testing the software irrespective of the field it belong. For the verification purpose this method is applied on database and web base application.

**1.1 Motivation**

On the most software projects testing activities consume atleast 30 percent of the project effort. On safety critical applications, software testing consumes between 50 to 80 percent of project effort. Software testing is essential to ensure software quality [4].This statistics is the driving force of this project, the project aims to perform testing in an efficient way using efficient process. Various researchers had described various levels of testing and the information regarding how these are perform in different phases of software development. They had proposed various process of testing based on the features and properties of their domain. These researches contribute a lot in performing the testing in an efficient manner. Years after years the performance of these processes keeps on increasing considering the various issues of testing. But Considering their domain the researchers involved domain specific information in these processes. This results in different testing process for different domains. Even the industrial issues faced by testers are far away from these methods. So, there is a need of enhancing the testing process in such a way that it is application independent, more understandable and can consider all industrial issues.

**1.2 Related Work**

As testing is not a new field of research so many researchers proposed different methodology suitable to test applications in different domains. With a well defined process testing can be completed efficiently and effectively thus making the project successful within cost and budget.

For the information system testing traditionally V model is used which describe the relationship between the test activities and development activities. It describe the sequence of activities like module implementation, detail design, Architectural design, Requirement Specification. The V model described is abstract in the manner that it hides the detail regarding the activities involved in testing and is unable to guide the entire process of project. After the deficiencies of V model came into frame the improved V model is also proposed which involve the information of various stakeholders in testing activities.

For the verification purpose as we are considering two main types of applications web based and database. So the process of testing in these two applications is described as:

In the web based testing the testing process described by Lei Xu and Baowen Xu includes necessary steps of testing like testing requirements ,generation and selection of test cases, test case execution and metrics for result but the details regarding how these processes are carried out in different types of testing and in different phases of development are not included.

While In the Database application the testing process mentioned by Prapas Tongrak, Taratip suwannasart[27] is also a bit similar to that described by Lei Xu and Baowen Xu but the difference lies is that the process includes detail which are application dependent and contain the features related to database.

Various stakeholders are involved in the testing process who perform different testing activities. The primary goal of testing is to describe the order of different testing activities which are to be performed and interaction between stakeholders and different activities. We surveyed many testing processes and envies that they do not describe the clear ordering and role of different stakeholders.

**1.3 Problem Statement**

The main motive of this project is to provide a well define process of testing . It also provide the details of various stakeholders involved and there respective work depending on the challenges exist in the industry. The testing methods adopted by researchers lacks in the details of activities involved in testing. Every researchers proposed the different methods of testing irrespective of any process , method or framework. All these methods are proposed based on the features of the application for which testing is carried out.

This project is to develop:

**A framework to provide the generic view of testing and the processes adopted by various stakeholders for performing different types of testing.**

The framework proposed describes about the various activities of testing. It describes how testing is carried out in different phases of software development. It also include the details regarding the objective of testing and the approach which is followed to fulfill these objective. This framework describe testing as a whole and specifies all the features related to it.

The project also specifies about the different types of testing like unit testing, integration testing, system testing, acceptance testing , regression testing and their respective subtypes. Along with this it describe how these testing are performed on different software application irrespective of its domain.

This project evolved the general features of applications and maintain the general process to perform testing on them. It is useful not only by the testers but also by the researchers to understand testing in a proficient way.

**1.4 Scope of Work**

This project describe about the generic framework for various types of testing . Though it is found that in various applications the method adopted for testing is different but considering the features of different domain here we develop such process which can perform effective testing on software irrespective of the domain it belong. After the development of process these are verified on two real world applications that is web based as well as database. This framework are useful for testers to determine the way testing is performed in software development phases to produce a high quality product. It also give a new view to testing so that testing stakeholders can understand testing more appropriately. Not only by testers this framework can also be used by various researchers to understand this view of testing and give there best to enhance these processes and remove its shortcoming. In this way testing can be performed in more efficient manner in near future.

The methodology developed is verified on two real world example i.e. one website is being tested using the QTP tool as well as student database is tested using SQL. The former is the type of automation testing while later is the type of manual testing.

**1.5 Organization of Thesis**

The remainder of thesis is organized as follows:

Chapter 2 gives the overview of software testing. It gives a brief idea about various types of testing. Then it introduces to the process of testing and various stakeholders involved in it. It also describes about the traditional model widely used in testing that is V –model. Then it describes about the types of testing, process of testing in web based application and at last it describes about the types of testing and process of testing involved in data base testing and also describe about testing in relational database application.

Chapter 3 provide the methodology proposed in this project. It provide first of all the generic framework of testing in which it describe the product and process aspects of testing .Then it describes about the testing process for various types of testing i.e. unit testing, integration testing, system testing, acceptance testing and regression testing .

Chapter 4 gives the experimental details of the project. It describes the implementation of the methodology proposed with the help of testing web application and student database system. It shows the tabular results for the generation of test cases then it generate scripts and at the end execution of test cases is done and result is matched according to the requirement of client.

Chapter 5 covers the conclusion of the work done in the project and what all improvements could be implicated in future. It also talks about the enhancement in the testing process efficiency by including the documents as well as including various other types of applications to verify results .

Chapter 6 shows different references including research papers, web sites and books that have been gone through for the project.

Finally the three appendices give the details of the tools and software used in the project. Appendix A gives the introduction to the QTP.

Appendix B gives the scripts produced while testing the web application.

Appendix C introduces the usage of SQL for fetching data from database using java coding.

Appendix D introduces the STAR UML which is the tool used for making sequence diagram for testing processes.