Week 4-Seminar 1
Q1-EM & MLE

Expectation Maximization Exercise

Imagine a machine learning class where the probability that a student gets an "A" grade is $\mathbb{P}(A) = 1/2$, a "B" grade $\mathbb{P}(B) = \mu$, a "C" grade $\mathbb{P}(C) = 2\mu$, and a "D" grade $\mathbb{P}(D) = 1/2 - 3\mu$. We are told that c students get a "C" and d students get a "D". We don't know how many students got exactly an "A" or exactly a "B". But we do know that h students got either an a or b. Therefore, a and b are unknown values where $a + b = h$. Our goal is to use expectation maximization to obtain a maximum likelihood estimate of μ.