Quiz 1

Due Oct 11 at 11:59pm **Points** 5 **Questions** 5 **Time Limit** None

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	12 minutes	5 out of 5

ⓘ Correct answers will be available on Oct 12 at 12am.

Score for this quiz: **5** out of 5
Submitted Oct 7 at 8:43am
This attempt took 12 minutes.

Question 1

1 / 1 pts

Which of the following is NOT true of K-NN algorithm?
(A) K-NN is more likely to overfit the training data when using a larger K.
(B) Training can be done by simply storing all the training data.
(C) The hyper-parameter K can be tuned using cross-validation
(D) It is easy to update a K-NN model with new training samples.

- (C)
- (A)
- (D)
- (B)

Question 2

1 / 1 pts

Which of the following is NOT true of Decision Tree?
(A) Label is revealed at the leaf nodes.
(B) Can handle both categorical and real-value features
(C) Can be used for both classification and regression problems.
(D) ID3 algorithm can guarantee to find the decision tree with minimal depth

- (A)
- (B)
- (D)
- (C)

Question 3

1 / 1 pts

Which of the following methods is considered good practice to avoid overfitting?
(A) Tune the hyper-parameters on the test set.
(B) Tune the hyper-parameters with cross-validation.
(C) Tune the hyper-parameters on the training set.
(D) Train the model on the test data.

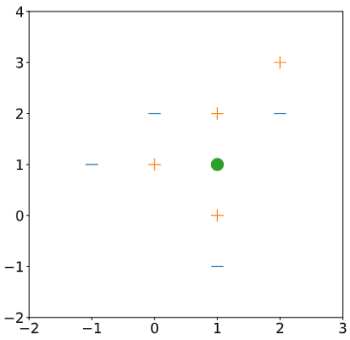
- (A)
- (C)
- (B)
- (D)

Question 4

1 / 1 pts

Q4. Consider the following data in the Table where x and y are two input features. Suppose you

x	y	label
-1	1	-
0	1	+
0	2	-
1	-1	-
1	0	+
1	2	+
2	2	-
2	3	+



want to predict the class of new data point $x = 1, y = 1$ using Manhattan distance in 3-NN. In which class this data point belong to? How about 7-NN? (Note that Manhattan distance is the distance between two points measured along axes at right angles. In a plane with point p_1 at (x_1, y_1) and p_2 at (x_2, y_2), it is $|x_1 - x_2| + |y_1 - y_2|$.)

(A) Using 3-NN, the label will be +, using 7-NN, the label will be +.

(B) Using 3-NN, the label will be −, using 7-NN, the label will be −.

(C) Using 3-NN, the label will be +, using 7-NN, the label will be −.

(D) Using 3-NN, the label will be −, using 7-NN, the label will be +.

- (A)
- (D)
- (B)
- (C)

Question 5

1 / 1 pts

Q5. Given the true table, which of the following functions is a consistent hypothesis?

Example	x_1	x_2	x_3	x_4	x_5	y
1	0	0	1	1	0	0
2	1	0	0	1	1	0
3	0	1	1	0	0	1
4	1	0	0	0	1	1
5	0	1	0	1	1	1
6	0	0	0	0	0	0

(A) $y = x_1 \wedge x_5$

(B) $y = 2\text{-of}\{x_1, x_2, x_5\}$

(C) $y = x_1 \vee x_2$

(D) $y = (1\text{-of}\{x_1, x_2\}) \wedge (1\text{-of}\{x_2, x_3\})$

(E) $y = (1\text{-of}\{x_3, x_5\}) \wedge (\text{NOT } 2\text{-of}\{x_1, x_3, x_4\})$

- ○ (B)
- ○ (D)
- ○ (C)
- ◉ (E)
- ○ (A)

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