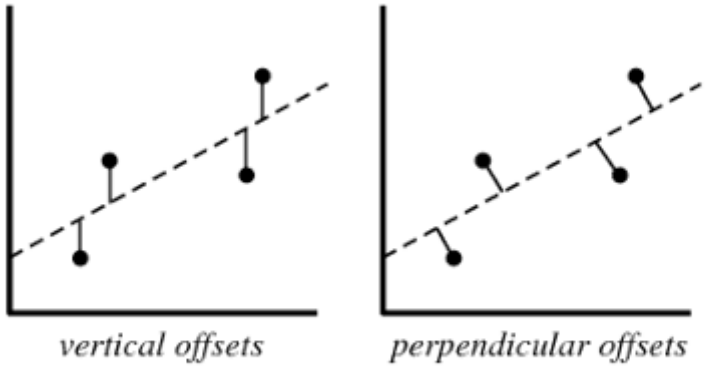
Week 4 Quiz

Total points 15/20

Graded Quiz for Week 4

15 of 20 points

✓ Which of the following offsets, do we use in linear regression's least square line fit? Suppose horizontal axis is independent variable and vertical axis is dependent variable. * 1/1



- None of above
- Both, depending on the situation
- Vertical offset ✓
- Perpendicular offset

✓ Which of the following evaluation metrics can not be applied in case of logistic regression output to compare with target? 1/1

- ○ AUC-ROC
- ○ Accuracy
- ○ Logloss
- ◉ Mean-Squared-Error ✓

✓ Suppose, you got a situation where you find that your linear regression model is under fitting the data. In such situation which of the following options would you consider? 1/1

- ☑ I will add more features ✓
- ☑ I will start introducing polynomial degree variables ✓
- ☐ I will remove some variables

✗ Now situation is same as written in previous question(under fitting).Which of following regularization algorithm would you prefer? 0/1

- ◉ A) L1 ✗
- ○ B) L2
- ○ C) Any
- ○ D) None of these

✓ Suppose that you have a dataset D1 and you design a linear regression model of degree 3 polynomial and you found that the training and testing error is “0” or in another terms it perfectly fits the data. What will happen when you fit degree 4 polynomial in linear regression? 1/1

- (●) A) There are high chances that degree 4 polynomial will over fit the data ✓
- ( ) B) There are high chances that degree 4 polynomial will under fit the data
- ( ) C) Can’t say
- ( ) D) None of these

✓ Continuing the previous question, What will happen when you fit degree 2 polynomial in linear regression? 1/1

- ( ) A) It is high chances that degree 2 polynomial will over fit the data
- (●) B) It is high chances that degree 2 polynomial will under fit the data ✓
- ( ) C) Can’t say
- ( ) D) None of these

✓ If we are building a system to predict if a person has cancer or not, what metric is better? 1/1

- (●) Recall ✓
- ( ) Precision

✓ If we are building a system to predict if we should decrease the credit limit on a particular account, which metric is better? 1/1

- (●) Precision ✓
- ( ) Recall

✓ _____ are the cases where you wrongly classified a non-event as an event a.k.a Type I error. 1/1

- (●) False Positives ✓
- ( ) False Negatives
- ( ) True Positives
- ( ) Truen Negatives

✓ The effectiveness of an SVM depends upon: 1/1

- ( ) A) Selection of Kernel
- ( ) B) Kernel Parameters
- ( ) C) Soft Margin Parameter C
- (●) D) All of the above ✓

✓ If I am using all features of my dataset and I achieve 100% accuracy on my training set, but ~70% on validation set, what should I look out for? 1/1

- ○ A) Underfitting
- ○ B) Nothing, the model is perfect
- ◉ C) Overfitting ✓

✓ Which of the following is/are true about bagging trees? 1/1

- ○ In bagging trees, individual trees are independent of each other
- ○ Bagging is the method for improving the performance by aggregating the results of weak learners
- ◉ Both the above ✓
- ○ None of the above

✓ Which of the following is/are true about boosting trees? 1/1

- ○ In boosting trees, individual weak learners are independent of each other
- ◉ It is the method for improving the performance by aggregating the results of weak learners ✓
- ○ Both the above
- ○ None of the above

✓ Which of the following is true about “max_depth” hyperparameter in Gradient Boosting? 1/1

- [x] Lower is better parameter in case of same validation accuracy ✓
- [ ] Higher is better parameter in case of same validation accuracy
- [x] Increase the value of max_depth may overfit the data ✓
- [ ] Increase the value of max_depth may underfit the data

✓ Which of the following statements are true? Check all that apply. 2/2

- [x] A model with more parameters is more prone to overfitting and typically has higher variance. ✓
- [ ] If the training and test errors are about the same, adding more features will not help improve the results.
- [x] If a learning algorithm is suffering from high bias, only adding more training examples may not improve the test error significantly. ✓
- [x] If a learning algorithm is suffering from high variance, adding more training examples is likely to improve the test error. ✓
- [x] When debugging learning algorithms, it is useful to plot a learning curve to understand if there is a high bias or high variance problem. ✓

✗ Suppose a massive dataset is available for training a learning algorithm. Training on a lot of data is likely to give good performance when two of the following conditions hold true.Which are the two? 0/2

- [ ] We train a learning algorithm with a large number of parameters (that is able to learn/represent fairly complex functions).
- [x] The features x contain sufficient information to predict accurately. (For example, one way to verify this is if a human expert on the domain can confidently predict when given only). ✓
- [x] We train a learning algorithm with a small number of parameters (that is thus unlikely to overfit). ✗
- [ ] We train a model that does not use regularization.

✗ Suppose you are working on a spam classifier, where spam emails are positive examples (y = 1) and non-spam emails are negative examples (y = 0). You have a training set of emails in which 99% of the emails are non-spam and the other 1% is spam.Which of the following statements are true? Check all that apply. 0/2

- [x] A good classifier should have both a high precision and high recall on the cross validation set. ✓
- [ ] If you always predict non-spam (output y=0), your classifier will have an accuracy of 99%.
- [x] If you always predict non-spam (output y=0), your classifier will have 99% accuracy on the training set, but it will do much worse on the cross validation set because it has overfit the training data. ✗
- [ ] If you always predict non-spam (output y=0), your classifier will have 99% accuracy on the training set, and it will likely perform similarly on the cross validation set.

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