Machine learning 12

1. What is prior probability? Give an example.

Ans:-  probability as assessed before making reference to certain relevant observations, especially subjectively or on the assumption that all possible outcomes be given the same probability.

2. What is posterior probability? Give an example.

Ans:- A posterior probability, in Bayesian statistics, is **the revised or updated probability of an event occurring after taking into consideration new information**.

3. What is likelihood probability? Give an example.

Ans:- The likelihood term, **P(Y|X) is the probability of getting a result for a given value of the parameters**. It is what you label probability. The ...

4. What is Naïve Bayes classifier? Why is it named so?

Ans:- A Naive Bayes classifier is **a probabilistic machine learning model that's used for classification task**. The crux of the classifier is based on the Bayes theorem.

5. What is optimal Bayes classifier?

Ans:- Bayes Optimal Classifier is **a probabilistic model that finds the most probable prediction using the training data and space of hypotheses to make a prediction for a new data instance**.

6. Write any two features of Bayesian learning methods.

Ans:- Bayesian methods **aid in understanding other learning algorithms**. Training examples have an incremental effect on estimated probabilities of hypothesis correctness. Prior knowledge and observed data combined to determine probabilities of hypotheses. Hypotheses can make probabilistic predictions.

7. Define the concept of consistent learners.

Ans:- Consistent Learners. • **A learner L using a hypothesis H and training data D is said to be a consistent learner if it always outputs a hypothesis with zero error on D whenever H contains such a hypothesis**. • By definition, a consistent learner must produce a hypothesis in the version space for H given D.

8. Write any two strengths of Bayes classifier.

Ans:- **Real time Prediction**: Naive Bayes is an eager learning classifier and it is sure fast. Thus, it could be used for making predictions in real time. Multi class Prediction: This algorithm is also well known for multi class prediction feature. Here we can predict the probability of multiple classes of target variable.

9. Write any two weaknesses of Bayes classifier.

* Ans:- Conditional Independence Assumption does not always hold. ...
* Zero probability problem : When we encounter words in the test data for a particular class that are not present in the training data, we might end up with zero class probabilities.