CSE 142: HOMEWORK 2

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Problems

Problem 2.2: What is the L_1 distance between the first instance of the test set and the first instance of train set?

Answer. 2811 □

Problem 2.3: What is the L_2 distance between the first instance of the test set and the first instance of train set?

Answer. 2750.45 □

Problem 2.4: What is the L_1 distance between the first instance of the test set and the first instance of train set?

Answer. 2750 □

Problem 2.5: What are the labels of the 5 nearest neighbors (in order) of the first instance in the test set when using L_2 distance (left to right being the closest neighbor to the farthest neighbor).

Answer. $-1, -1, 1, -1, 1$ □

Problem 2.6: In this question you will be experimenting with different values of K. List the predictions for every instance of test set for $K = 1, 3, 4$ and 720 with L_2 distance measure. As an answer to this question complete the table below.

Answer. See Table 1 below. □

Problem 2.7: Now we will study of effect of using different types of distance measures for a fixed K. List the predictions for every instance of test set for L_1, L_2, and L_∞ distance measures and $K = 9$. As an answer to this question, complete the table below.

Answer. See Table 2 below. □

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TABLE 1. for 2.6

Test Instance	K = 1, L_2	K = 3, L_2	K = 5, L_2	K = 720, L_2
1	-1	-1	-1	-1
2	1	1	1	-1
3	1	1	-1	-1
4	1	1	1	-1
5	1	1	-1	-1
6	-1	1	1	-1
7	-1	-1	-1	-1
8	1	1	1	-1
9	1	1	1	-1
10	-1	-1	-1	-1

TABLE 2. for 2.7

Test Instance	L_1	L_2	L_∞
1	1	1	1
2	1	-1	-1
3	-1	-1	-1
4	1	1	1
5	-1	-1	-1
6	1	1	1
7	1	1	1
8	-1	-1	-1
9	-1	-1	1
10	-1	-1	-1