Quiz Submissions - Q4-1

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Attempt 1

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Submission View

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Question 1 **0.667 / 1 point**

Select all the **true** statments: [scoring is right-wrong]

- ✓ ☐ a Bernoulli distribution used to model a binary variable has a single parameter which is the probability of the variable being 1
- ✓ ☐ in maximum likelihood estimation, we find the model parameters that maximizes multiplication of the likelihood of each data point given the model
- ✓ ☐ in Bayesian inference we are estimating the distribution of model parameters instead of finding the best parameter
- ✗ ☐ prediction in Bayesian inference can be hard since it needs averaging over all possible values of our parameter
- ✓ ☐ prediction in MAP is a single point estimate similar to MLE and doesn't need averaging over all possible values, hence is more efficient
- ✓ ☐ with a uniform prior, MAP and MLE estimates give the same predictions

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Question 2 **0 / 1 point**

Suppose you are given a die which has sides as 1 to 6 where the probability of each of the sides facing up is given by the categorical distribution is represented in the dictionary {1: 1/12, 2: 1/4, 3:1/6, 4:1/6, 5: 1/4, 6:1/12 }. You random roll the die for four times (note each of the rolls is iid), what is the (approximate) likelihood of observing this sequence of faces: (1, 3, 5, 5):

✗ ○ 0.00064

- 0.0104
- 0.0123
- 0.00087

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Question 3 **1 / 1 point**

Suppose you are interested in predicting the weather in Montreal tomorrow. During the last 30 days, N(sunny) = 5 days, N(cloudy) = 10 days, and N(windy) = 15 days. What are the chances of it being windy or rainy tomorrow when using MLE with Laplace add-one smoothing? (this is similar to assuming pseudo-counts of [1,1,1,1] in posterior predictive)

- 0.25 , 0.1
- ✓ 0.471 , 0.029
- 0.5 , 0.030

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Question 4 **1 / 1 point**

Due to the assumption of Naive Bayes Classifier, the term

$$p(x_2|y,x_1)$$

becomes

- $p(x_2)$
- $p(x_2|y)\times p(x_1)$
- ✓ $p(x_2|y)$
- $p(x_2)\times p(x_1)$

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Attempt Score: 3 / 4 - 66.68 %

Overall Grade (highest attempt)**:** 3 / 4 - 66.68 %

Done