

Bayesian Estimation under Different Loss Functions Using Gamma Prior for the Case of Exponential Distribution

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Abstract : The Bayesian estimation approach is a non-classical estimation technique in statistical inference and is very useful in real world situation. The aim of this paper is to study the Bayes estimators of the parameter of exponential distribution under different loss functions and then compared among them as well as with the classical estimator named maximum likelihood estimator (MLE). In our real life, we always try to minimize the loss and we also want to gather some prior information (distribution) about the problem to solve it accurately. Here the gamma prior is used as the prior distribution of exponential distribution for finding the Bayes estimator. In our study, we also used different symmetric and asymmetric loss functions such as squared error loss function, quadratic loss function, modified linear exponential (MLINEX) loss function and non-linear exponential (NLINEX) loss function. Finally, mean square error (MSE) of the estimators are obtained and then presented graphically.

Keywords : Bayes estimator, maximum likelihood estimator (MLE), modified linear exponential (MLINEX) loss function, Squared Error (SE) loss function, non-linear exponential (NLINEX) loss function

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