

Responses to the Comments of Reviewers for our paper titled “An Incremental Framework to Extract Coverage Patterns for Dynamic Databases”

We would like to take this opportunity to express our sincere thanks to the reviewers for their comments and suggestions, which have improved the paper.

Reviewer 2

Comment 1: The authors claimed that one of their contributions is the introduction of incremental mining of coverage patterns (CP). But, CP were introduced in Refs. [37, 38]. Moreover, the mining of CP from static databases and the mining of CP from additions of incremental data are not new as they were presented in Refs. [37, 38].

Response: We would like to clarify that the works in references [37, 38] contain the basic coverage pattern model and algorithms to extract coverage patterns in case of static databases. In particular, note that the works in [37, 38] do not consider incremental algorithms for mining coverage patterns. In contrast with the works in [37, 38], the contribution of this paper concerns incremental algorithms for mining coverage patterns in case of dynamic databases.

Comment 2: The authors also claimed that another contribution is additional experiments. As in many journal extensions of a conference papers, additional experiments do not count towards as significant contributions or added values.

Response: It is to clarify that our conference paper [35] only addresses the case of addition of transactions. In this paper, we have handled the case of deletion of transactions as well as the case of simultaneous addition and deletion of transactions. Hence, the theoretical aspects (including approach and algorithms) of the conference paper [35] has also been

significantly extended to deal with the afore-mentioned cases. Furthermore, we have also added corresponding experiments.

As suggested by the reviewer, we have now removed the performance evaluation from the list of contributions and added it as a separate paragraph in the paper.

We have also considerably improved the presentation as well as the overall readability of the paper.

Comment 3: The added-value (i.e., solely the incremental deletion of data) seems to be minimal. More added-value materials should be included.

Response: Normally in the practical scenarios, some transactions will be added and some transactions will be deleted. So, the algorithm proposed in [35] is limited in terms of its applicability to practical scenarios. In this paper, we have developed the framework by investigating the issues regarding the deletion of transactions as well as the simultaneous addition and deletion of transactions. The proposed framework contains additional concepts regarding both addition and deletion aspects. This journal version of the paper contains considerable extension as compared to the paper in [35].

Reviewer 3

Comment 1: In Section 4.7, Page 11, Line No.51, "Figure 1" needs to be replaced by "Figure 2"

Response: Thank you. The suggestions are incorporated in the paper. Also, the draft has been read thoroughly.

Comment 2: Table 4 on page 13 is not very clear in the sense that unites/metrics of parameters are not mentioned in it and there are different parameters and each may have different unites/metrics. For example, what

does 25K mean? either it is transactions, records, items. Similarly what does 0.5 mean either it is Seconds or percentage (%). Clarification is required in the table.

Response: Thank you. As suggested by the reviewer, we have added description in Table 4 . We have also modified the text in the experimental set-up (page 12, second column, fourth paragraph) for more clarity.

Comment 3: In Abstract and Introduction section, three contributions have been mentioned. I think there are only two contributions and third one is required to prove the efficiency of the CCPM. Without experimentation, you cannot verify the efficiency. It could be a contribution if you have built a benchmark that can be used in future for comparison purpose.

Response: As suggested by the reviewer we have listed the first two as a summary of our contributions. We have moved third contribution to the paragraph.

