Abstract

In this paper, Software reliability is the anticipation of operations which are free of error in the software in a stated environment during the detailed time duration. Statistical Process Control can survey the gauging of software failure and thereby devote significantly to the enhancement of software reliability. Such an assessment assists the software development team to pinpoint and diagnose their actions during software failure process and hence, assure superior software reliability. A control mechanism planted on the cumulative observations of interval domain failure data using mean value function of the Half Logistic Distribution (HLD) based on Non Homogeneous Poisson Process (NHPP) is proposed. The maximum likelihood estimation approach is used to estimate the unknown parameters of the model. A new mechanism is coded to analyze the observations instead of using regular control charts.

References

1. N. Boffoli, G. Bruno, D. Cavivano, G. Mastelloni; Statistical process control for Software: a
2. K. U. Sargut, O. Demirors; Utilization of statistical process control (SPC) in emergent
software organizations: Pitfallsand suggestions; Springer Science + Business media Inc. 2006.
Company.ISBN 1-85032-171-X.
99 SEI Software Engineering Symposinn, Software Engineering Institute, Carnegie Mellon
University.
monitoring” -Reliability engineering and System Safety 77 143 -150, 2002.
11. MutsumiKomuro; Experiences of Applying SPC Techniques to software development
processes; 2006 ACM 1-59593-085-x/06/0005.
12. Ronald P.Anjard;SPC CHART selection process;Pergaman
13. Dr. R Satya Prasad ,K Ramchand H Rao and Dr. R.R. L Kantham (2011),” Software
Reliability Measuring using Modified Maximum Likelihood Estimation and SPC” IJCA Journal,
Number 7 – Article1
Growth Model”.The 3rd IEEE International Symposium on High-Assurance Systems
its applicability based on mean time between failures". Mathematical and Computer Modeling
Volume 22, Issues 10-12, Pages 149-155.
shewhart control charts with supplementary Runs rules” Springer Science + Business media
9:207-224.
failure types in software development”. EG&G-RAAM-10737; Idaho National Engineering
Laboratory.
Poisson process models for software reliability estimation”, IEEE Transactions on Software
Engineering, 29 (3): 261-269.
STD-729-1991


**Index Terms**

Computer Science

Software Engineering

**Keywords**

Statistical Process Control (SPC); Software reliability; Probability limits; HLD; Maximum Likelihood Estimation; Failure count data