Week 4 Quiz

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Multiple Choice

1/1 point (graded)

For two vectors $\boldsymbol{u}$ and $\boldsymbol{v}$ both in $\mathbb{R}^d$, $\|\boldsymbol{u}-\boldsymbol{v}\|_1 \leq \|\boldsymbol{u}-\boldsymbol{v}\|_2$.

- TRUE
- FALSE ✔

Submit You have used 1 of 1 attempt

Multiple Choice

1/1 point (graded)

While there are many factors that go into making a good supervised model, the *key* assumption that makes learning an accurate classifier or regression model possible is

- the statistical regularity within the data — past data accurately represents future data ✔
- there is enough data to learn the classifier
- we have powerful enough computers to handle big data

Submit You have used 1 of 1 attempt

Checkboxes

1/1 point (graded)

Which of the following describe a classification problem? (Check all that apply)

- [ ] predicting the gas milage of a car based on its weight and type
- [x] predicting the presence of a disease based on preliminary tests
- [x] predicting the monetary value of a check based on a photograph
- [ ] predicting the temperature tomorrow based on the temperature today

✔

Submit You have used 1 of 1 attempt

Multiple Choice

1/1 point (graded)

Using a k-nn classifier, the smaller the value of k, the _____ the training error.

- ○ larger
- ◉ smaller ✔

Submit You have used 1 of 1 attempt

Checkboxes

1/1 point (graded)

Which of the following are FALSE?

- [x] k-nn classifiers are parametric
- [x] k-nn classifiers always become more accurate as k increases
- [ ] the training error for 1-nn is zero
- [x] the testing error for 1-nn is zero

✔

Submit You have used 1 of 1 attempt

Multiple Choice

1/1 point (graded)

The Bayes classifier is the optimal classifier when the data generating distribution is known.

- ◉ TRUE ✔
- ○ FALSE

Submit You have used 1 of 1 attempt

Text Input

1/1 point (graded)

The naive Bayes classifier makes the assumption that the dimensions of the covariate vector are conditionally _____ .

independent ✔

Submit You have used 1 of 2 attempts

Multiple Choice

1/1 point (graded)

An example of a linear classifier with a quadratic decision boundary is a Bayes classifier using class dependent Gaussians having a _____ covariance matrix.

- ○ shared
- ◉ unique ✔

Submit You have used 1 of 1 attempt

Multiple Choice

1/1 point (graded)

For a binary $\{-1, +1\}$ linear classifier, the coefficient vector $\boldsymbol{w}$ points in the direction of the _____ class.

- -1
- $+1$ ✔

Submit You have used 1 of 1 attempt

Dropdown

1/1 point (graded)

The perceptron algorithm is a binary classifier that is guaranteed to converge to the _____ solution it can find when the data is _____ separable.

first, linearly ✔

Submit You have used 1 of 1 attempt