CHAPTER 7

CONCLUSIONS AND SUGGESTIONS
FOR FUTURE WORK

7.1 CONCLUSION

The extensive literature reviewed, has indicated that there is no model available for adaptive reusability with reusable components in risk analysis for object oriented programs. An innovative model has been proposed in the name of ‘ARRA’ Model and the design and developmental details along with its validity are presented in this thesis. This model has been demonstrated and validated with selected applications.

In any software development set up, professionals differ from each other in their attitude, technical skill and ability. Talented software professionals form a great asset to an organization. They, therefore reduce the levels of risks involved in successful product development. Analysis for Line of codes and performances of different software professionals are different for any program development project undertaken. An organization can allot the work to professionals of mixed experiences to reduce the risk factor and alter the time schedule. Analysis can be normalized and it is proved that set theory may be adapted for inclusion to vertical and horizontal software professionals. This may be done through chain methodology of risk reduction. This has been clearly demonstrated in this thesis.
Software organizations always focus on improving technology so as to reduce overheads in people management, increase customer satisfaction, cut short the time and cost of production etc. Reusability is motivated to save the efforts and investments in software development. In software development life cycle, the coding phase involves more risks corresponding to the knowledge and experience level of each software professional. This risk related analysis has been carried out in this thesis and the risk has been classified into various levels during the development stage of the software. Reusability reduces the complexity of the system in a new environment. This has been proved in this thesis.

The risk analysis of adaptive reusability has been implemented to fetch the information on reusability and the number of risks encountered in program functions and packages at the time of transformation. The role of ARRA model is thus meant for identifying the reusable components for code reuse. It is also used for adaptability analysis, checking of reusable components in functions of C++ and packages of JAVA. These languages are based on the reusability property of object oriented programs. The ARRA model proposed in this thesis thus aims to identify the reusability related risks only during the implementation phase.

The information about reusable functions can be collected from various programs to check risk factors so that it can ensure the adaptability in new software environment. Function reusability can also be tested for object oriented program of C++. The properties are: Similarity of functions, linkages, compiling of programs etc. They are used to ensure the adaptive reusability transformation and risk factors. This is demonstrated clearly by this ARRA model.

The implemented model is thus useful to find reusability related risks during object-oriented program development. The reusability package in
JAVA is another tool designed and implemented for adaptive reusability risk analysis by using this ARRA model. Reusability of package is analyzed and implemented by measuring the coupling and cohesion metrics. The identification of packages of software also ensures the reusability of packages. Reusable functions in C++ and packages in JAVA have been implemented and demonstrated with sample input and output data. The minimum required reusable functions of C++ and package of JAVA for any adaptable project should be determined with respect to benchmark values. The benchmark values should be determined through a social survey.

7.2 SCOPE FOR FUTURE WORK

As a suggestion for future work, this Adaptive Reusability Risk Analysis model can be extended to identify inheritance related risks in the design and code development phases too. This will be useful for program developments. Subsequent changes can be brought about in programs and other software engineering tasks. In future, systems might be enhanced to detect multiple inheritance hierarchy reusable systems to ensure transformation of components without any form of risks. In future, tools may be developed for other object oriented programs like Smalltalk, Objective –C, etc. Knowledge based preparation of intelligent agents using artificial intelligence may be tested with this ARRA model. This may be tried out in the same behavioral environment, to reuse similar components for avoiding natural risks thus reducing development time of the process. Reusability motivation can be demonstrated to improve the quality of product in object oriented environment. Additional models may be developed for risks related bug detection in languages like Objective-C. Further research may be taken up for proprietary packages like ORACLE.
7.3 SUMMARY

This research presents a framework for adaptive reusability related risk factors. The information is collected to analyse reusability with assurance of transforming the codes from one module to another without enervative and destructive risks. Design and development of a new analytical model ‘ARRA’ for reusing software has been tried out.

It clearly demonstrated that the developed, tested and validated ARRA model will improve the software reusability, through enervative and destructive risk factors. This will reduce schedule time and cost of the product development. It has been tested in two languages viz., C++ and Java. Both languages are used for developing system software and nearly a physical machine (Hardware). Therefore they are reliable and efficient. Hence these languages have been considered in this research.