14. Data Science – Machine Learning – Cost function

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1. Cost Functions in Machine Learning

- ✓ Cost functions are also called as Loss functions in machine learning.
- ✓ These are optimization techniques.
- ✓ There are many cost functions in machine learning
- ✓ There are different cost functions for regression and classification.

2. Why Cost Functions in Machine Learning

- ✓ During the training phase, the model assumes the initial weights randomly and tries to make a prediction on training data.
- ✓ So here, how the model gets to know how much "far" it was from the prediction?
- ✓ Model needs this information so that it can adjust the weight accordingly (using gradient descent) in the next iteration on training data.

3. How cost function works?

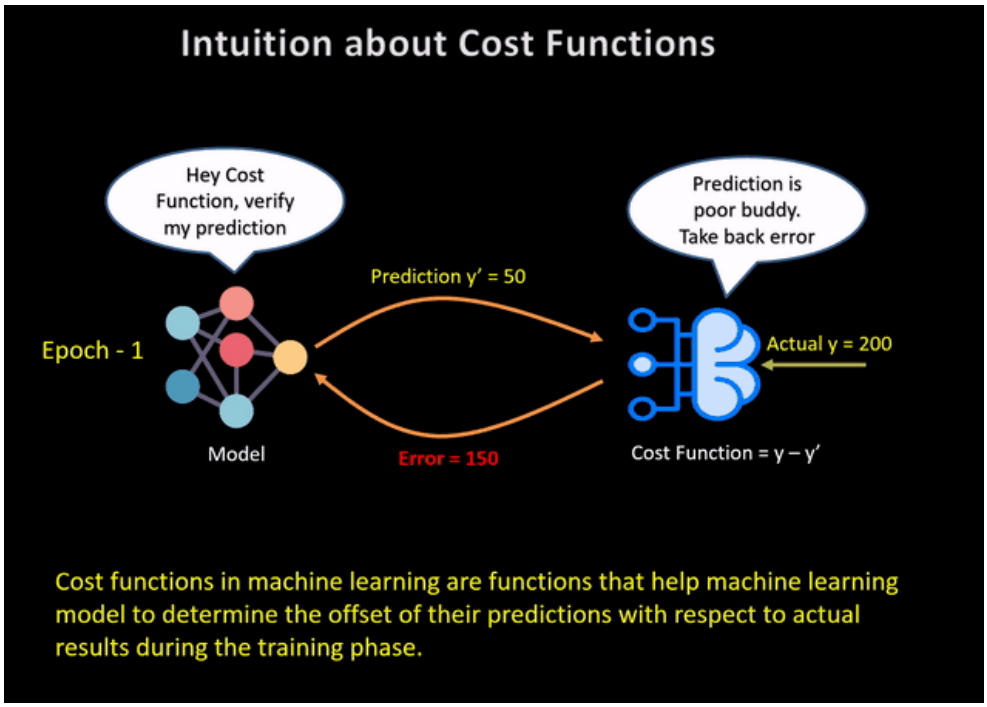
- ✓ Cost function is a function that takes both predicted outputs and actual outputs from model.
- ✓ Then it calculates how much error in the model to predict the good results.
- ✓ In next step the model tries to adjust this error for the next iteration on training data to reach optimization level

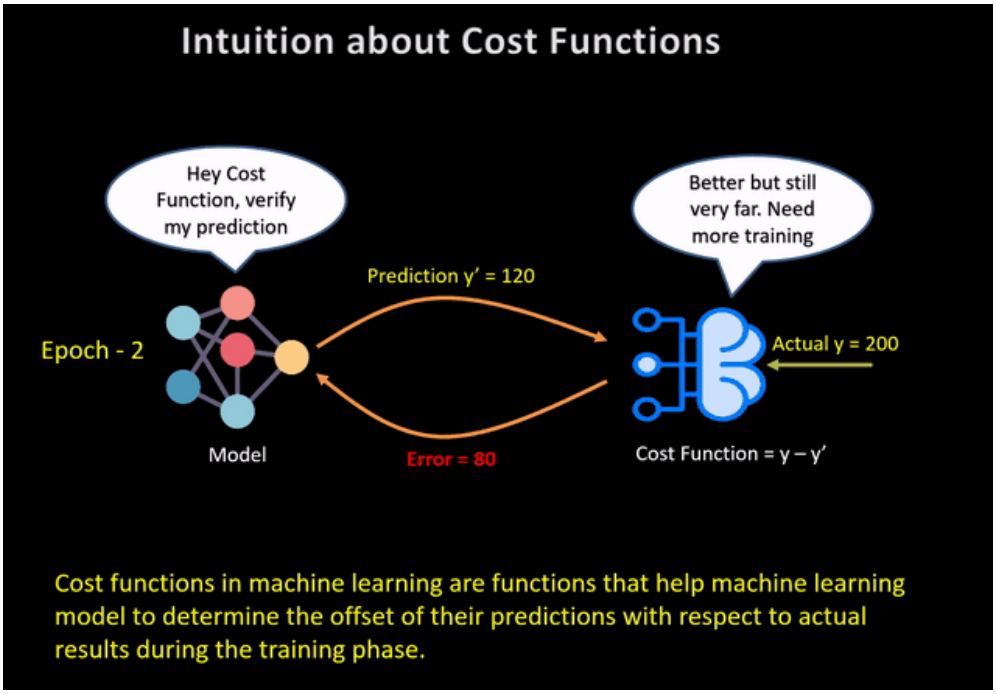
4. Goal of training

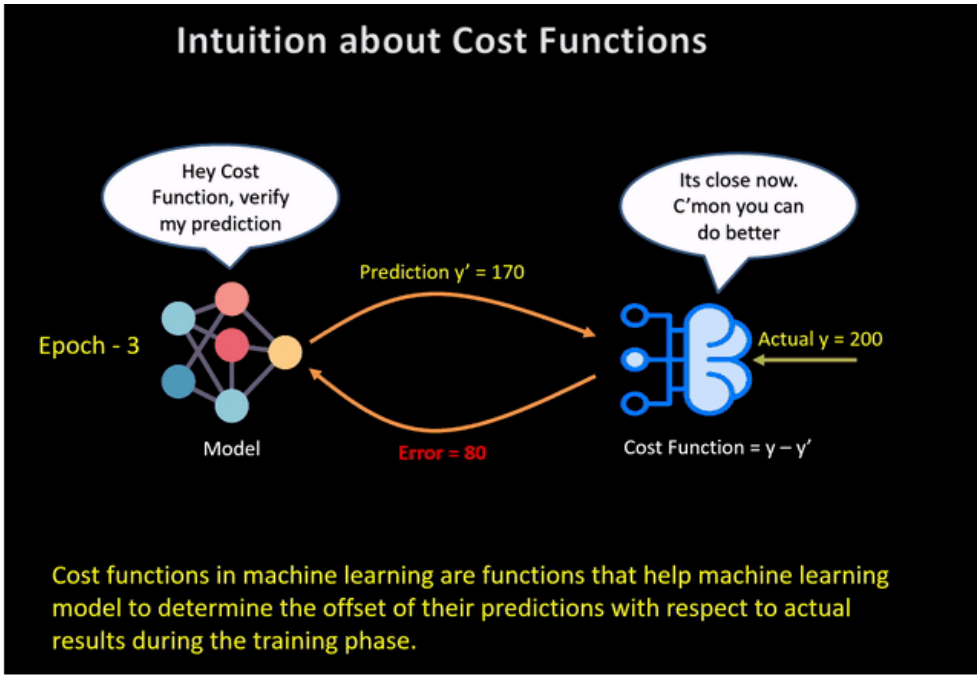
- ✓ The goal of the training phase is to come up with weights that minimize the **error in every iteration**.
- ✓ This way of training is required in machine learning to optimize model

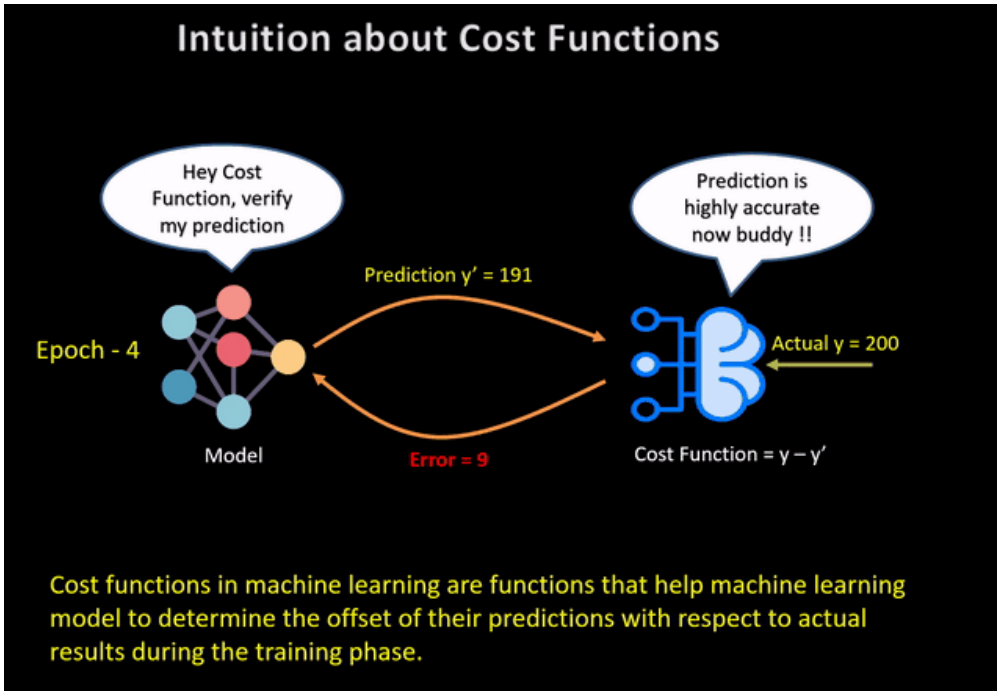
5. Useful sources

✓ These images are highly recommended to practice




Intuition about Cost Functions
Hey Cost Function, verify my prediction
Better but still very far. Need more training
Prediction y' = 120
Epoch - 2
Actual y = 200
Model
Error = 80
Cost Function = y – y'
Cost functions in machine learning are functions that help machine learning model to determine the offset of their predictions with respect to actual results during the training phase.


Intuition about Cost Functions
Hey Cost Function, verify my prediction
Its close now. C'mon you can do better
Prediction y' = 170
Epoch - 3
Actual y = 200
Model
Error = 80
Cost Function = y – y'
Cost functions in machine learning are functions that help machine learning model to determine the offset of their predictions with respect to actual results during the training phase.


Intuition about Cost Functions
Hey Cost Function, verify my prediction
Prediction is highly accurate now buddy !!
Prediction y' = 191
Epoch - 4
Actual y = 200
Model
Error = 9
Cost Function = y – y'
Cost functions in machine learning are functions that help machine learning model to determine the offset of their predictions with respect to actual results during the training phase.