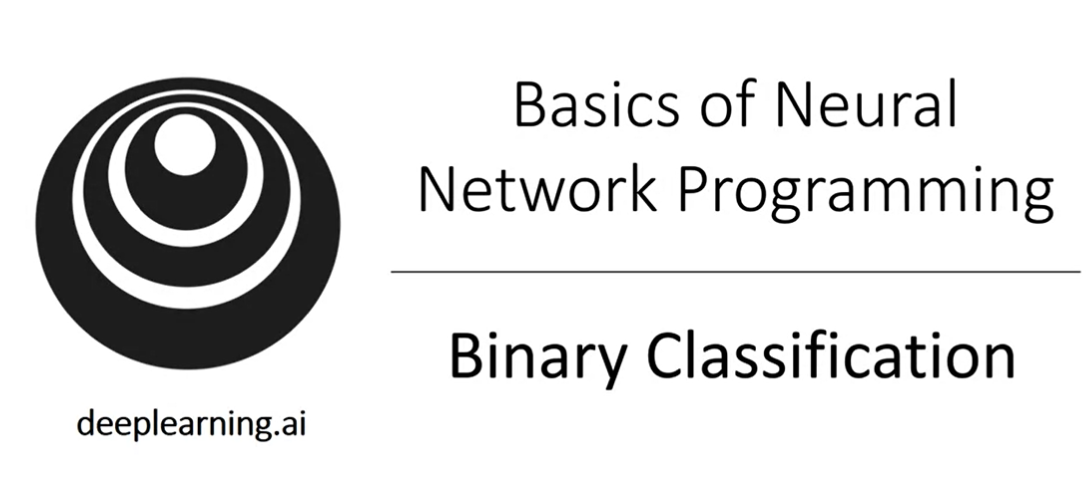
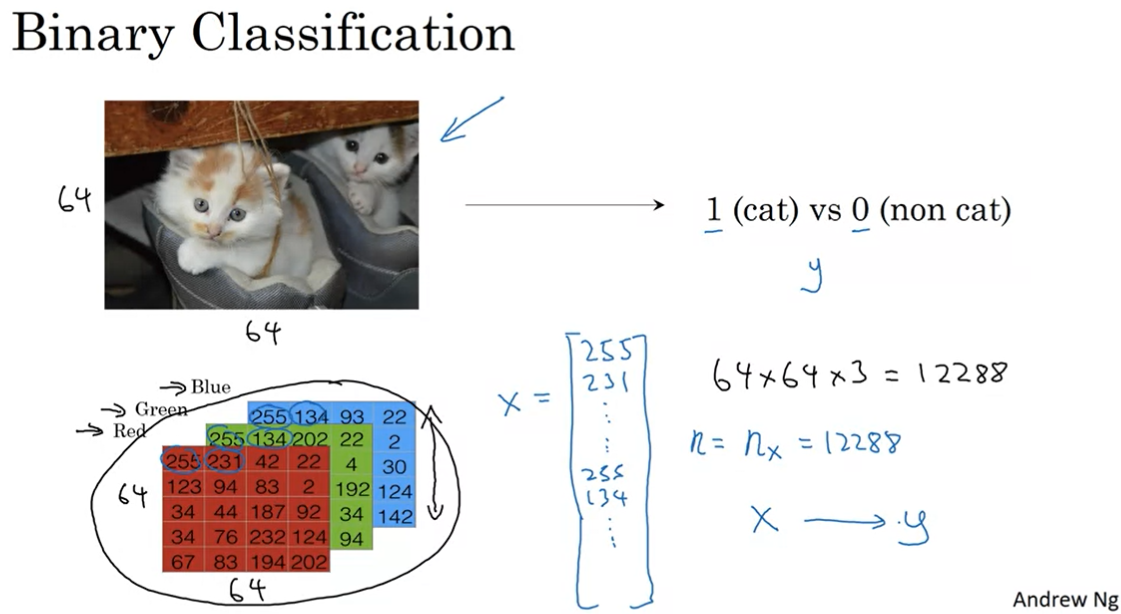
Neural Network Basics – Anish Mahapatra

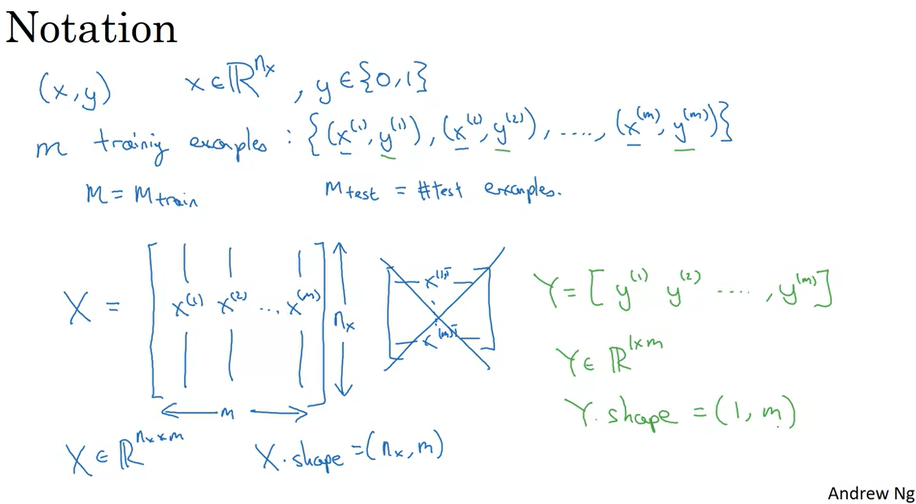
When you have a dataset with many rows, we would not want to use a for loop to iterate over them one by one.

Using Logistic Regression for Binary Classification. 

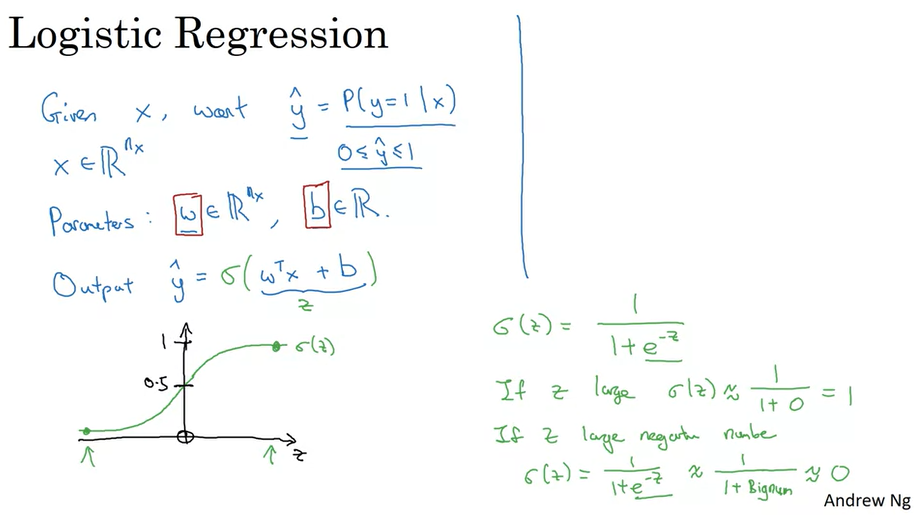


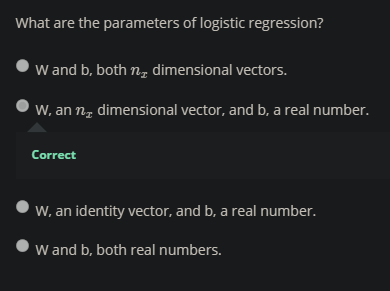
Notation:

M training examples: (x1, y1), (x2, y2) .. (xm, ym)  
M train, M test  
X is a n x m matrix. N Rows, M columns



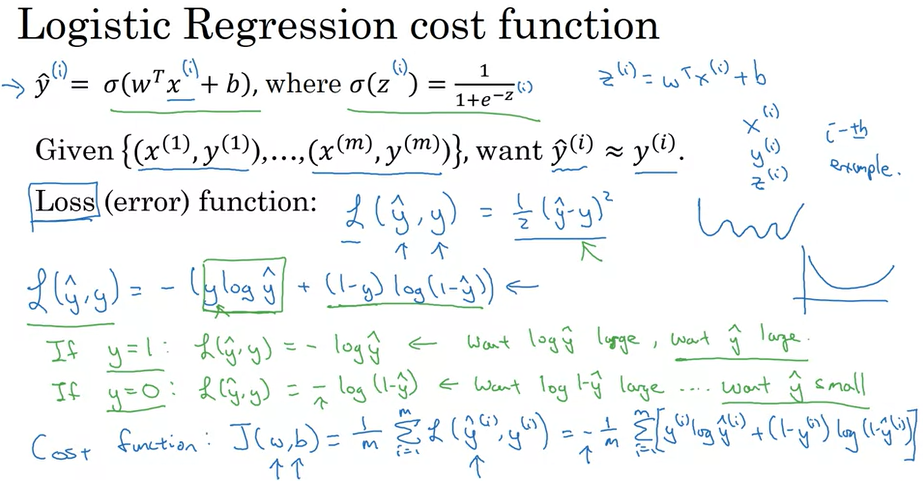
Derivation of Logistic Regression



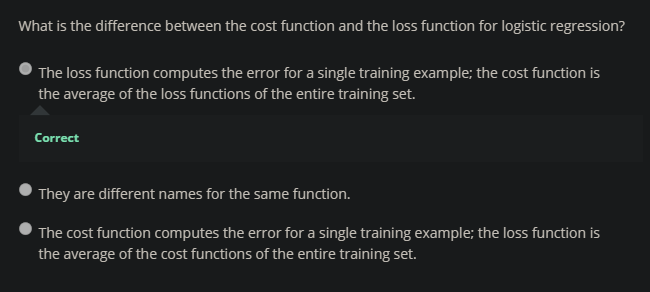
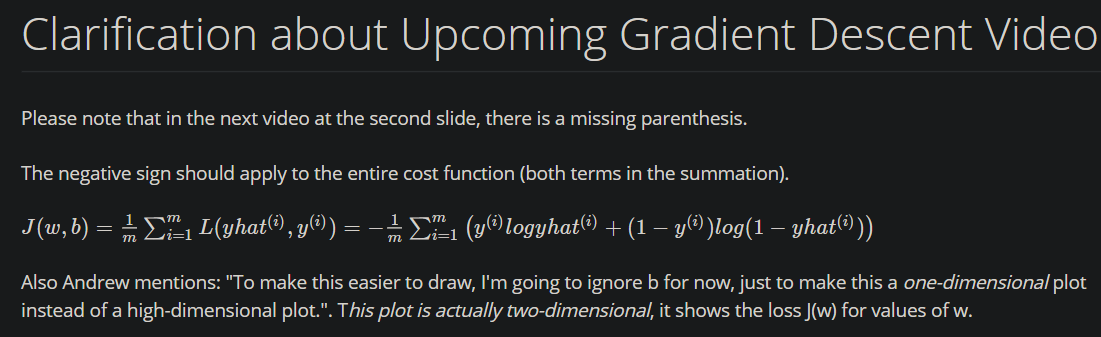


Cost Function: Logistic Regression

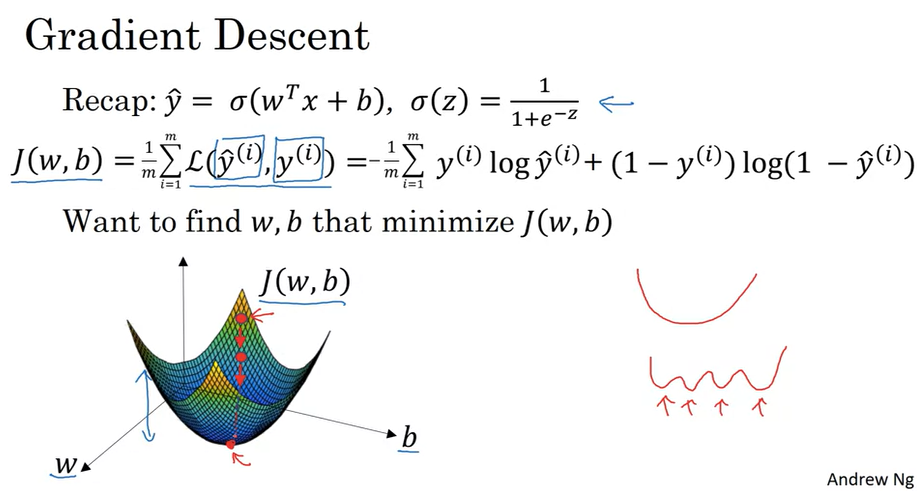
Y hat -> Prediction of the model

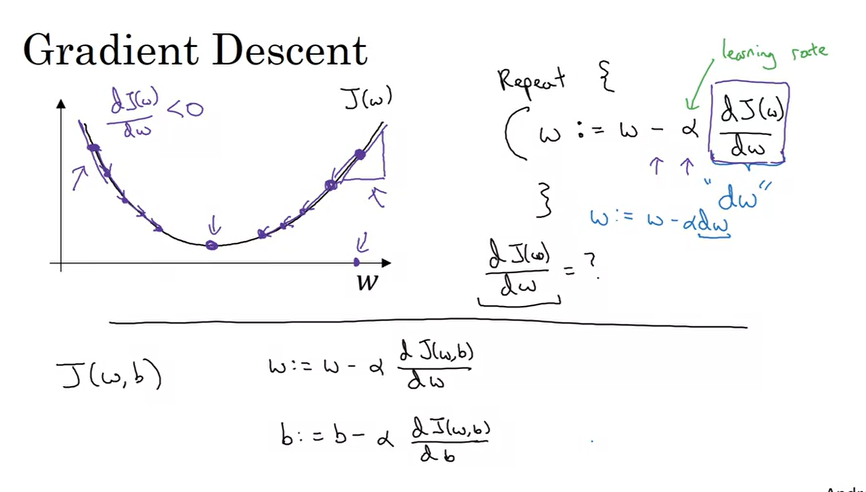


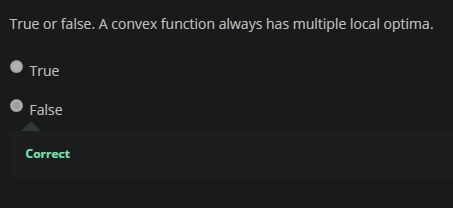
The loss function is applied to a single training example and the cost function is the cost of your parameters. So, in training the logistic regression

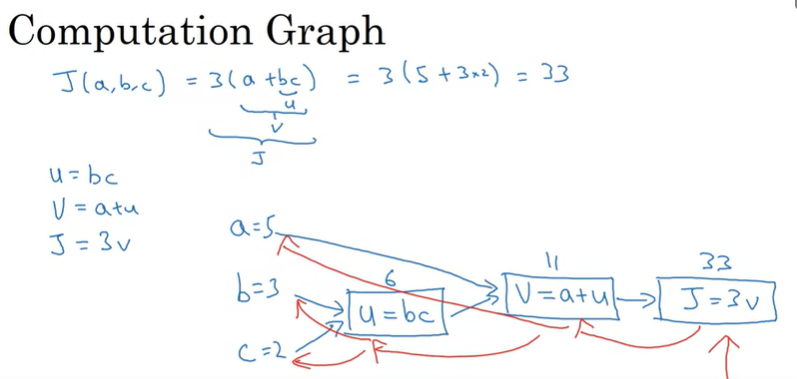
Gradient Descent

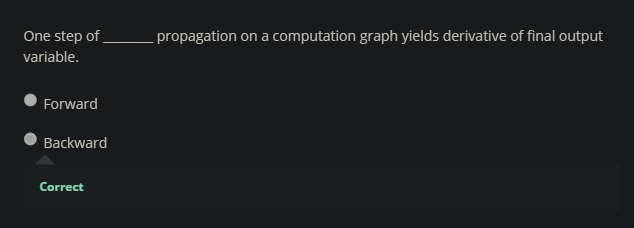


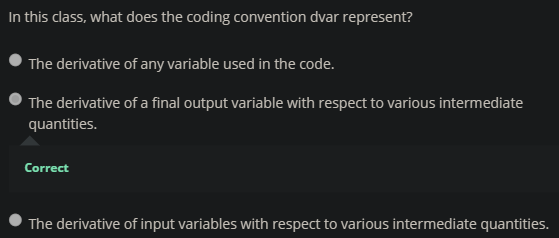


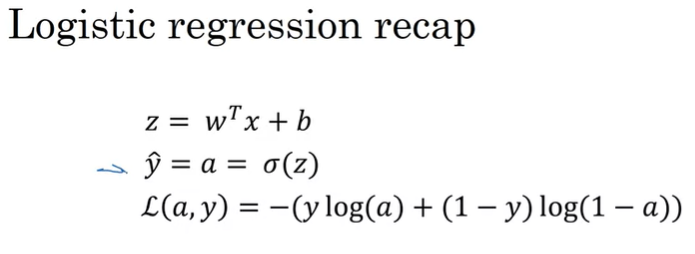
’

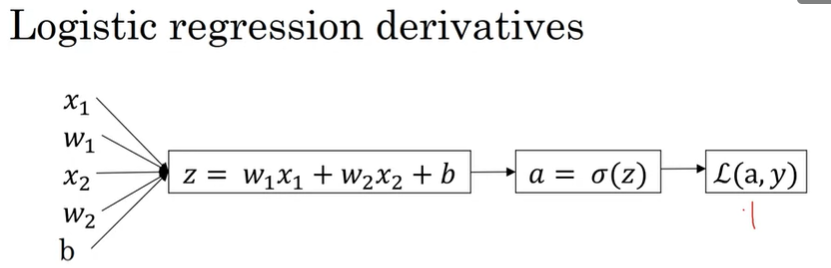
Computation Graph









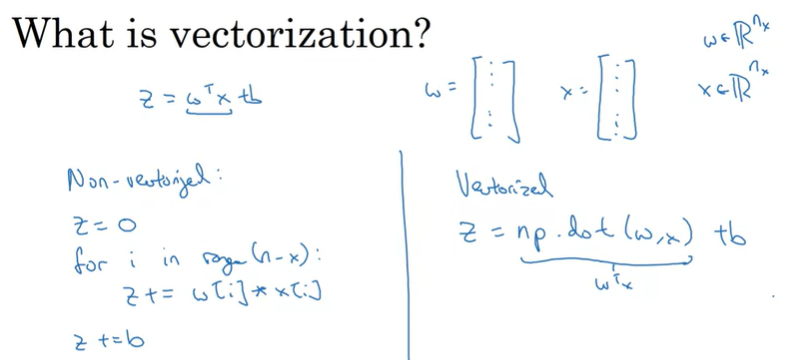


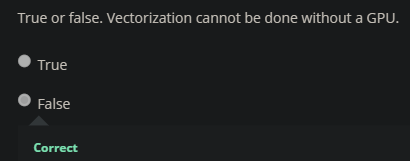


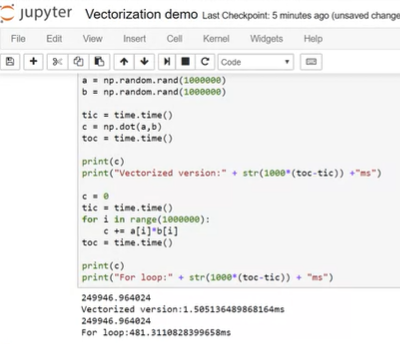
Deep Learning would be slow if we were to use FOR loops. In the post deep learning era, it is preferred to use VECTORIZATION instead.

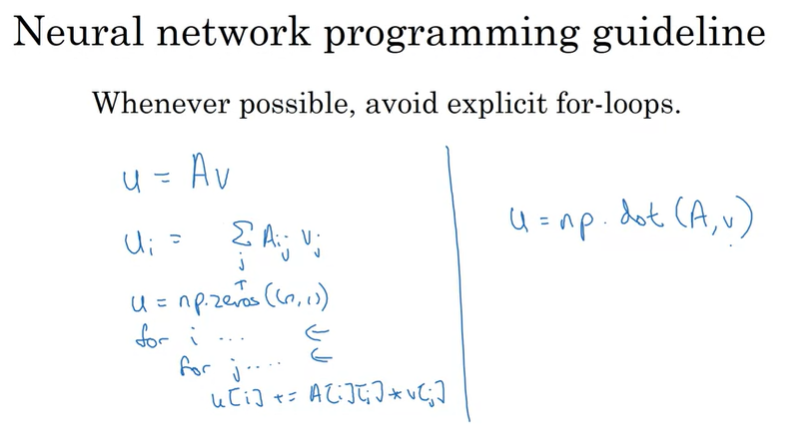
V E C T O R I Z A T I O N

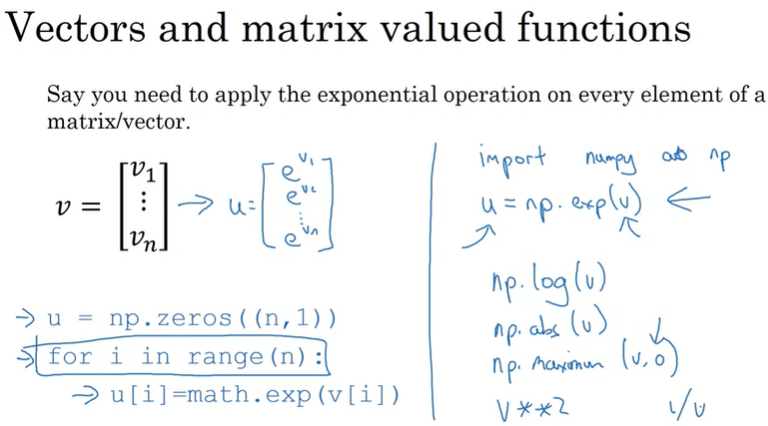
Vectorization is the art of getting rid of for loops in your code.

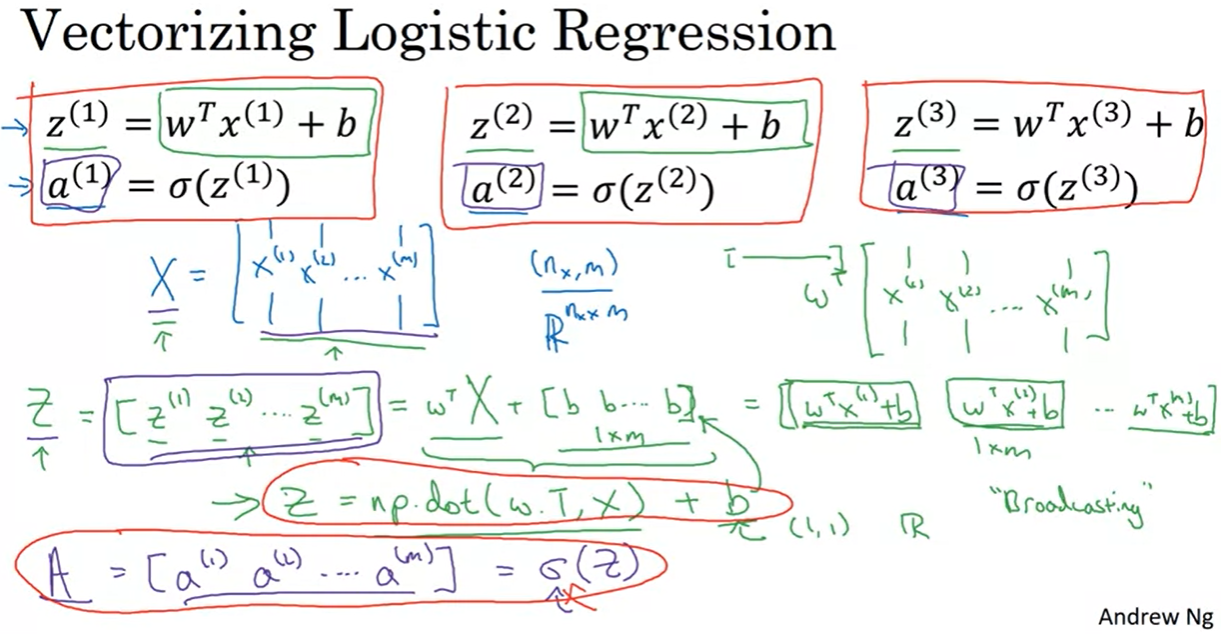


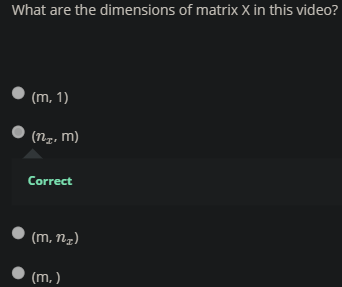


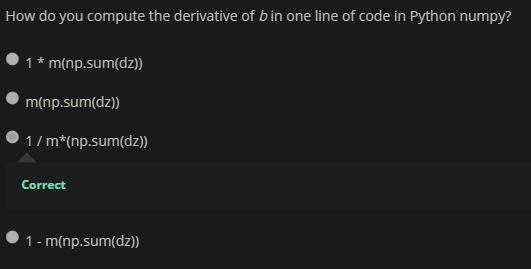


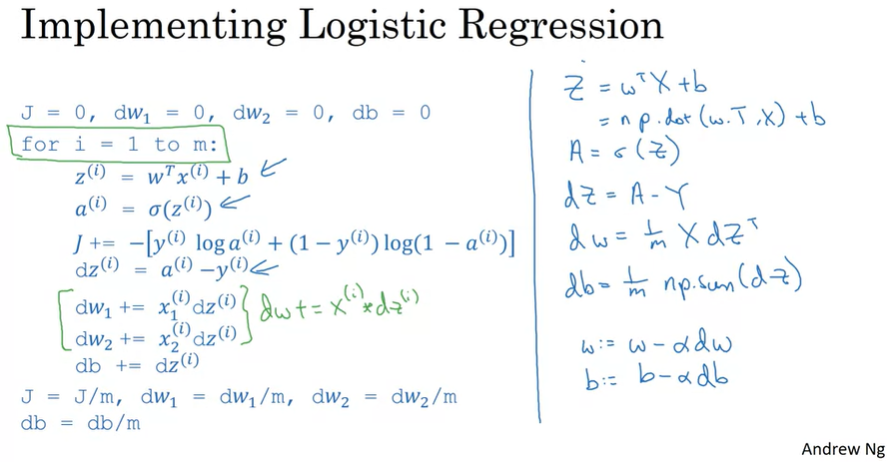


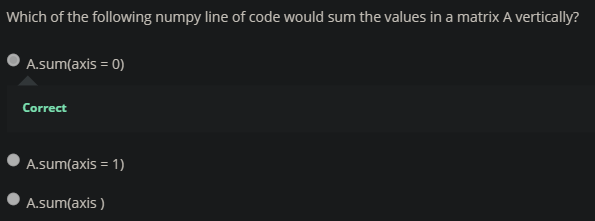












Axis = 0 – VERTICALLY  
Axis = 1 – HORIZONTALLY

