

VARIABLE K-ANONYMITY: AN APPROACH FOR MINIMIZING DATA LOSS AND MAINTAINING USEFULNESS OF DATA

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Abstract:

The data published by organizations for various purposes may contain sensitive information about individuals. This sensitive information can be leaked out indirectly by different types of malicious activities, such as linking and inference attacks. K-anonymity model has been proposed in the existing literature to secure the confidentiality of individuals from such types of attacks. It uses generalization and suppression techniques for providing security to the data. But as the generalization increases, the data becomes less meaningful. A new approach has been proposed in the presented study which is termed as variable K-anonymity technique. In this approach, the data is generalized in such a way so as to keep the data loss minimal while maintaining the privacy of data. In the proposed variable K-anonymity technique, the nature of data is taken into account, on the basis of which the value of K is decided. Therefore, the value of K is not fixed and varies depending on the nature of data. Left-over records, which are usually left for the next release or the attributes that are suppressed, are also adjusted in a more efficient manner in the variable K-anonymity technique. The proposed technique is a natural way of maintaining the anonymity of the data. An algorithm is proposed, which decides the best value of K for the given data with minimum generalization and suppression. The algorithm is applicable on large and growing data sets.

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