

MNStatC Statistics July Problem

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“ Statistics must have a clearly defined purpose, one aspect of which is scientific advance and the other, human welfare and national development. ”

P.C.Mahalanobis

1 Average Lifetime of Bulbs

Suppose, in an observational study, the lifetimes of n bulbs are being studied in order to estimate their average life span. Let the distribution of any such bulb is modeled using an exponential distribution with mean parameter λ . Now, suppose due to financial and time constraints, the experiment terminated after realising the smallest r ($< n$) life times.

1. Now, suggest how you will find out the maximum likelihood estimator of λ using this observed lifetimes.
2. Is this maximum likelihood estimator also the minimum variance unbiased estimator of λ .