DATA130004: Homework 5

Due via eLearning at 23:59 on November 13, 2023

1. Rizzo book (1st edition) Exercises 6.1, 6.4, 6.5, 6.9, and 6.10.

2. Suppose $X_1, \ldots, X_n$ are i.i.d. samples from a normal distribution $N(\mu, \sigma^2)$, $n \geq 2$. Prove that $\sum_{i=1}^{n}(X_i - \bar{X})^2/\sigma^2$ follows a $\chi^2(n-1)$ distribution and it is independent with the sample mean $\bar{X}$.