

Recommendation Query 1

Recommendation Query 2

Recommendation Query 3

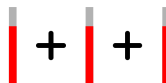
Vulnerable Users

Bob, John, and Tim are utilized as neighbors in the recommendation process. Thus, DP has to be applied to the data of three users.



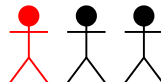
Total Privacy Risk

Since three users are utilized as neighbors in the recommendation process, the total privacy risk is high.



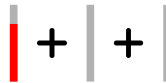
Vulnerable Users

Only Bob is utilized as neighbor in the recommendation process. John and Tim remain unused and thus, DP needs to be applied only to Bob's data.

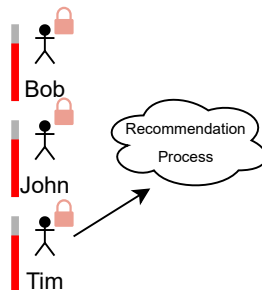
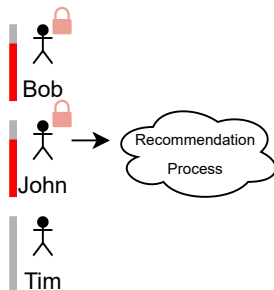
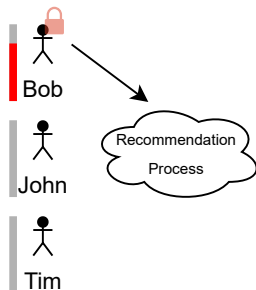


Total Privacy Risk

Bob is reused as neighbor for many recommendation queries. Via DP, Bob's privacy risk is kept at ϵ . Plus, John and Tim remain unused, which leads to low total privacy risk.



UserKNN



ReuseKNN

