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Privacy-preserving mining of association rule on outsourced cloud data from multiple parties. (English) [Zbl 06944258](#)

Susilo, Willy (ed.) et al., Information security and privacy. 23rd Australasian conference, ACISP 2018, Wollongong, NSW, Australia, July 11–13, 2018. Proceedings. Cham: Springer (ISBN 978-3-319-93637-6/pbk; 978-3-319-93638-3/ebook). Lecture Notes in Computer Science 10946, 431-451 (2018).

Summary: It has been widely recognized as a challenge to carry out data analysis and meanwhile preserve its privacy in the cloud. In this work, we mainly focus on a well-known data analysis approach namely association rule mining. We found that the data privacy in this mining approach have not been well considered so far. To address this problem, we propose a scheme for privacy-preserving association rule mining on outsourced cloud data which are uploaded from multiple parties in a twin-cloud architecture. In particular, we mainly consider the scenario where the data owners and miners have different encryption keys that are kept secret from each other and also from the cloud server. Our scheme is constructed by a set of well-designed two-party secure computation algorithms, which not only preserve the data confidentiality and query privacy but also allow the data owner to be offline during the data mining. Compared with the state-of-art works, our scheme not only achieves higher level privacy but also reduces the computation cost of data owners.

For the entire collection see [\[Zbl 1392.94009\]](#).

MSC:

[68P27](#) Privacy of data

Keywords:

[association rule mining](#); [frequent itemset mining](#); [privacy preserving outsourcing](#); [cloud computing](#)

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