

2. Preparations for Principle Component Analysis

Objectives

At the end of this series of exercises, you will be able to do the following:

- Review how to compute the **expectation** and **covariance matrix** of a random vector.
- Compute the **empirical mean** and **empirical covariance matrix** of a vector data set.
- Compute the **variance in a given direction** of a random vector.
- Compute the **empirical variance in a given direction** of a vector-valued sample.
- Describe the fundamental properties of **projection matrices**.
- State the **decomposition theorem** for symmetric matrices.

Discussion

Show Discussion

Topic: (Optional) Unit 8 Principal component analysis:(Optional) Preparation Exercises for Principal Component Analysis / 2. Preparations for Principle Component Analysis