CS 540 HW1 Problem 2 Solution - KNN

Objective: use KNN with the training set to predict the label of the 3rd test set example.

The 3rd test set example is:

B, O, L, -

① compute hamming distance of the 3rd test set example to each of the train set examples

train set	Hamming Distance	
R, O, H, +	2	(because 2 bits differ)
B, Y, L, +	1	
G, Y, L, +	2	
R, Y, H, +	3	
G, O, L, -	1	
G, Y, L, -	2	
B, O, H, -	1	

② Find the k nearest neighbors (in this case, k=1, so we would select the nearest neighbor)

However, there are 3 examples equidistant from 3rd trainset example.

B, Y, L, +
G, O, L, -
B, O, H, -

→ select the majority value, which is "-".