Improving Product Placement in Retail with Generalized High-Utility Itemsets

ABSTRACTS

Product placement in retail has a significant impact on the sales revenue of retailers. Hence, research efforts are being made to improve retailer revenue using high-utility pattern mining based product placement approaches. However, none of these existing approaches has explored generalized high-utility itemset mining for determining product placement in retail. The knowledge of generalized high-utility itemsets extracted from user purchase transactional database in conjunction with a product taxonomy can provide new insights about customer purchase behaviour.

MODEL OVERVIEW

Normally, any category or generalized-item in GUI index can cover several leaf-level items (in the taxonomy) for placing on retail shelf-space. For each such generalized item, we maintain a revenue contribution list, RCL, which stores potential items based on their mean net revenue.

Given the amount of shelf space to be allocated, our proposed placement framework identifies high-revenue generalized itemsets from the GUI index and allocates high revenue items from their respective RCL. Our performance study using real datasets shows the effectiveness of our proposed scheme w.r.t. two existing schemes.

OBJECTIVE

- Formulate an effective framework based on generalized high utility itemsets towards retail product placement to improve revenue.
- Demonstrate the effectiveness of the proposed scheme w.r.t. existing works on real retail datasets.
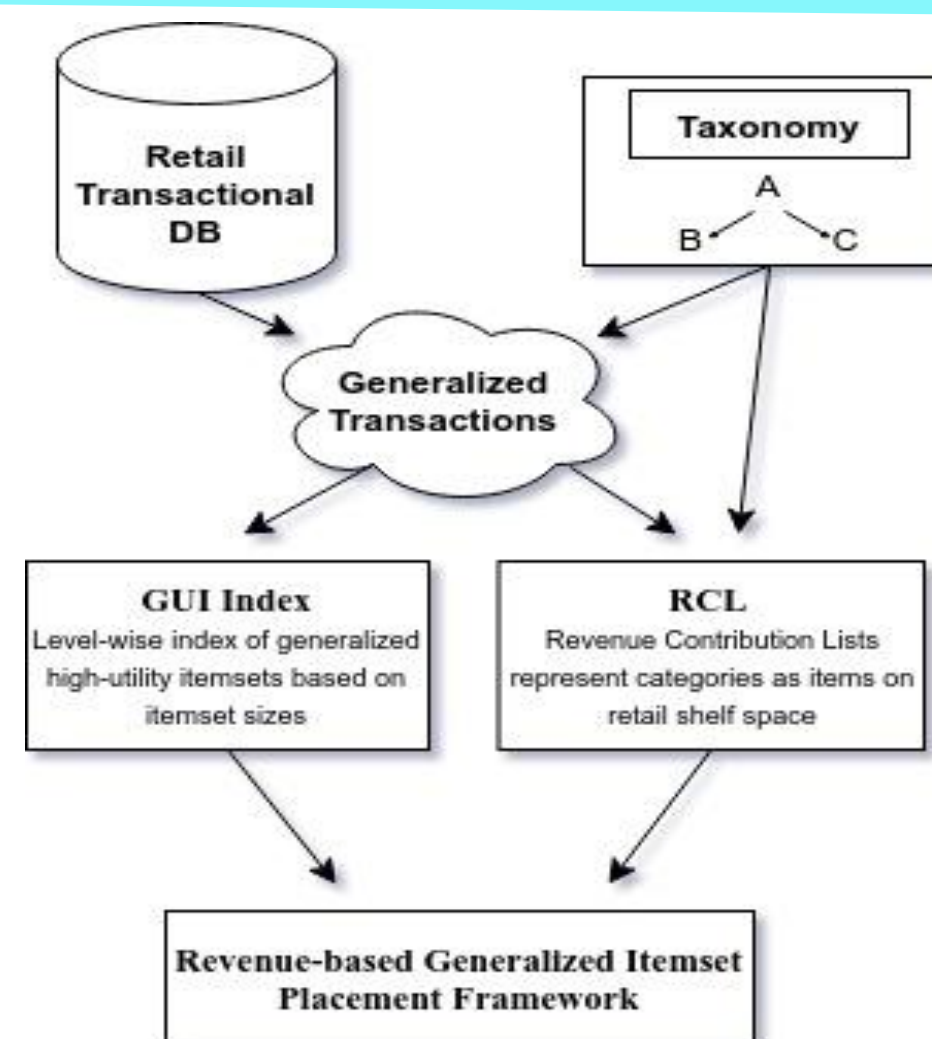
METHOD

Given a set of items, transactional database over and taxonomy over the items, the GUI index for each taxonomy level, is built from high-revenue generalized itemsets. GUI is a multi-level index, where the jth level of GUI corresponds to j-sized high-revenue generalized itemsets.

PUBLICATION

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