Introduction to Machine Learning ELL 784 (2023-24)

ASSIGNMENT: 01

Submission Deadline: August 17, 2023

Consider a binary classification problem in n-dimension, where n={2,3,4,5} (Take features to be boolean 1 and 0). Find out different distributions possible for each value of “n” and how many of those distributions are linearly separable.

Eg: For two dimensional case, few possible distribution could be

X1	X2	Y
0	0	0
0	1	0
1	0	0
1	1	0

X1	X2	Y
0	0	0
0	1	1
1	0	0
1	1	0

Also try to deduce a relationship between the number of linearly separable distributions as a function of the dimension of the feature space.

Submit the code and solution files as a zip file with roll_number.zip on MS Teams.