

عنوان مقاله:

MARKOVIAN SOFTWARE RELIABILITY MODEL FOR TWO TYPES OF FAILURES WITH IMPERFECT DEBUGGING RATE AND GENERATION OF ERRORS

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خلاصه مقاله:

This investigation deals with a software reliability model based on Markov process. For formulating the model, we define a random variable representing the cumulative number of faults successfully corrected upto a specified point of time. This model is based on the assumption that there are two types of software failures. Further the concepts of imperfect debugging environment and error generation phenomenon are taken into consideration. Transient analysis based on Laplace transform and matrix approach has been done to find the solution of the system of differential difference equations. Several performance indices for software reliability assessment are derived for this model. Numerical results with the help of Runge-Kutta Method show that the proposed framework incorporating both concepts of imperfect debugging phenomenon and error generation for two types of faults has a fairly accurate prediction capability.

کلمات کلیدی:

Software reliability; Imperfect debugging; Error generation; Markov process; Software reliability growth

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