1
point

1.
**For Questions 1-3, consider the following scenario:**

In the example from Lesson 4.1 of flipping a coin 100 times, suppose instead that you observe 47 heads and 53 tails.

- Report the value of $\hat{p}$, the MLE (Maximum Likelihood Estimate) of the probability of obtaining heads.

Enter answer here

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1
point

2.
Coin flip:

Using the central limit theorem as an approximation, and following the example of Lesson 4.1, construct a 95% confidence interval for $p$, the probability of obtaining heads.

- Report the lower end of this interval and round your answer to two decimal places.

Enter answer here

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1
point

3.
Coin flip:

- Report the upper end of this interval and round your answer to two decimal places.

Enter answer here

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1
point

4.

The likelihood function for parameter $\theta$ with data $\mathbf{y}$ is based on which of the following?



- $P(\theta \mid \mathbf{y})$
- $P(\mathbf{y} \mid \theta)$
- $P(\theta)$
- $P(\mathbf{y})$
- None of the above.

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1 point

5.

Recall from Lesson 4.4 that if $X_1, \ldots, X_n \overset{\text{iid}}{\sim} \text{Exponential}(\lambda)$ (iid means independent and identically distributed), then the MLE for $\lambda$ is $1/\bar{x}$ where $\bar{x}$ is the sample mean. Suppose we observe the following data: $X_1 = 2.0,\ X_2 = 2.5,\ X_3 = 4.1,\ X_4 = 1.8,\ X_5 = 4.0.$

Calculate the MLE for $\lambda$. Round your answer to two decimal places.

Enter answer here

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1 point

6.

It turns out that the sample mean $\bar{x}$ is involved in the MLE calculation for several models. In fact, if the data are independent and identically distributed from a Bernoulli($p$), Poisson($\lambda$), or Normal($\mu$, $\sigma^2$), then $\bar{x}$ is the MLE for $p$, $\lambda$, and $\mu$ respectively.

Suppose we observe $n = 4$ data points from a normal distribution with unknown mean $\mu$. The data are $\mathbf{x} = \{-1.2, 0.5, 0.8, -0.3\}$.

What is the MLE for $\mu$ ? Round your answer to two decimal places.

Enter answer here

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- [ ] I, **Md Yousuf Ali**, understand that submitting work that isn't my own may result in permanent failure of this course or deactivation of my Coursera account.

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