Quiz 2:

Introduction to Supervised Learning

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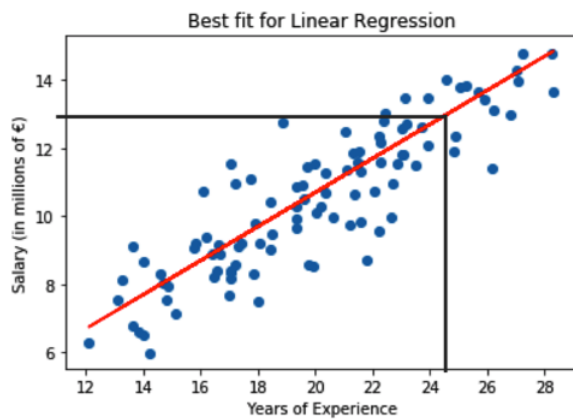
Please enter your name: *

Michael Symmonds

Linear Regression/Logistic Regression

Which model aims to fit the best line based on the following data ?   1 point

○ Logistic Regression

◉ Linear Regression

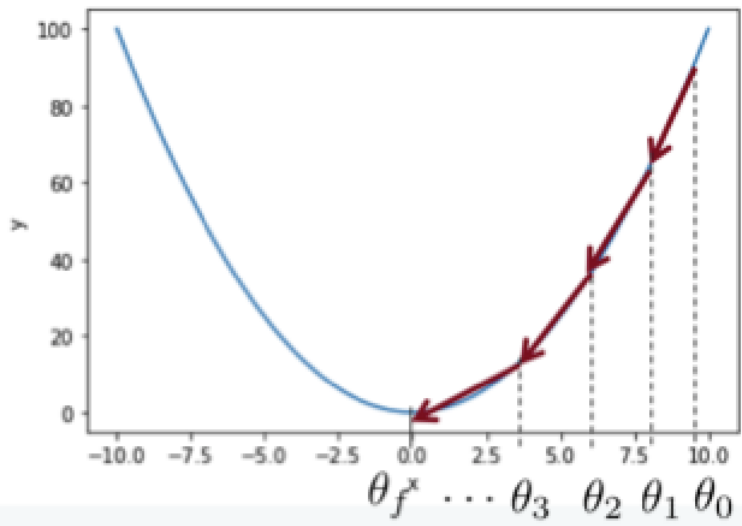○ Hidden Markov Model

What model is summarized as follows?   1 point

$$\forall i \in \{1, \ldots, N\} \quad Y_i | X_i = x_i \sim \mathcal{B}(\sigma(w^T x_i))$$

○ Bernoulli model

◉ Logistic Regression

○ Linear Regression

What algorithm should be used to learn the parameters of Linear Regression and Logistic Regression?   1 point

Gradient Descent

What are the two hyperparameters that should be chosen before applying the Gradient Descent algorithm?   2 points

The learning rate (eta)
The number of iterations of gradient descent until convergence

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Decision Trees Algorithm

We want to predict whether someone is going to succeed or fail in a Machine Learning Interview based on the following features: "years of experience", "coding skills" (with discrete values in [0, 5]), "familiar with the models" (with discrete values in [0, 5]), and "like chocolate"(with binary output 0/1). We obtain the following graph of decision

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Graph of decision
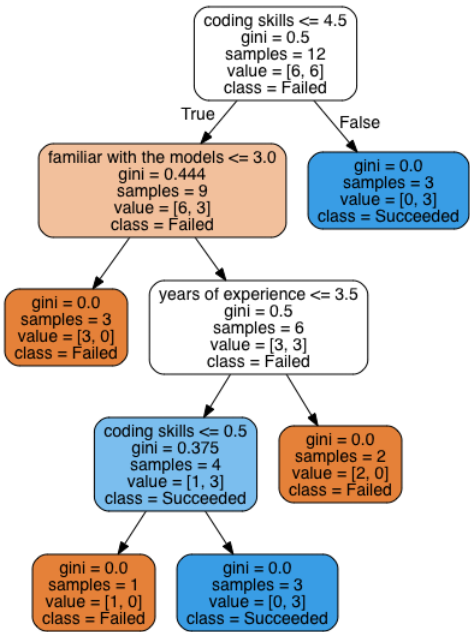
How many candidates have succeeded?   1 point

○ 4

○ 5

◉ 6

How many candidates have failed?   1 point

○ 2

○ 4

◉ 6

If a candidate has the following characteristics: 2 years of experience, 0 for coding skills, and 4 for the familiarity with the models. What would the algorithm predict?   1 point

○ Successed

◉ Failed

What is the minimum value of "coding skills" that can change the prediction value in the previous example?   1 point

◉ 1

○ 2

○ 3

Give one of the hyperparameters for the Decision Trees Algorithm and one for the Random Forest Algorithm?   1 point

Decision Tree Algorithm - Depth of the tree (and the impurity measure)
Random Forest Algorithm - The number of trees K to include in the forest (and the sample size n of the bootstrap sampling & the number of attributes d at each split)

Programming Session

Did you understand the problem?

◉ Yes

○ No

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