

A dissertation Report On

# Maintainability and Quality Analysis of Web Application

Submitted in partial fulfilment of the requirements

for the award of the degree of

**MASTER OF TECHNOLOGY**

**IN**

**SOFTWARE ENGINEERING**

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## DELHI TECHNOLOGICAL UNIVERSITY

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With due regards, I hereby take this opportunity to acknowledge a lot of people who have supported me with their words and deeds in completion of my research work as part of this course of Master of Technology in Software Engineering.

To start with I would like to thank the almighty for being with me in each and every step of my life. Next, I thank my parents and family for their encouragement and persistent support.

I would like to express my deepest sense of gratitude and indebtedness to my guide and motivator, **Mrs. Abhilasha Sharma**, Assistant Professor, Department of Software Engineering, Delhi Technological University for her valuable guidance and support in all the phases from conceptualization to final completion of the project.

I wish to convey my sincere gratitude to **Prof. O. P Verma**, Head of Department, and all the faculties and PhD. Scholars of Computer Engineering Department, Delhi Technological University who have enlightened me during my project.

I humbly extend my grateful appreciation to my friends whose moral support made this project possible. Last but not the least; I would like to thank all the people directly and indirectly involved in successfully completion of this project.

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**CERTIFICATE**

This is to certify that the project report entitled **Maintainability and Quality Analysis of Web Application** is a bona fide record of work carried out by Poonam Dhiman(2K12/SWE/19) under my guidance and supervision, during the academic session 2012-2014 in partial fulfilment of the requirement for the degree of Master of Technology in Software Engineering from Delhi Technological University, Delhi.

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## **ABSTRACT**

*The economy globalisation together with the need of new enterprise strategies has enormously promoted the development of web applications. Reverse engineering and reengineering methods, techniques and tools have proved useful to support the post delivery lifecycle activities of traditional software systems, such as maintenance, evolution, and migration. While considering the maintenance of web application reengineering of web application has been taken the most influential part of maintenance. Maintenance and reengineering terms are closely coupled with each other.*

*The problem of reengineering web applications is addressed in the thesis which presents STAR paradigms to define and implement a reengineering process that involves web applications and supporting tools. The research represents approaches of reengineering in web that how reengineering process can be carried out to evolution activities in legacy system as well as proposed the V model for reengineering process. The study presents the need of the technologies and approaches for building new web-services from existing web applications.*

*The analysis of quantitative measure of large set of websites plays a significant role in evaluating the quality of websites. The study, computes different metrics using a tool developed in MATLAB. Website quality prediction is developed using statistical and some machine learning methods. The work has been validated using dataset collected from webby awards web site. The results are analysed using Area Under the Curve (AUC) obtained from Receiver Operating Characteristics (ROC) analysis. The results show that the model predicted using the random forest and Bayes Net methods outperformed over all the other models. Hence, based on these results it is reasonable to claim that quality models have a significant relevance with design metrics and the machine learning methods have a comparable performance with statistical methods. Univariate analysis results provide an empirical view for website design guidance and suggest which metrics are more important for website development.*

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