A prediction-based smart meter data generator

With the prevalence of cloud computing and Internet of Things (IoT), smart meters have become one of the main components of smart city strategy. Smart meters generate large amounts of fine-grained data that is used to provide useful information to consumers and utility companies for decision-making. Now-a-days, smart meter analytics systems consist of analytical algorithms that process massive amounts of data. These analytics algorithms require ample amounts of realistic data for testing and verification purposes. However, it is usually difficult to obtain adequate amounts of realistic data, mainly due to privacy issues. This paper proposes a smart meter data generator that can generate realistic energy consumption data by making use of a small real-world dataset as seed. The generator generates data using a prediction-based method that depends on historical energy consumption patterns along with Gaussian white noise. In this paper, we comprehensively evaluate the efficiency and effectiveness of the proposed method based on a real-world energy data set.

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