Answer the following questions and submit a pdf file with your answers in one week.

1. Explain the concept of consistency. Does asymptotic unbiasedness mean consistency?
2. Prove that minimizing MSE in linear regression is equivalent to maximizing a likelihood function.
3. In linear regression models, why can MAP Bayesian inference with a Gaussian prior on the weights be considered as weight decay?
4. How to use the kernel trick?
5. Why the PCA problem has closed-form solution?
6. What’s the curse of dimensionality?
7. What is manifold learning?