

Report

1 Recommender system

Recommender systems are intended to predict the interests of users and recommend product items that are likely to be of interest to them. Each basic recommender system contains background information, consisting of a set of users, a set of items, and the relationship between those that is often the rating that a user gives to an item.

1.1 Collaborative filtering algorithm

Collaborative filtering (CF) is a recommendation algorithm that is very common in just recommending friends of friends. If non-friend Y is the friend of your friend, then perhaps Y should also be your uncle. When user Y is a favourite of many of your mates, Y is a recommendation that is even better. The best recommendation for a mate is the client with whom you have the largest number of friends with each other (Marco, 2019).

1.2 Influence scoring algorithm

Assume that there are three friends in PersonA and PersonB: Friend1, Friend2, and Friend3. The score for PersonB as a PersonA friend is $1/\text{numfriends}(\text{Friend1}) + 1/\text{numfriends}(\text{Friend2}) + 1/\text{numfriends}(\text{Friend3})$, where $\text{numfriends}(f)$ is the number of friends f has. In other words, every friend of PersonA's F has to contribute a total influence rating of 1 and divides it evenly among all her friends (Marco, 2019).

1.3 Content-based algorithm

A recommendation for content-based recommender systems is based on the relationship between the attributes of items previously rated by a given user and items not yet rated by the user. The content-based approach uses the idea of monotonic personal interest, which suggests that in the near future most likely the interest of an individual will not shift. The process of recommending an item as a basic content-based approach involves a set of items and a set of users (Yang and Cai, 2016).

1.4 Comparing algorithm

The idea of using a recommender system is to propose the right recommendation for a particular user. In order to do that one needs to know what algorithm suitable and how data will be collected in order to make the right match. Using the results shown in the appendix tables below of this report, it would be fair to say there is one right algorithm to use.

For the collaborative algorithm, results gotten from there only recommends mutual friends that are not friend with the user regardless of the user preferences.

For the influence scoring algorithm, the results recommend friends of mutual friends with high scoring probability. This also does not include the user preferences.

In conclusion, to recommend a friend for a user, combination of using influence scoring and content-based algorithm would be right because it suggests a friend with high scoring probability and also consider the user choice of lifestyle. And in order to match all these particular items, the right choice of database system to use is a relational database so that the system can combines tables together to get all these information.

2 Appendix

2.1 Uploading and creating user data

```
// CREATE USER
```

```
USING PERIODIC COMMIT
```

```
LOAD CSV WITH HEADERS FROM
```

```
"file:///C:/Users/scikeh/Documents/facebook_users.csv" AS csvLine
```

```
CREATE(u:User{UserID:csvLine.UserID,FirstName:csvLine.FirstName, LastName:csvLine.LastName, Gender:csvLine.Gender, Hometown:csvLine.Hometown, City:csvLine.City});
```

2.2 Create user index

```
CREATE INDEX ON :User(UserID);
```

2.3 Upload and create post relationship between users

```
//create post between users
```

```
USING PERIODIC COMMIT
```

```
LOAD CSV WITH HEADERS FROM
```

```
"file:///C:/Users/scikeh/Documents/facebook-friendships.csv" AS csvLine
```

```
MATCH(u_1:User {UserID: csvLine.UserID_1})
```

```
MATCH(u_2:User {UserID: csvLine.UserID_2})
```

```
MERGE(u_1)-[:FRIENDS]->(u_2);
```

2.4 Comparing algorithm

IDs of users having the same output under both algorithms:	IDs of users having different output under both algorithms:
14775	19
16745	985
17730	1970
27580	2955
48265	3940
55160	4925
58115	5910
60085	6895

61070

7880
8865
9850
10835
11820
12805
13790
15760
18715
19700
20685
21670
22655
23640
24625
25610
26595
28565
29550
30535
31520
32505
33490
34475
35460
36445
37430
38415
39400
40385
41370
42355
43340
44325:
45310
46295
47280
49250

	50235 51220 52205 53190 54175 56145 57130 59100 62055 63040
--	--

2.5 Collaborative filtering algorithm

UserID	CQL Query	Collaborative_Filtering_Algorithm
197	MATCH(u1:User{UserID: '197'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	56,6025,10714,53675,761,38731,11178,41392,349 89,3615
985	MATCH(u1:User{UserID: '985'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	6363,3533,9375,19952,985,23853,12532,925,2590 ,4914
1970	MATCH(u1:User{UserID: '1970'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	790,515,25413,1590,3986,12824,23418,36815,197 3,1223
2955	MATCH(u1:User{UserID: '2955'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	200,9,15437,175,186,187,181,12225,1491,177
3940	MATCH(u1:User{UserID: '3940'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n)	3881,8074,3944,10674,2408,13933,20529,4555,81 18,3944

	RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
4925	MATCH(u1:User{UserID: '4925'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	7334,1547,7998,6154,1390,1919,10282,6064,7433 ,29832
5910	MATCH(u1:User{UserID: '5910'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	6317,17118,3130,10398,19106,17009,17347,3988, 3599,4988
6895	MATCH(u1:User{UserID: '6895'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	6088,24900,18227,39993,13798,4293,4177,15688, 14560,389
7880	MATCH(u1:User{UserID: '7880'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	9528,13734,23036,14463,10046,4591,471,22244,1 445,31124
8865	MATCH(u1:User{UserID: '8865'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	6083,7243,2032,1225,2406,13795,21132,10743,12 231,1286
9850	MATCH(u1:User{UserID: '9850'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	25241,5419,9846,9846,5094,25294,24420,19306,9 850,22283
10835	MATCH(u1:User{UserID: '10835'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	5468,17764,28464,7632,605,2332,10831,7108,758 6,8118

11820	MATCH(u1:User{UserID: '11820'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	9744,11265,24993,34753,14256,35199,8707,6716, 14876,2786
12805	MATCH(u1:User{UserID: '12805'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	6707,16015,7251,3417,1811,9190,7199,2028,2212 ,882
13790	MATCH(u1:User{UserID: '13790'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	963,39779,33611,16267,21916,12687,246,12992,7 604,1903
14775	MATCH(u1:User{UserID: '14775'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
15760	MATCH(u1:User{UserID: '15760'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	20159,11187,5212,2528,2805,16801,94,10613,163 37,9491
16745	MATCH(u1:User{UserID: '16745'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
17730	MATCH(u1:User{UserID: '17730'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
18715	MATCH(u1:User{UserID: '18715'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n)	20646,17778,42986,7394,18952,3822,23627,2283 3,38542,4807

	RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
19700	MATCH(u1:User{UserID: '19700'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	5091,5482,8424,15232,17318,5472,19830,15237,9 928,23189
20685	MATCH(u1:User{UserID: '20685'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	51712,16108,11831,14674,39412,29241,31538,24 927,35041,16459
21670	MATCH(u1:User{UserID: '21670'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	15692,9746,5118,9899,9722,15462,17539,21679,8 144,13440
22655	MATCH(u1:User{UserID: '22655'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	4919,12066,11710,30492,7453,30495,3822,3821,3 1553,4174
23640	MATCH(u1:User{UserID: '23640'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	20492,9433,10118,28240,21385,27559,9244,2093 6,9660,10220
24625	MATCH(u1:User{UserID: '24625'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	30055,43048,21332,11524,4822,22184,8087,8850, 22417,41192
25610	MATCH(u1:User{UserID: '25610'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	20492,9433,23380,12543,27049,11755,27068,202 92,26563,18116

26595	MATCH(u1:User{UserID: '26595'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	13207,7190,6678,5054,11985,12543,155,1568,504 7,12467
27580	MATCH(u1:User{UserID: '27580'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
28565	MATCH(u1:User{UserID: '28565'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	11305,6666,28565,10692,20444,5939,25194,2856 6,18328,27004
29550	MATCH(u1:User{UserID: '29550'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	24197,24426,5220,31984,21720,672,17818,7976,2 2080,21185
30535	MATCH(u1:User{UserID: '30535'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	2167,3010,11412,554,9018,18681,451,1760,20641 ,9996
31520	MATCH(u1:User{UserID: '31520'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	2148,5646,6980,3131,4602,12096,447,7615,3485, 4030
32505	MATCH(u1:User{UserID: '32505'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	31248,8180,19513,17921,32505,10164,2271,8624, 13486,37571
33490	MATCH(u1:User{UserID: '33490'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n)	13388,16973,21864,12496,10029,33485,40211,29 29,33491,9562

	RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
34475	MATCH(u1:User{UserID: '34475'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	11784,7070,12970,14873,7069,29187,9199,13008, 6262,3946
35460	MATCH(u1:User{UserID: '35460'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	56008,32661,14673,35782,38594,23854,7520,316 22,35460,60588
36445	MATCH(u1:User{UserID: '36445'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	10833,3980,8134,27482,14465,34045,25738,6735, 1944,15582
37430	MATCH(u1:User{UserID: '37430'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	16801,2131,16891,31858,12953,6870,13135,3141, 18821,1613
38415	MATCH(u1:User{UserID: '38415'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	6157,27332,31840,20297,9370,29332,7724,21027, 21955,30030
39400	MATCH(u1:User{UserID: '39400'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	3426,39400,27251,33909,57836,32755,21092,155 15,34010,16939
40385	MATCH(u1:User{UserID: '40385'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	13459,40387,33512,20005,40386,40384,27447,31 771,31773,3740

41370	MATCH(u1:User{UserID: '41370'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	14215,35602,25392,41007,2208,5032,8757,24196, 5415,8130
42355	MATCH(u1:User{UserID: '42355'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	55658,34085,44124,38408,15494,34085,42355,77 48,21590,24981
43340	MATCH(u1:User{UserID: '43340'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	30799,43343,43338,43339,43341,34703,8346,433 40,34146,43344
44325	MATCH(u1:User{UserID: '44325'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	1863,3197,2952,20691,39886,44325,53704,11456, 3231,44325
45310	MATCH(u1:User{UserID: '45310'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	19537,28286,36654,34726,56136,27793,13530,25 590,29652,15718
46295	MATCH(u1:User{UserID: '46295'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	28923,36325,35214,30494,27482,35214,16067,36 954,30892,12916
47280	MATCH(u1:User{UserID: '47280'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	15163,15154,24121,27535,28935,15188,12027,28 874,15160,12012
48265	MATCH(u1:User{UserID: '48265'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n)	1468

	RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
49250	MATCH(u1:User{UserID: '49250'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	32845,27743,38809,7495,6388,18068,44819,4881, 43009,47648
50235	MATCH(u1:User{UserID: '50235'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	21286,51028,24694,50235,17157,25398,50235,50 236
51220	MATCH(u1:User{UserID: '51220'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	28053,32541,54509,14358,14359,14341,11613,11 755,31083,27419
52205	MATCH(u1:User{UserID: '52205'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	16442,16438,34354,31378,41842,54285,52205,21 378,31641,37427
53190	MATCH(u1:User{UserID: '53190'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	15356,46657,19672,13156,29753,22253,35018,46 907,40051,26626
54175	MATCH(u1:User{UserID: '54175'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	50575,54175,14784,1631,54175,57633,47232,324 99,54176,46690
55160	MATCH(u1:User{UserID: '55160'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	

56145	MATCH(u1:User{UserID: '56145'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	47947,40801,48154,46524,28784,25103,25432,50 107,23626,22550
57130	MATCH(u1:User{UserID: '57130'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	34308,33906,57130,27364,39020,30342,42119,44 131,12948,42051
58115	MATCH(u1:User{UserID: '58115'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	3573
59100	MATCH(u1:User{UserID: '59100'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	2800,7400,18355,45324,20234,41742,207,29783,4 7563,6068
60085	MATCH(u1:User{UserID: '60085'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
61070	MATCH(u1:User{UserID: '61070'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	8240
62055	MATCH(u1:User{UserID: '62055'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n) RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	54501,59946,16773,34157,4411,42371,9458,3818 8,15706,40478
63040	MATCH(u1:User{UserID: '63040'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(n) WHERE NOT (u1)<-[:FRIENDS]-(n)	38541,19286,48203,42655,8823,45615,40839,420 26,5625,63040

	RETURN n.UserID AS MutualFriend, u2.UserID AS Friend, u1.UserID AS User, count(f1) as TotalMutualFriends ORDER BY TotalMutualFriends DESC LIMIT 10	
--	---	--

2.6 Influence scoring algorithm

UserID	CQL Query	Influence_Scoring_Algorithm
197	MATCH(u1:User{UserID: '197'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "197" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	39816,57421,3284,3285,750,12382,336 10,10700,3123,3944
985	MATCH(u1:User{UserID: '985'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "985" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	736,987,979,972,851,980,854,7460,976 ,973
1970	MATCH(u1:User{UserID: '1970'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "1970" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	17524,41220,56809,41222,53583,2283 0,14292,16790,1742,1712
2955	MATCH(u1:User{UserID: '2955'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "2955" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	2826,198,191,15437,9,16996,476,1224, 2954,13288
3940	MATCH(u1:User{UserID: '3940'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence	3961,1942,35939,51389,28618,3873,39 42,3414,3918,3950

	Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "3940" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
4925	MATCH(u1:User{UserID: '4925'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "4925" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	7353,11197,7687,4908,16907,25684,5522,1679,16558,33920
5910	MATCH(u1:User{UserID: '5910'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "5910" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	30805,869,45163,2523,2895,9205,14049,5922,5909,5923
6895	MATCH(u1:User{UserID: '6895'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "6895" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	6837,12445,17204,6840,42501,6542,6880,6838,31584,6944
7880	MATCH(u1:User{UserID: '7880'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "7880" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	5978,4591,4826,5972,23137,4883,22244,26498,12059,7680
8865	MATCH(u1:User{UserID: '8865'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "8865" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score	53932,79,2427,8149,7655,3424,12756,2266,554,2920

	ORDER BY Score DESC LIMIT 10	
9850	MATCH(u1:User{UserID: '99850'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "9850" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	5033,9837,9876,9870,9839,9846,8408, 8681,10151,785
10835	MATCH(u1:User{UserID: '10835'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "10835" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	10831,10808,315,12974,10826,5468,19 28,10812,10810,29508
11820	MATCH(u1:User{UserID: '11820'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "11820" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	11550,25757,4374,8182,22346,3374,37 12,433,10813,5438
12805	MATCH(u1:User{UserID: '12805'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "12805" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	213,11289,902,882,11290,866,217,235 27,381,3446
13790	MATCH(u1:User{UserID: '13790'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "13790" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	"094,5382,736,732,7022,735,20618,957 8,13792,13783
14775	MATCH(u1:User{UserID: '14775'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common)	

	WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "14775" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
15760	MATCH(u1:User{UserID: '15760'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "15760" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	12129,25506,9172,8797,23479,11690,2791,8888,471,2990
16745	MATCH(u1:User{UserID: '16745'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "16745" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
17730	MATCH(u1:User{UserID: '17730'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "17730" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
18715	MATCH(u1:User{UserID: '18715'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "18715" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	364,9616,9,1139,16808,2291,27920,207,41764,1794
19700	MATCH(u1:User{UserID: '19700'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "19700"	23704,44835,5487,5475,2294,5467,16143,10810,5170,10354

	RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
20685	MATCH(u1:User{UserID: '20685'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "20685" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	27226,24826,13885,32944,35733,4195, 32940,45172,44918,25536
21670	MATCH(u1:User{UserID: '21670'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "21670" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	43295,13050,13051,4566,3162,5603,21 875,13047,10448,22129
22655	MATCH(u1:User{UserID: '22655'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "22655" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	4190,4187,4181,27224,4182,24826,117 10,7232,4157,4178
23640	MATCH(u1:User{UserID: '23640'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "23640" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	8915,11389,12817,17451,8920,8853,17 446,30474,15646,6960
24625	MATCH(u1:User{UserID: '24625'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "24625" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	56031,56873,24012,56033,53204,1375 5,13756,30917,30054,12693

25610	MATCH(u1:User{UserID: '25610'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "25610" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	36695,20307,16331,14666,19160,8448, 20684,6564,2946,15111
26595	MATCH(u1:User{UserID: '26595'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "26595" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	19994,12899,9129,11114,12259,26425, 6544,11848,17038,13161
27580	MATCH(u1:User{UserID: '27580'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "27580" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
28565	MATCH(u1:User{UserID: '28565'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "28565" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	17043,43702,28568,45920,2339,20444, 52773,10671,6577,49407
29550	MATCH(u1:User{UserID: '29550'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "29550" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	13649,35715,35667,13650,8757,23604, 35764,7976,35462,13655
30535	MATCH(u1:User{UserID: '30535'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence	58037,42822,10215,53536,49924,2444 8,10045,43152,43154,19711

	Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "30535" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
31520	MATCH(u1:User{UserID: '31520'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "31520" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	13807,6391,17485,8478,2148,2835,293 4,527,3485,16876
32505	MATCH(u1:User{UserID: '32505'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "32505" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	9904,25260,19519,19576,10943,15282, 24361,5157,25247,25271
33490	MATCH(u1:User{UserID: '33490'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "33490" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	40211,54472,24902,21995,48491,4598 2,11780,54470,38616,34250
34475	MATCH(u1:User{UserID: '34475'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "34475" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	3917,7765,7111,36624,18334,8418,711 4,1942,31058,3609
35460	MATCH(u1:User{UserID: '35460'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "35460" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score	32661,21364,392,28230,19719,35457,3 6070,18872,21285,16136

	ORDER BY Score DESC LIMIT 10	
36445	MATCH(u1:User{UserID: '36445'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "36445" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	5090,2332,2677,11844,2319,3606,10810,1946,3651,13007
37430	MATCH(u1:User{UserID: '37430'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "37430" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	23231,49394,7455,19097,37432,31694,50844,11367,1284,58728
38415	MATCH(u1:User{UserID: '38415'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "38415" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	5321,57938,25641,6561,24571,18793,57939,17588,5325,19427
39400	MATCH(u1:User{UserID: '39400'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "39400" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	7717,15194,33909,57836,21092,10392,3426,20359,13791,32755
40385	MATCH(u1:User{UserID: '40385'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "40385" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	27447,40384,40387,20005,3740,31771,20517,40386,31773,33512
41370	MATCH(u1:User{UserID: '41370'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common)	25392,41434,41435,22297,16553,35634,41368,41374,24196,3893

	WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "41370" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
42355	MATCH(u1:User{UserID: '42355'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "42355" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	42793,55658,25441,14151,47583,2938 5,14673,42357,24981,20393
43340	MATCH(u1:User{UserID: '43340'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "43340" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	43341,8346,34146,43343,30799,34703, 43342,43339,43338,43344
44325	MATCH(u1:User{UserID: '44325'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "44325" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	60713,28724,4411,9327,44324,6068,44 323,3094,9332,12588
45310	MATCH(u1:User{UserID: '45310'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "45310" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	30405,26985,40002,34002,36734,3563 7,36118,10729,36755,43128
46295	MATCH(u1:User{UserID: '46295'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "46295"	27296,33981,4042,42092,27299,33982, 31796,35215,29052,34399

	RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
47280	MATCH(u1:User{UserID: '47280'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "47280" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	15188,39622,28815,33907,12046,1602 8,15158,26886,26667,31823
48265	MATCH(u1:User{UserID: '48265'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "48265" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	1468
49250	MATCH(u1:User{UserID: '49250'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "49250" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	16408,45087,47926,45965,41207,7402, 13766,13638,12702,45719
50235	MATCH(u1:User{UserID: '50235'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "50235" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	24694,25398,21286,17157,51028,5023 6
51220	MATCH(u1:User{UserID: '51220'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "51220" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	14358,30932,26168,17387,41242,3195 8,45927,28174,39415,24947

52205	MATCH(u1:User{UserID: 52205})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "52205" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	54726,46409,27893,8535,37974,17637, 7481,7728,31358,31376
53190	MATCH(u1:User{UserID: '53190'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "53190" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	34694,56940,554,41520,21776,41497,4 1494,19334,62016,41495
54175	MATCH(u1:User{UserID: '54175'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "54175" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	47232,1631,57633,32499,54176,50575, 46690,14784
55160	MATCH(u1:User{UserID: '55160'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "55160" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
56145	MATCH(u1:User{UserID: '56145'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "56145" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	47947,3761,38577,49491,2111,37578,1 0317,61355,1990,14652
57130	MATCH(u1:User{UserID: '57130'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence	30268,34009,25173,44131,25164,5713 1,30342,25183,27360,37780

	Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "57130" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
58115	MATCH(u1:User{UserID: '58115'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "58115" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	3573
59100	MATCH(u1:User{UserID: '59100'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "59100" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	25875,40785,7406,49192,47913,3261,19663,60420,54761,15498
60085	MATCH(u1:User{UserID: '60085'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "60085" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	
61070	MATCH(u1:User{UserID: '61070'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "61070" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	8240
62055	MATCH(u1:User{UserID: '62055'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "62055" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score	61800,57928,48103,37658,10488,62092,56025,31035,22056,11287

	ORDER BY Score DESC LIMIT 10	
63040	MATCH(u1:User{UserID: '63040'})-[f1:FRIENDS]->(u2:User) MATCH(u2:User)-[f2:FRIENDS]->(common) WITH u1, u2, 1/toFloat(count(f1)) AS Influence Match (u2)-[f2:FRIENDS]-(common) WHERE NOT (u1)-[:FRIENDS]-(common) AND common.UserID<> "63040" RETURN common.UserID AS MutualFriend, SUM(Influence) AS Score ORDER BY Score DESC LIMIT 10	19281,24892,31412,8823,26562,38688, 7704,24082,59806,59806,19286