Tutorial for STA2002

Kun HUANG(SDS)

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Contents

Chapter 1

Prerequisites

Probability and Statistics I(STA2001) is the prerequisite, which mainly includes the following contents,

- Some usual distributions, like Binomial, Poisson, Normal, Exponential, Gamma, and Chi-square distributions (Relationships among some univariate distributions(Song, 2005));
- Basic terminologies, e.g.,independence, expectation, variation, correlation (coefficient), Bayes, and etc;
- Large number theorem, like Central Limit Theorem(CLT).

Chapter 2

Tutorial 1

2.1 Q1

- Moment-generating function $M(t)$ of a random variable X defined in D and has density function $f(x)$.

$$M(t) = \mathbb{E}(e^{tx}) = \int_D e^{tx} f(x) dx \tag{2.1}$$

$$\mathbb{E}(X^s) = M^{(s)}(0) \tag{2.2}$$

Bibliography

Song, W. T. (2005). Relationships among some univariate distributions. *IIE Transactions*, 37(7):651–656.