Chapter 9

Conclusion & Future Scope

The objective of the thesis is to provide some methods or techniques in order to predict software cost estimation based on quality requirements. In order to achieve this objective, we conducted personal interviews and online surveys along with literature review.

In literature review, various papers on software cost estimation were studied wherein the purpose, advantages and disadvantages of these different approaches were understood. In the process of this review, I came across many papers on comparisons of algorithmic and non-algorithmic approaches along with some guidelines where to use and when to use these approaches. During this process, I also studied the preference of the software industry in terms of software cost estimation. This finding was very much similar to what I found during the process of interviews and surveys. As an outcome of literature review, it has been suggested that software industry has more trust on hybrid approach as compare to single method. According to the authors, software industry got better results by using hybrid approach or a tool that used a combination of formal and expert estimation techniques. This review was followed by software quality literature review where various papers on software quality were studied.

After literature review, interviews and surveys were conducted in order to judge the current scenario prevailing in the market. Some of the factors identified during this process are:

- How are companies dealing with this process?
- Do companies provide training in this regard?
- Which technique do they prefer using?
- Barriers and challenges they face during estimation, etc.

After collecting relevant data, analyses were conducted in order to collate the data and identify key highlights. The outcome of this activity was somewhat similar to the literature review.

After this process, a new technique was proposed which was based on as suggested by earlier phases i.e. a combined framework on COCOMO II and Wideband Delphi estimation approach. Herein, it was suggested that COCOMO II is best suited formal techniques for 21st century as
mentioned by Boehm. It could be easily integrated and combined with wideband expert estimation method. As a result, this technique was tested on some data and hence proved that this technique is working better than using these approaches separately.

The proposed technique was not enough to prove the objective, so software quality was studied in-depth in order to find its influence on effort and cost estimation. As mentioned in the literature, it is difficult to quantify software quality and its attributes so, new method was proposed to quantify it. This method can easily be combined with estimated effort estimation based on client’s requirement.

**Future Scope:**

After the in-depth research of real and literature data, some problems associated with the current scenario were identified. As the solution of the problem, one new software cost estimation model has been proposed along with an integrated software quality framework. In the new software quality framework, only three main quality factors would be considered from an experiment standpoint. Going forward, the number of quality factors can be increased.

Further, we can also introduce the concept of big data to improve the software cost estimation. Big data is high on demand today and is very useful in handling and analyzing massive data. Using this will not only improve the cost estimation procedure, but also analyze the historical data efficiently. Through the use of big data, one can also propose a new cost estimation technique incorporating quality requirements. Today software industry is flooded with historical data, however, lacks enough tools to use that data. This concept will help those companies in estimating better cost and reducing the overall effort.