Quiz 2

MACHINE LEARINING, SUMMER 2018

Name: UID:

Problem 1.(3= 2+1 points.)
1a. What is TPR (True positive rate)? If TP = number of true postive, FN = number of false negative in a binary classifier. (Please write formula only)

$$TPR = \frac{TP}{TP+FN}$$

1b. As we get more and more evidence does MLE and MAP estimate of parameters converge(yes/no)?

Yes

Problem 2.(2= 1+1 points.) For ridge or ℓ_2 regularization, we add $\lambda\|\boldsymbol{w}\|_2^2$ regularization term in the objective function for controlling parameter $\boldsymbol{w}$ vector growth(how large different component of $\boldsymbol{w}$ can be) or distance from origin in D dimentional Euclidean space.

What is the role of $\lambda \in R^+$ (please try to write no more than one line)

λ (hyper parameter) control the strength of regularization

and expand $\|\boldsymbol{w}\|_2^2 =$

$w^T w = w_1^2 + w_2^2 + \ldots w_D^2$ for $w \in \mathbb{R}^D$

Problem 3.(2 points.) If you are building binary classifer(good product vs bad) for a production line where 80% of the products are good. What is base(random) classififer accuracy that your classifier has to beat.

80 %. (just declare every product good)