Your grade: 90%

Your latest: **90%** • Your highest: **90%** • To pass you need at least 70%. We keep your highest score.

Next item →

1. Which one of the following is common to both machine learning and statistical inference? 1 / 1 point

- (•) Using sample data to infer qualities of the underlying population distribution.
- ( ) Using population data to model a null hypothesis.
- ( ) Using sample data to make inferences about a hypothesis.
- ( ) Using population data to make inferences about a null sample.

Correct
Correct. In both machine learning and statistical inference, we're using sample data to infer qualities of the underlying population distribution.

2. Which one of the following describes an approach to customer churn prediction stated in terms of probability? 1 / 1 point

- (•) Predicting a score for individuals that estimates the probability the customer will leave.
- ( ) Predicting a score for individuals that estimates the probability the customer will stay.
- ( ) Data related to churn may include the target variable for whether a certain customer has left.
- ( ) Churn prediction is a data-generating process representing the actual joint distribution between our x and the y variable.

Correct
Correct. Churn prediction is often approached by predicting a score for individuals that estimates the probability the customer will leave.

3. What is customer lifetime value? 1 / 1 point

- ( ) The total churn generated by a customer over their lifetime.
- (•) The total purchases over the time which the person is a customer.
- ( ) The total value that the customer receives during their life.
- ( ) The total churn a customer generates in the population.

Correct
Correct. Customer lifetime value consists of the purchase amounts over the entire time that a person has been a customer.

4. Which one the following statements about the normalized histogram of a variable is true? 1 / 1 point

- ( ) It serves as a bar chart for the null hypothesis.
- ( ) It is a parametric representation of the population distribution.
- (•) It provides an estimate of the variable's probability distribution.
- ( ) It is a non-parametric representation of the population variance.

Correct
Correct. The normalized histogram of a variable estimates the variable's probability distribution, and the estimate improves with the amount of data used.

5. The outcome of rolling a fair die can be modelled as a _____ distribution. 1 / 1 point

- ( ) log-normal
- ( ) Poisson
- (•) uniform
- ( ) normal

Correct
Correct. The chance of rolling any particular value for a fair die is equally likely, so the outcome is uniformly distributed.

6. Which one of the following features best distinguishes the Bayesian approach to statistics from the Frequentist approach? 1 / 1 point

- ( ) Frequentist statistics incorporates the probability of the hypothesis being true.
- ( ) Bayesian statistics is better than Frequentist.
- (•) Bayesian statistics incorporate the probability of the hypothesis being true.
- ( ) Frequentist statistics requires construction of a prior distribution.

Correct
Correct. Bayesian statistics allows for experimenters to incorporate their prior beliefs of the [population] distribution [of a given variable]. For frequentists, it's solely based on the data available. [that is, there is no formal mechanism in frequentist statistics for incorporating prior knowledge, one 'lets the data do the talking']

7. Which of the following best describes what a hypothesis is? 1 / 1 point

- ( ) A hypothesis is a statement about a prior distribution.
- (•) A hypothesis is a statement about a population.
- ( ) A hypothesis is a statement about a sample of the population.
- ( ) A hypothesis is a statement about a posterior distribution.

Correct
Correct. A hypothesis could be suggested by a sample of the population, but it is a statement about the entire population.

8. A Type 2 error in hypothesis testing is _____: 1 / 1 point

- ( ) correctly rejecting the null hypothesis.
- ( ) correctly rejecting the alternative hypothesis.
- (•) incorrectly accepting the null hypothesis.
- ( ) incorrectly accepting the alternative hypothesis.

Correct
Correct. A type 2 error is incorrectly accepting the null hypothesis.

9. Which statement best describes a consequence of a type II error in the context of a churn prediction example? Assume that the null hypothesis is that customer churn is due to chance, and that the alternative hypothesis is that customers enrolled for greater than two years will not churn over the next year. 1 point

- ( ) You incorrectly conclude that customer churn is by chance
- ( ) You correctly conclude that a customer will eventually churn
- ( ) You correctly conclude that customer churn is by chance
- (•) You incorrectly conclude that there is no effect

Incorrect
Incorrect. Review the Type 1 vs Type 2: Example video.

10. Which of the following is a statistic used for hypothesis testing? 1 / 1 point

- ( ) The standard deviation.
- (•) The likelihood ratio.
- ( ) The rejection region.
- ( ) The acceptance region.

Correct
Correct. The likelihood ratio can be used as a test statistic, to decide whether to accept or reject the null hypothesis.