q5

Friday, October 14, 2022 11:44 PM

Quiz_ Quiz 5_...

Quiz 5: Probabilistic Interpretation of Linear Regression

Started: Oct 14 at 11:40pm

Quiz Instructions

Question 1 — 1 pts

Which one of the following statements about the difference between the Probability Mass Function (PMF) and the Probability Density Function (PDF) for the single variables is NOT true?

- The PDF is the derivative of the CDF, whereas the PMF is not.
- The PMF cannot go above 1, whereas the PDF could go above 1
- The PDFis only defined for continuous random variables, whereas the PMFis defined for discrete random variables
- The PMF must always be above 0, whereas the PDF can fall below 0

Question 2 — 1 pts

What's the penalty term for the Ridge regression?

- The absolute sum of the coefficients
- The sum of the coefficients
- The square root of the magnitude of the coefficients
- The square of the magnitude of the coefficients

Question 3 — 1 pts

Different models trained using different training datasets derived from same population has lower accuracy but make similar or consistent predictions, then the models are said to have

- high bias, high variance
- Low bias, high variance
- High bias, low variance
- Low bias, low variance

Question 4 — 1 pts

Which is correct?

- An example of prior can be the degree of the polynomial.
- Posterior produces a point estimate.
- Derivation of MAP and MLE both relies on Bayes' rule.
- Posterior estimation relies on sampling or approximation.

Question 5 — 1 pts

What does "a priori" mean?

- Before applying the model to unseen testing data
- After applying the model to unseen testing data
- After seeing the data
- Before seeing the data

Question 6 — 1 pts

Which of the following is the expected error in choosing a model for a training set?

- Sum of Bias Squared, Variance, and Irreducible Error
- Sum of Bias and Variance Squared
- Sum of Bias, Variance Squared, and Irreducible Error
- Sum of Bias and Irreducible Error

Question 7 — 1 pts

Which of the following is not true when the posterior $p(\vec{\theta}|\mathcal{D})$ is unimodal?

- There is one parameter value that is the most plausible given the data.
- There could be multiple parameter values that are all quite plausible.
- The MAP estimate would capture the most important information of the posterior well.
- The MAP estimate corresponds to this parameter value.

Question 8 — 1 pts

Which of the generalization error cannot be decreased through overfitting?

- $Var(y|\boldsymbol{x})$
- $(\mathbb{E}_{\mathcal{D}}\left[f(\boldsymbol{x};\theta(\mathcal{D},L)|\boldsymbol{x}\right] - \mathbb{E}_{y}[y|\boldsymbol{x}])^2$

- $Var(f(\boldsymbol{x};\theta(\mathcal{D},L)|\boldsymbol{x})$
- $\mathbb{E}_{y\,\mathcal{D}}[f(\boldsymbol{x};\theta(\mathcal{D},L)) - y)^2|\boldsymbol{x}]$

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