

İstanbul Bilgi University
Department of Computer Engineering

SPRING, 2022
Campus: Santral

CMPE 407
MACHINE LEARNING

HW on CM and Histogram

(Duration: minutes)

Name :

Student ID :

Make sure that you explain in detail all your steps - thoughts. You may get extra points for an appropriate observation, you may lose some marks due to an obscure solution.

1. {30 points} 'Accuracy' and 'confusion matrix' allow us to measure the success rate of a classification system. Let us consider the situation where 7 out of 10 test samples have been classified correctly:
 - (a) {5 points} Give the accuracy of the system
 - (b) {25 points} Draw the confusion matrix knowing that there are 3 classes and¹:
 - ? samples of class 1 were correctly classified
 - ? samples of class 2 were correctly classified
 - ? samples of class 3 were correctly classified
 - ? sample of class 1 has been wrongly assigned to class 3
 - ? samples of class 3 has been wrongly assigned to class 1
2. {20 points} A histogram is a graphical representation of the distribution of numerical data. It is an estimate of the probability distribution of a continuous variable (quantitative variable) and was first introduced by Karl Pearson. Create and draw an histogram for the following test scores: 98, 91, 88, 84, 81, 78, 77, 71, 40, 45, 15. Knowing that the total range is [0, 100], you can use a bin size of 10.

¹Please, replace the "?" with some numbers to create your own UNIQUE and ORIGINAL exam