

Privacy Preserving in Association Rule Mining on Horizontally Partitioned Database

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Abstract : The advancement in data mining techniques plays an important role in many applications. In context of privacy and security issues, the problems caused by association rule mining technique are investigated by many research scholars. It is proved that the misuse of this technique may reveal the database owner's sensitive and private information to others. Many researchers have put their effort to preserve privacy in Association Rule Mining. Amongst the two basic approaches for privacy preserving data mining, viz. Randomization based and Cryptography based, the later provides high level of privacy but incurs higher computational as well as communication overhead. Hence, it is necessary to explore alternative techniques that improve the over-heads. In this work, we propose an efficient, collusion-resistant cryptography based approach for distributed Association Rule mining using Shamir's secret sharing scheme. As we show from theoretical and practical analysis, our approach is provably secure and require only one time a trusted third party. We use secret sharing for privately sharing the information and code based identification scheme to add support against malicious adversaries.

Keywords : Privacy, Privacy Preservation in Data Mining (PPDM), horizontally partitioned database, EMHS, MFI, shamir secret sharing

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