[Quiz] Linear Modeling

- Due 16 Feb at 23:59
- Points 10
- Questions 10
- Time limit None
- Allowed attempts 2

This quiz is no longer available as the course has been concluded.

Attempt history

	Attempt	Time	Score
KEPT	Attempt 2	2 minutes	10 out of 10
LATEST	Attempt 2	2 minutes	10 out of 10
	Attempt 1	10 minutes	9 out of 10

Score for this attempt: 10 out of 10
Submitted 13 Feb at 18:41
This attempt took 2 minutes.

Question 1
1 / 1 pts
The closed form solution for least squares is $(\mathbf{X}^\top\mathbf{X})^{-1}\mathbf{X}^\top\mathbf{y}$. This equations computational complexity scales exponentially with _____ such that the complexity is approximately $O(n^3)$.

- weights

Correct!

- features
- data samples

Question 2
1 / 1 pts
The closed form solution for least squares is $(\mathbf{X}^\top\mathbf{X})^{-1}\mathbf{X}^\top\mathbf{y}$. This equations computational complexity scales linearly with _____ such that the complexity is $O(m)$.

Correct!

- data samples
- weights
- features

Question 3
1 / 1 pts
We add a column of ones to our data $\mathbf{X}$ to account for the bias term. In a 2D scenario, the bias term allows us to shift our line-of-best fit up and down the y-axis.

Correct!

- True
- False

Question 4
1 / 1 pts

Which Linear Regression algorithm would we want to use if we had a training dataset with millions of data samples?

Correct!

- Least Mean Squares
- Ordianry Least Sqaures
- None of the above

Question 5
1 / 1 pts
Which Linear Regression algorithm would we want to use if we had a training dataset with more than 10,000 features?

- None of the above
- Ordianry Least Sqaures

Correct!

- Least Mean Square

Question 6
1 / 1 pts
When minimizing the sum of squared errors $J(\mathbf{w}) = \mathbf{min}_\mathbf{w} \sum_{i=1}^{m} \left(f(\mathbf{x}_i; \mathbf{w}) - y_i \right)^2$ for Least Mean Squares we want to update our weights using which of the following:

- the integral

Correct!

- the negative gradient
- the closed form equation
- the postive gradient

Question 7
1 / 1 pts
Online learning is when we update our model based on _____.

- none of the above
- all data samples
- a subset of data samples

Correct!

- one data sample at a time

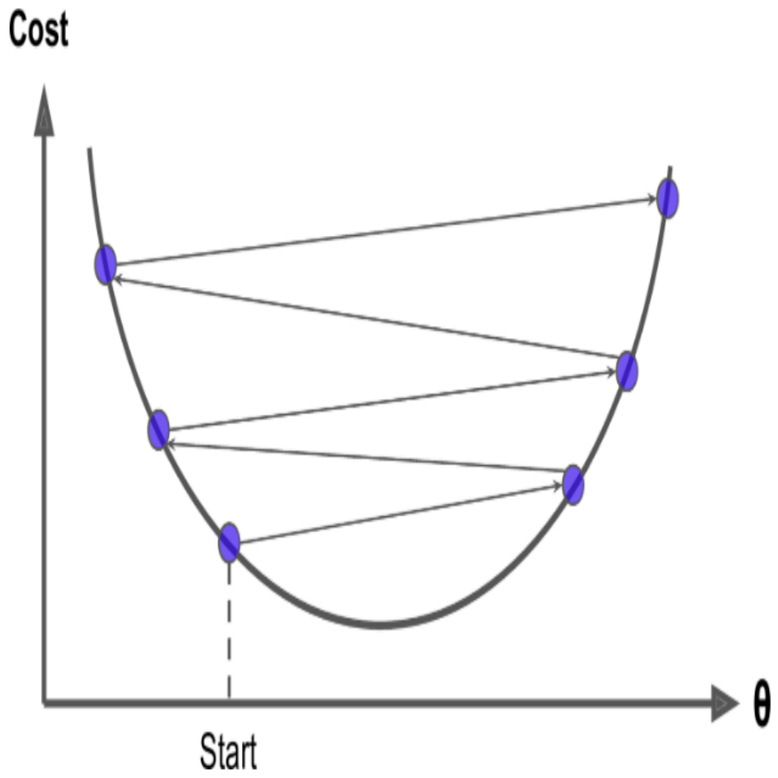
Question 8
1 / 1 pts
Batch learning is when we update our model based on ____.

- a subset of data samples
- none of the above
- one data sample at a time

Correct!

- all data samples

Question 9
1 / 1 pts
When performing gradient descent the we can overshoot the minimum of our function (as seen in the below image) by _____.



poorly intializing our weights

Correct!

setting the learning rate too high

having too complex of a function

setting the learning rate too low

Question 10

1 / 1 pts

Match the following terms that relate to minimizing a cost function.

Correct!

Loss/Cost function

Measures the total error ov

Correct!

Error/residual

Measures the penalty for a

Correct!

Objective function

A function that we want to

Quiz score: 10 out of 10