ED³M: A Novel Defect Estimation Technique

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Abstract

An accurate prediction of the number of defects in a software product during system testing contributes not only to the management of the system testing process but also to the estimations of the required maintenance. In this paper, we present a new technique based on the estimation theory to compute an estimate of the total number of defects in an ongoing testing process. The technique does not depend on historical data or any assumptions from requirements and/or testers’ productivity. It relies only on the data collected during the process. Results from actual and simulated data sets show that an accurate prediction of the total number of defects within ±20% tolerance can be achieved in the early stages of the testing process.

Keywords: Defect prediction, system testing, estimation theory, maximum likelihood estimator, MLE.