HOMEWOEK 1

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PROBLEM 1

According to the data, the three points with the smallest L2 distance to test data is.

$$L2_{A1} = \sqrt{(0-1)^2 + (1-0)^2 + (1-1)^2} = \sqrt{2}$$
$$L2_{C2} = \sqrt{(0-1)^2 + (-1-0)^2 + (1-1)^2} = \sqrt{2}$$
$$L2_{A0} = \sqrt{(0-1)^2 + (1-0)^2 + (0-1)^2} = \sqrt{3}$$

When $K = 1$, the point chose to decide the class of the test data might be A1 or C2. So test data might be classified to be A or C in a same probability.
When $K = 2$, the points chose to dicide the class of the test data would be A1 and C2, which means test data got the same probability to be classified in A and C.
When $K = 3$, all the three points would be chose to decide the class of test data. So the test data would be classified to be A.

PROBLEM 2