Quiz Submissions - Q2-1

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Attempt 1

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Submission View

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View the quiz answers.

Question 1   1 / 1 point

Suppose you are working on weather prediction, and your weather station makes one of three predictions for each day's weather: Sunny, Cloudy or Rainy. You'd like to use a learning algorithm to predict tomorrow's weather. Would you treat this as a classification or a regression problem?

○ Regression

✔○ Classification

Question 2   1 / 1 point

Consider following data:

$$X = \begin{pmatrix} 1 & 1 \\ 1 & 2 \\ 2 & 2 \\ 2 & 3 \\ 3 & 3 \\ 3 & 4 \end{pmatrix}, y = \begin{pmatrix} 0 \\ 0 \\ 1 \\ 1 \\ 2 \\ 2 \end{pmatrix}$$

What is p(y=1| x=[2,1]) using a 3-nearest neighbor classifier when using euclidean distance?

○ 2/3

○ 0.5

○ 1

✓○ 1/3

Question 3   0.5 / 1 point

Which of the following generally improves the performance of KNN? Choose all the correct answers.

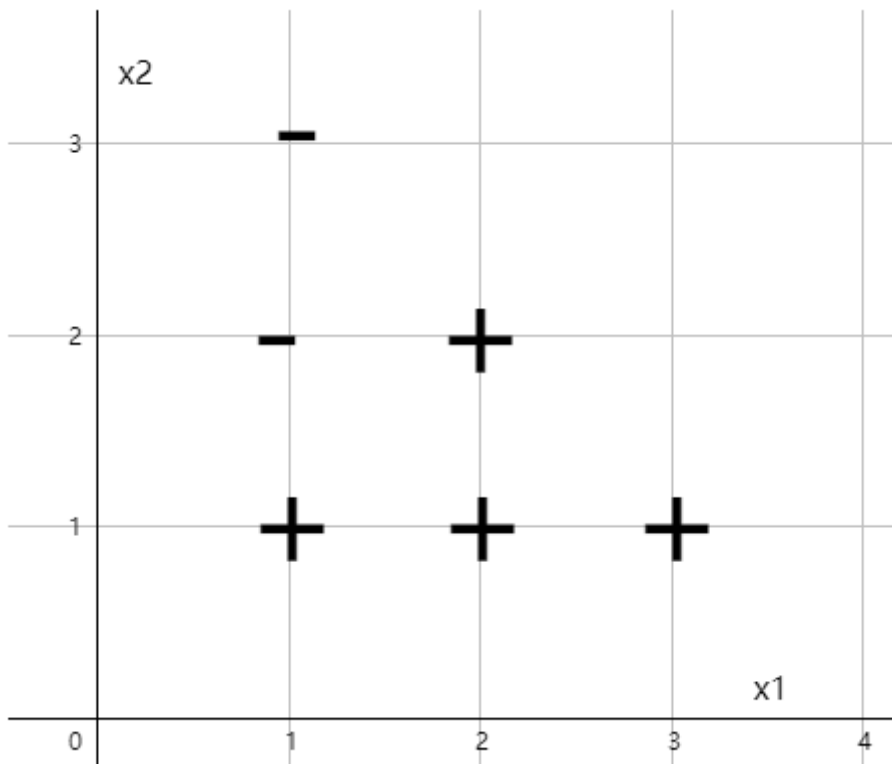✓☐ Adding as many features as possible

✗☐ Using more test data

⇒ ✓☐ Scaling up to more important feature

✓☐ Increasing the number of neighbours, K

Question 4   0 / 1 point

For the following data, using Greedy heuristic to choose the tests and misclassification loss, which of these decisions could be the first one picked?

○ x1 < 1.5

○ x2 < 2.5

○ x2 < 1.5

✗ ○ Both x1 < 1.5 and x2 < 1.5

⇒ ○ All the above

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Question 5   **1 / 1 point**

Consider the dataset:

x = [0, 0] , y = 1

x = [1, 1] , y = 1

x = [0, 1] , y = 0

x = [1, 0] , y = 0

What is the minimum number of tests necessary for this decision tree to achieve 100% accuracy without having to preprocess?

○ 2

○ 4

○ 1

✓○ 3

○ Impossible to achieve 100% accuracy

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Question 6   **1 / 1 point**

Suppose this one layer decision tree (aka decision stump) classifies the patients into having heart disease or not used on whether they have experienced chest pain. What is the misclassification cost of this tree?

```
                        ┌─────────────┐
                        │ chest pain  │
                        └─────────────┘
                    no  /             \  yes
                       ↙               ↘

patients with heart disease:        2                4
                                   ───              ───
patients without heart disease:     8                2
```

✔ ○ .25

○ .5

○ .75

○ .125

Done