RELEASE PLANNING PROBLEM WITH TESTING COVERAGE AND FAULT REDUCTION FACTOR UNDER IMPERFECT DEBUGGING

ABHISHEK TANDON∗
Shaheed Sukhdev College of Business Studies, University of Delhi Delhi, India
(E-mail: abhishektandon@sscbsdu.ac.in)

NEHA
Department of Operational Research, University of Delhi Delhi, India
(E-mail: neha28gondwal@gmail.com)

and

GURJEET KAUR
Shaheed Sukhdev College of Business Studies, University of Delhi Delhi, India
(E-mail: gurjeetkaur@sscbsdu.ac.in)

Abstract. In today’s technical world, growing interest of the users is evident on the software systems, which eventually have dragged the attention of many academicians and practitioners. Over the last few years, several researches have been done in order to develop a highly reliable software system. This proposed study provides a valuable addition to the literature of software reliability growth model and related software release time problem. Paper discusses the software reliability growth models that incorporate testing coverage and Fault Reduction Factor simultaneously. Models are developed using non-homogeneous Poisson Process and can be used to estimate the reliability of software system quantitatively. Further, we have determined the optimal time to release software into the market by minimizing the development cost subject to the reliability requirement. Paper finally takes into consideration sensitivity analysis in optimal release time problem taking into account the impact of variations in the cost parameters.

∗Corresponding Author
Communicated by Editors; Received June 9, 2021
AMS Subject Classification: 90B25, 90-04.
Keywords: Software Reliability Growth Model, Testing Coverage, Fault Reduction Factor, Release Planning Problem, Optimization Problem, Sensitivity Analysis.