

CASE NAME: THE SOCIAL NETWORK

ATTENDING OFFICER(S): DREW HOSKINS

CHICAGO POLICE DEPARTMENT

CRIME LOCATION: FRIENDS SUSHI



Andia, Bargo, Cargo, Dargo, Endia, Fargo, Gargo, Hargo, India, Jargo, Kargo, Largo, Margo, and Nargo have last names from among the set Ababa, Barius, Carius, Darius, Ebaba, Farius, Garius, Harius, Ibaba, Jarius, Karius, Larius, Marius, and Narius.

The loneliest person among them is very sad and may be at risk for committing a crime! Can you do your part to help him or her make as many friends as possible this weekend?

The loneliest person is defined as the one with the least number of friends. Ties are broken by last name being closest to the end of the alphabet.

To determine someone's last name, multiply the number of friends he or she has by the number of second-degree friends (friends for which the closest connecting path is of length two). Add that number to the first letter of the first name, wrapping around after N, to get the last name. For example, if Margo was the loneliest person and had two friends and three second-degree friends, his name would be Margo Ebaba. ($M+2*3 \text{ mod } O = E$).

One more thing: To fight off inauthentic friendships, the loneliest person demands that any friend requests include the first name of the person who is furthest away from him or her in the social graph.

Facts:

- Fargo and Bargo are three degrees away.
- Nargo has friended Kargo and Hargo.
- Andia, Bargo, Cargo, and Dargo are one friendship short of forming a 4-clique. Among them, they only have one friendship outside the clique.
- Endia friended Hargo, Jargo, and Largo.
- Fargo and Margo haven't been acquainted, but they have a mutual friend.
- India and Largo are the only two friends of a mutual acquaintance, but have not met.
- Gargo has five friends, each of which is friends with exactly two others of Gargo's friends.
- Dargo and Largo are four degrees away, and Margo and Bargo are on any path between them.
- Gargo is friends-of-friends with Margo and Jargo, but isn't friends with either.
- Fargo and Gargo don't get along, and are not friends.
- There are twenty total friendships.