1. Theoretical Tasks - Loss Functions

1.1 Cross-Entropy Loss (or Logistic Loss)

H(y, g) = - (0 * log(0.25) + (1 * log(0.6) + (0 * log(0.15))
H(y, g) = - (0 + log(0.6) + 0) #Using natural log
H(y, g) = - (-0.51)
H(y, g) = 0.51

1.2 Mean Squared Error-Loss

n = 3

$MSE(y, g) = (0.25 - 0)^2 + (0.6 - 1)^2 + (0.15 - 0)^2 / 3$
MSE(y, g) = (0.0625) + (0.16) + (0.0225) / 3
MSE(y, g) = 0.245 / 3
MSE(y, g) = 0.0817

1.3 Hinge Loss (or SVM Loss)

SVM(y, j) = max(0, 0.25 – 0.6 + 1) + max(0, 0.15 – 0.6 + 1)
SVM(y, j) = max(0, 0.65) + max(0, 0.55)
SVM(y, j) = 0.65 + 0.55
SVM(y, j) = 1.2

Links to GitHub (Practical):

Advanced-Deep-Learning-D7047E/Practical_2_CIFAR10.ipynb at main · jamieomoya/Advanced-Deep-Learning-D7047E (github.com)

Advanced-Deep-Learning-D7047E/Practical_2_MNIST.ipynb at main · jamieomoya/Advanced-Deep-Learning-D7047E (github.com)