District. USNavy Veteran, Mom of 5, small biz owner, Wife and Mom to
Sailors, #2A

41 A point of view

42 News from a West Coast perspective.

43 Michigan State Senator | @NotreDame | @raywert's ginger half | Noa's mom

44 Proud supporter of the Republican Party (@GOP)! Not authorized by
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45 Foul-mouthed feminist, anti-racism & human rights advocate, empath,
INFJ. Opinions = my own. Click bio link to filter to my tweets. Same @ on Post.
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46 The Massachusetts Institute of Technology is a world
leader in research and education. Related accounts: @MITevents @MITstudents
@MIT_alumni

47 Someone that you used to know. Commentary • Satirical Emeritus
48 here to debunk false Narratives about
Florida & @GovRonDeSantis • John 15:18 • personal views my own; likes =\=
endorsements

49 Join our grassroots movement of Americans demanding reasonable
solutions to address our nation's culture of gun violence. @MomsDemand is a part
of @Everytown.

inf_score

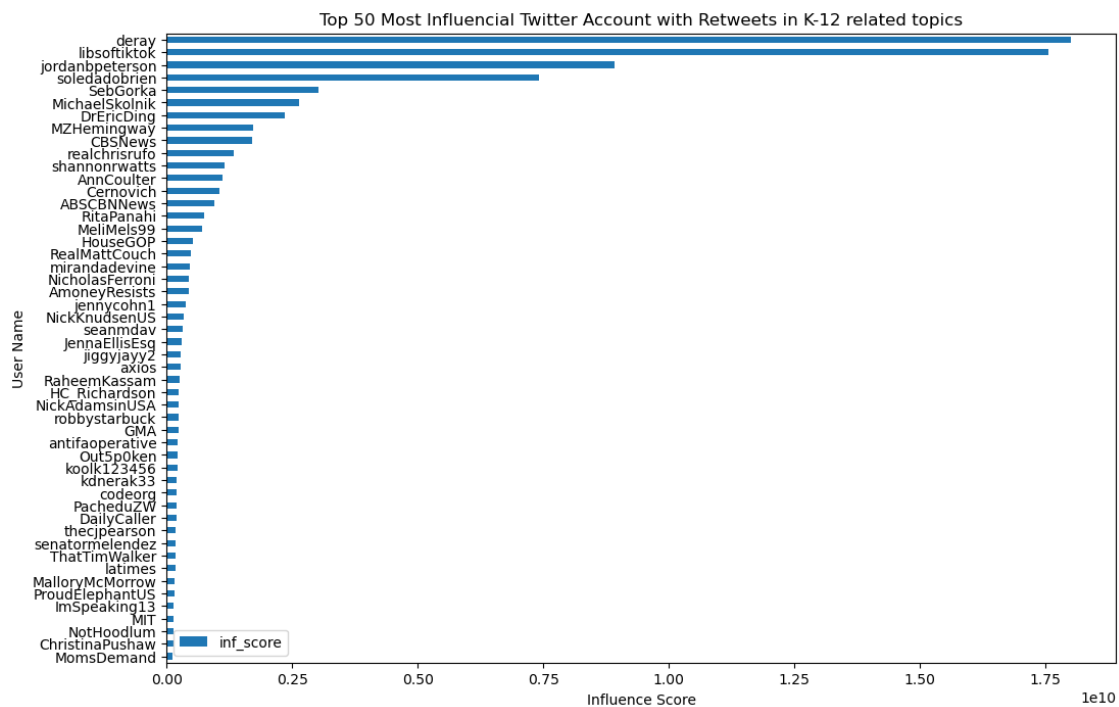
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1	1.755550e+10
2	8.917226e+09
3	7.409225e+09

4	3.016171e+09
5	2.648642e+09
6	2.355305e+09
7	1.715282e+09
8	1.705441e+09
9	1.345827e+09
10	1.146588e+09
11	1.120914e+09
12	1.048550e+09
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15	7.074040e+08
16	5.258287e+08
17	4.856499e+08
18	4.573565e+08
19	4.488014e+08
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21	3.866824e+08
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23	3.244663e+08
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30	2.321281e+08
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33	2.175258e+08
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40	1.751187e+08
41	1.735749e+08
42	1.719928e+08
43	1.663341e+08
44	1.633310e+08
45	1.484036e+08
46	1.479442e+08
47	1.392560e+08
48	1.365487e+08
49	1.240904e+08

```
[55]: ax = top50_rt_influencer_k12_df.plot(x='user_name', y= 'inf_score',
      ↪kind='barh', figsize = (12, 8))

ax.set_ylabel('User Name')
ax.set_xlabel('Influence Score')
ax.set_title('Top 50 Most Influential Twitter Account with Retweets in K-12_
      ↪related topics')
ax.invert_yaxis()

# show the plot
plt.show()
```



[]:

[]:

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