Week 5 Quiz (Graded)

Graded Quiz

We were provided a dataset with n records with input and output attributes of x and y, respectively. Let's say we want to model this data using linear regression. We divided the data into training and test sets at random to test our linear regressor. As the size of the training data grows, what do you think will happen to bias and variance? 1 point

- ○ bias increases and variance increases
- ○ bias decreases and variance increases
- ○ bias decreases and variance decreases
- ◉ bias increases and variance decreases

Clear selection

Given a minimal number of data points, which of the following is the most acceptable technique for data cleansing before performing clustering analysis: 1. Capping and Flouring of variables. 2. Removal of Outliers 1 point

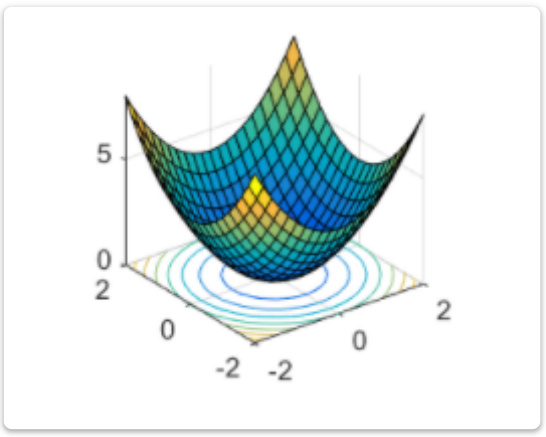
- ○ 2 only
- ○ Both 1 and 2
- ○ None
- ◉ 1 only

Clear selection

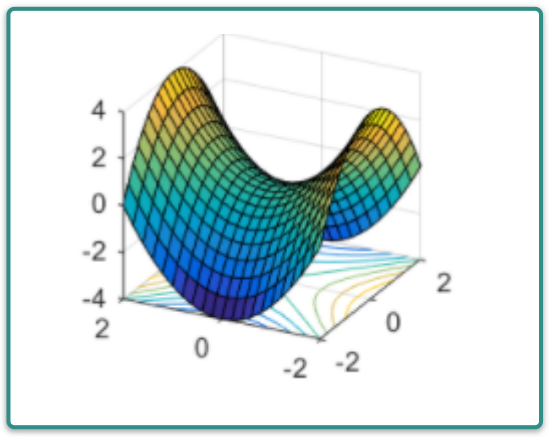
Which of the following can be used as a K-Means termination condition? 2 points

- ☑ For a predetermined number of iterations
- ☑ The assignment of observations to clusters remains constant across iterations. Except in circumstances where the local minimum is too low.
- ☑ Centroids do not shift between iterations.
- ☑ Stops when RSS drops below a certain level.

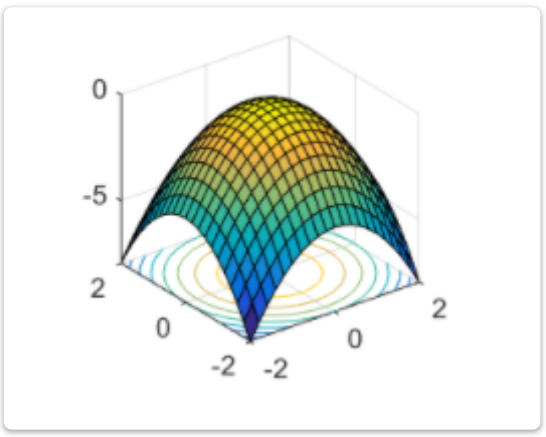
In which of the following curves, gradient descent can get trapped in a saddle point? 2 points



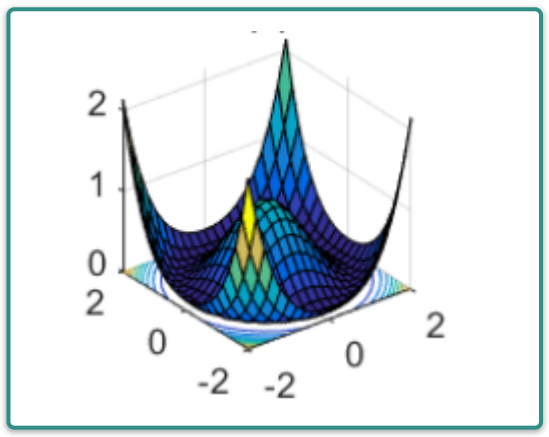
A



B



C



D

Inappropriate selection of learning rate value in gradient descent gives rise to: 1 point

- Local Minima.
- Oscillations.
- Slow convergence.
- All of the above.

Clear selection

In Gradient Boosting, which of the following statements concerning the "max depth" hyperparameter is correct? 2 points

- If the validation accuracy is the same, the lower the parameter, the better.
- In the event of the same validation accuracy, a higher parameter is better.
- Increasing the value of max_depth may cause the data to be overfit.
- Increasing the value of max depth may cause the data to be underfit.

When working on a local machine with limited processing resources, which of the following cases is t-SNE better than PCA for dimensionality reduction? 1 point

- ○ Dataset with 1 Million entries and 300 features
- ○ Dataset with 100000 entries and 310 features
- ◉ Dataset with 10,000 entries and 8 features
- ○ Dataset with 10,000 entries and 200 features

Clear selection

Minimum Number of Variables and features that are required for clustering 1 point

- ○ 0
- ◉ 1
- ○ 2
- ○ 3

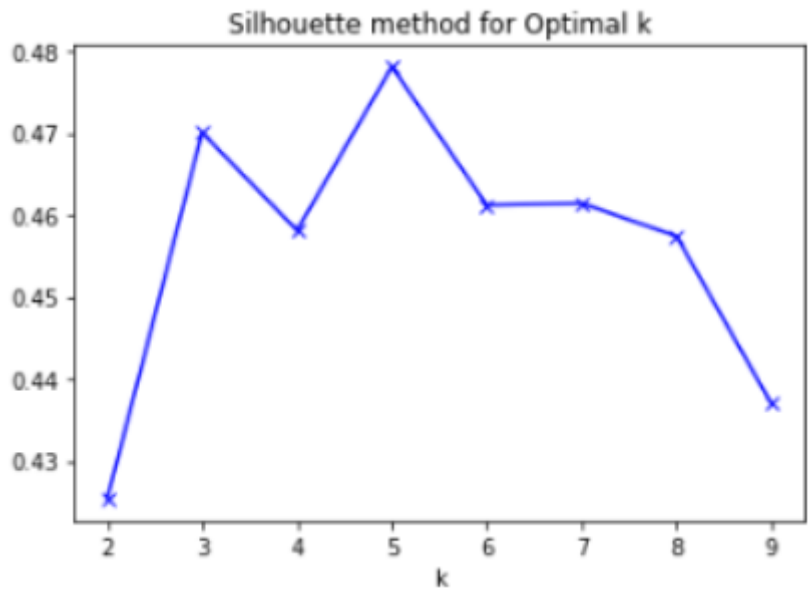
Clear selection

When you find many noises in data, which of the following options would you consider in kNN? 1 point

- ◉ Increase the value of k
- ○ Decrease the value of k
- ○ Noise does not depend on k
- ○ k = 0

Clear selection

"Out of the given options", what is the best choice for number of clusters(k) ? 1 point



- [x] 3
- [ ] 2
- [ ] 6
- [ ] 7

Clear selection

A 4-input neuron has weights 5, 3, 1 and 2. The transfer function is linear with the constant of proportionality being equal to 1.5. The inputs are 4, 5, 6 and 2 respectively. What will be the output? 1 point

- [ ] 30
- [ ] 45
- [ ] -30
- [x] 67.5

Clear selection

The network that involves backward links from output to the input and hidden layers is called 1 point

- [ ] Self organizing map
- [ ] Perceptrons
- [x] Recurrent neural network
- [ ] Multi layered perceptron

Clear selection

What is true about K-Mean Clustering? 1. K-means is extremely sensitive to cluster center initializations. 2.Bad initialization can lead to Poor convergence speed. 3.Bad initialization can lead to bad overall clustering. 1 point

- ○ 1 and 3
- ○ 1 and 2
- ○ 2 and 3
- ◉ 1, 2 and 3

Clear selection

Predicting whether a tumor is malignant or benign is an example of? 1 point

- ○ Unsupervised Learning
- ○ Supervised Regression Problem
- ◉ Supervised Classification Problem
- ○ Categorical Attribute

Clear selection

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