CHAPTER 7

CONCLUSIONS

This chapter presents conclusions of the research work presented in this thesis. It also gives future directions of the work that can be carried out further.

7.1 Conclusions

A layered model with set of generic conceptual rules is proposed for performance requirements identification. The proposed model along with rules is used to identify the performance requirements from all perspectives of all stakeholders. The Proposed model is applied on three case studies successfully. All the performance requirements are identified using the proposed model for all stakeholders. The completeness of the identified performance requirements is determined by using the metrics proposed by David. The identified performance requirements are validated using the checklist. The information used in the validation process is collected from different users in the form of answers for questions which are given in checklist. Based on the information given by users, the requirements are validated and results obtained are satisfactory.

Four metrics are proposed for assessing the criticality of the performance parameters which are identified along with the performance requirements from the layered model. The criticality assessment is done on three case studies. The critical performance parameters are identified for all three case studies. The proposed metrics are validated analytically using Weyukers principles and found that all applicable principles are satisfied.
Another layered model is proposed for performance requirements refinement. This layered model includes seven layers. Along with the model, nine rules are proposed for refinement of performance requirements. The rules are presented in the form of algorithm and flow chart for easy understanding. The rules are used in reestablishing the objectives of performance requirements. The proposed model is applied on two case studies i.e., online shopping system and railway reservation system. The new requirements are derived from performance failures and original requirements based on the feedback information from the users by using the rules proposed. These new requirements derived are incorporated into performance requirements specification for next release of the software. The results obtained after using the second release are satisfactory. The performance has been improved from first release to second release.

7.2 Future work

The effect of operating system and programming languages that are used in developing the software system can also be studied how it impacts the system performance. Application domain dependency can also be studied to know how it will have the effect on performance. Domain of the product is also important to consider during the development of the product because the usage of the product and environment differs from the domain to domain. For example the domain constraints of real time systems and safety critical systems may differs with other domains. The effect of other nonfunctional requirements on performance of the system can also be studied. Finally the seven layered model proposed can also be extended to reliability requirements because the reliability of the product always known once it is released and used.