Case – Personalized Recommendations of Buyers and Sellers on Bitcoin OTC based on Mutual Trust

Situation: It is widely accepted that personalization is a key part of digital transformation. Netflix recommends different movies, Peloton recommends different workouts, and Amazon recommends different products to different users. It also features in social networks and matching settings. OkCupid has to decide which user to recommend to another user for a date, and LinkedIn and Facebook give friend recommendations for expanding one's network. This case is situated in the context of matching buyers and sellers on the Bitcoin OTC network where it's more challenging because users are anonymous.

Complication: On Bitcoin OTC, since all transactions carry with them counterparty risk (risk of non-payment by one of the parties), it becomes important to keep track of people's reputations and trade histories, so that you can decrease your probability of getting ripped off. Can the system recommend trading partners for any user such that there is a high level of trust between them?

Key Question: Can we use the ratings data between buyers and sellers on Bitcoin OTC to decide which user to recommend to which other user such that they two have high level of trust between them?

Data: In this dataset, collected from a bitcoin trading platform called Bitcoin OTC, we have only four columns:

"sender","receiver","rating","time," Members rate other members in a scale of -10 (total distrust) to +10 (total trust). The first two columns correspond to userids of Bitcoin buyers and sellers who give each other a rating. The time column has a timestamp of the rating.

This type of data is very typical in many environments. The first three columns could be users and ratings of movies (Netflix) or of product views (or purchases) on your website.

Here is a glimpse of the first few rows of this otherwise large dataset.

	A	B	C	D
1	sender	receiver	rating	time
2	6	2	4	1.29E+09
3	6	5	2	1.29E+09
4	1	15	1	1.29E+09
5	4	3	7	1.29E+09
6	13	16	8	1.29E+09
7	13	10	8	1.29E+09
8	7	5	1	1.29E+09
9	2	21	5	1.29E+09
10	2	20	5	1.29E+09
11	21	2	5	1.29E+09
12	21	1	8	1.29E+09
13	21	10	8	1.29E+09
14	21	8	9	1.29E+09
15	21	3	7	1.29E+09
16	17	3	5	1.29E+09
17	17	23	1	1.29E+09
18	10	1	8	1.29E+09
19	10	6	7	1.29E+09
20	10	21	8	1.29E+09
21	10	8	1	1.29E+09
22	10	25	10	1.29E+09

Discussion questions:

1. How can we achieve our goal of match senders and receivers in a personalized manner?
2. Can you think of other applications of personalization in your context? Where would your company benefit from personalized recommendation of products to users or one type of user to another type of user.