**1.1. Problem Statement**

The general problems to be addressed by the Test Tool project are the following:

1. to provide a reliable and easy to use Test Tool that
   1. automatically creates tests from a question bank
   2. allows students to take the test
   3. automatically grades tests and assigns scores for the

While these problems have been solved by a number of commercially available and public domain products, the Test Tool provides a solution with certain functional improvements over existing tools. Specific problem areas are the following:

1. creating custom quizzes which have content of tests set by difficulty and chapter of questions
2. adding a timer to notify test taker the amount of allotted time left

The Test Tool project addresses the requirements of a particular customer. This aspect of the problem is one of combining a set of existing features in a way that the features have yet to be combined in another product.

In addition, the development of functioning software, the Test Tool project focuses on two additional problems not addressed in commercial tools:

1. to provide a pedagogical example for use in the instruction of software engineering, including an example of the practical application of formal methods
2. to provide fully documented, public domain source code for use by others