Algorithm Foundations of Data Science and Engineering
Welcome Tutorial :-)

Tutorial 12

GAO Ming

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1. Suppose that X follows a geometric distribution,

$$P(X = k) = p(1-p)^{k-1}$$

and assume an i.i.d. sample of size n.

- Please compute the likelihood function of the sample;
- Find the MLE of p.

2. Let $X_1, \cdots, X_n$ be a random sample from a population with pdf $gamma(\alpha, \beta)$, please find the MLE of β, assuming α is known, where Gamma density is

$$\frac{\beta^\alpha}{\Gamma(\alpha)} x^{\alpha-1} e^{-\beta x}, 0 \leq x \leq \infty.$$