Multi Up-gradation Software Reliability Growth Model Considering the Joint Effect of Testing and Operational Phase

Abstract

Software companies are coming with multiple add-ons to survive in the purely competitive environment. Each succeeding up-gradation offers some performance enhancement and distinguishes itself from the past release making it more prone to failures. For developing highly reliable software it is important to understand the manner in which faults might encounter. Majority of researchers have focused on understanding the fault removal phenomenon during testing phase but few have also focused on operational phase. With the aim of catering more realistic scenario for comprehending the fault removal process for successive release, both the faults of new release along with remaining bugs of its preceding release has been considered; wherein it is assumed that remaining faults of previous release can be debugged in its operational phase together with testing phase of newer version. Convolution of probability distribution function has been considered for capturing the effect of faults removed in testing (new release) and operational phase of just previous release. Further, two different cases are formulated depending upon the failure distribution being followed for testing as well as for operational phase. The proposed cases are validated on real data set.
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References


Index Terms
Keywords

Fault Removal Phenomenon (FRP), Multi Up-gradation, Operational Phase, Testing Phase.