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## Privacy Preserving Data Preprocessing for Web Usage Data Mining

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### Abstract

Many online systems offer recommendations of varied aspects to web users to provide enough utility and the right kind of user preference data. Most of these recommendations arise out of well-processed underlying data from data mining procedures. The data mining procedures tend to expose seemingly private data item values to unintended analysts, especially that of demographic data. In this paper, the research study proposes a privacy-preserving framework architecture that enforces privacy on the data item values of web log and demographic data of users. Privacy issues are addressed by introducing a privacy-preserving database that stores a privacy commitment tuple; composed of the data item value and the privacy-preservation property values. This methodology approach proposes to offer merits in ensuring the protection of web users' privacy information during data mining tasks. Additionally, the approach offers different levels of protection; where on the user-centric level, users' personal privacy preferences are enabled, as part of subscribing to the laid down privacy policy on the web system. On the other hand, general privacy protection is enforced at the system-level by service providers (SPs).