Chapter 8

Conclusions and Future Directions

The Knowledge Data Engineering need to be designed, updated for meeting challenges with developments in Web Services, Grid, Cloud Computing facilities. This thesis addressed some of the related issues which are centric to the transaction logs. Some of the main contributions are:

- Five step mechanism to obtain CanTree which shards a large-scale mining task into independent, parallel tasks. This study shows that the computational time in the conventional as well as in five step mechanism is almost linear with a significant slope with respect to increase in number of transactions. The graph indicates that when the transactions are increasing, the five step mechanism outperforms the conventional CanTree in computation time. We proposed a model to achieve indicates the proposed model achieves the performance gain during tree construction and can be effectively used in temporal and distributed environment. This can be included further in tree restructuring to produce a highly compact frequency descending tree structure. CanTree occupies much of the space since it does not share any prefixes. We proposed a solution to reduce its size in order to meet the memory requirements.

- The proposed Local and Global Association Rules Architecture in order to obtain Global Compact Pattern Tree as given in Figure 4.10 in chapter 4 abstracts the local data at local site providing the local rules and supports global abstraction and henceforth global rules. This local and global rules can be used in decision support system. The present study discovers the global knowledge by privacy preserving and technically through multithreaded and distributed environment.
Another proposed methodology Incremental Compact Pattern Tree is developed in chapter 5 of the thesis. It is a variant of tree based incremental mining methods for extracting frequent patterns. The incremental transactions knowledge can be derived independently which minimizes intercoupling issues. This will have extreme benefits when incremental transactions (logs) are huge as well as distributed. One can plan scalable and/or real time frequent patterns extraction system.

In the category of temporal association rule mining. In Chapter 6 we proposed a periodic knowledge extraction system to have rules for predecided/spell-out time zones. The rules can be further abstracted by updating rules pertaining to a particular period like day-wise (Monday, Tuesday, Wednesday and so) and week-wise (first week, second week so on) and month-wise (January, February, March and so on). Thus the proposed method supports for periodic knowledge and even for long term knowledge.

**Future Directions**

The present study is carried out individually/separately without considering any aspects like correlation, coupling factor etc., By keeping track of this interdependency and structural aspects one may be able to achieve a faster as well as precise knowledge.