Deep Q-Learning

Deep Q-Learning Intuition

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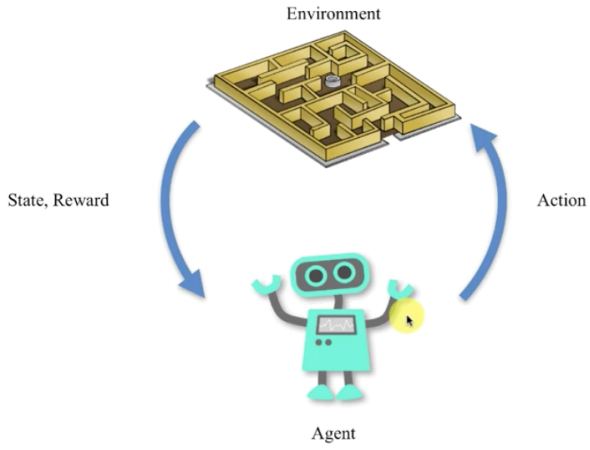
Deep Q-Learning Intuition



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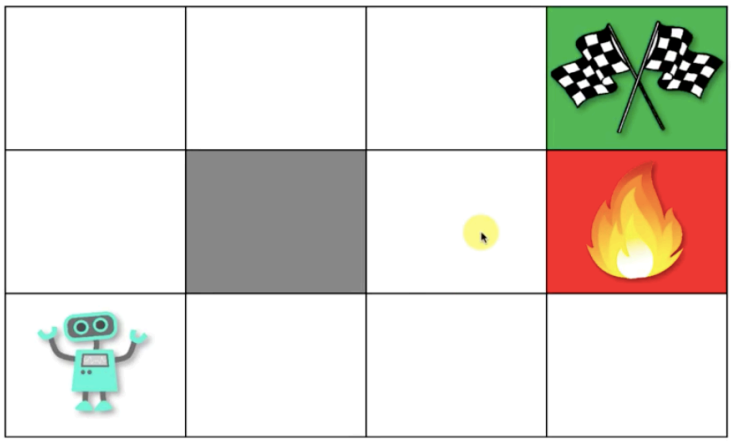

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V=0.71	V=0.74	V=0.86	
V=0.63		V=0.39	
V=0.55	V=0.46	V=0.36	V=0.22

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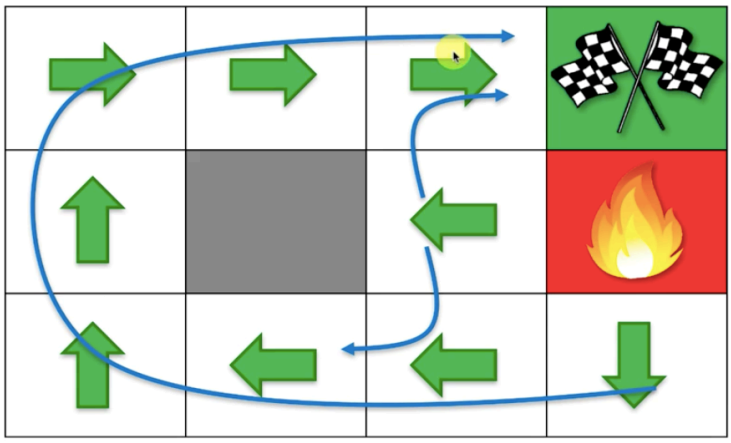

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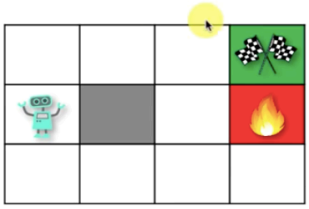

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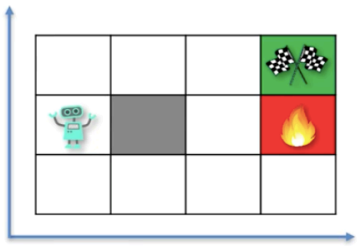

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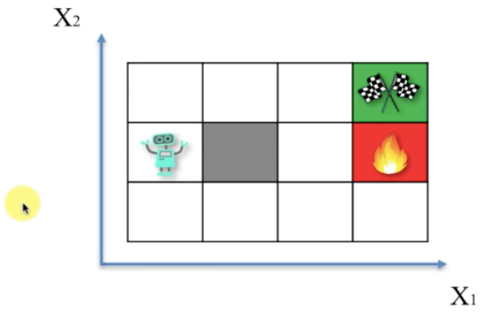

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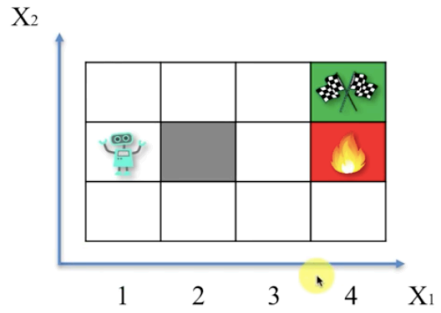

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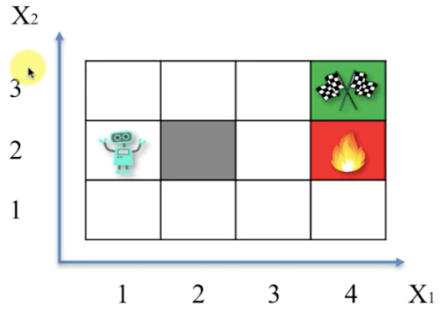
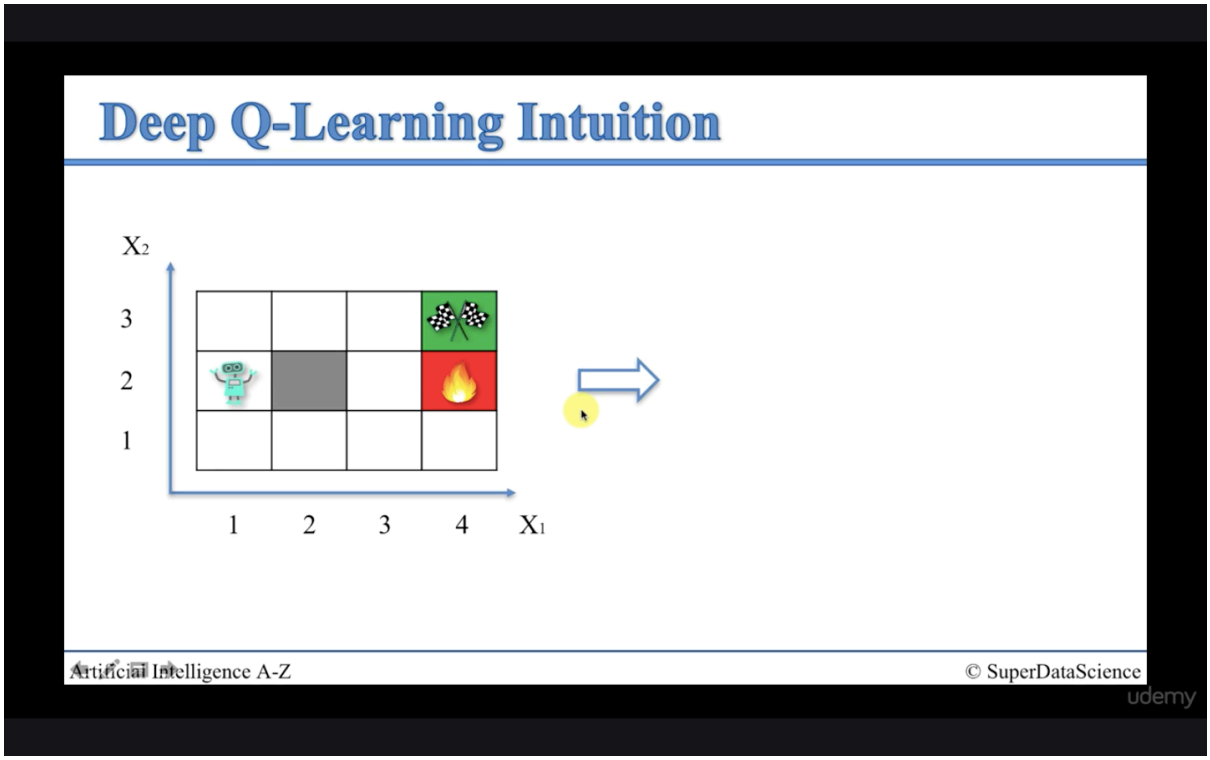
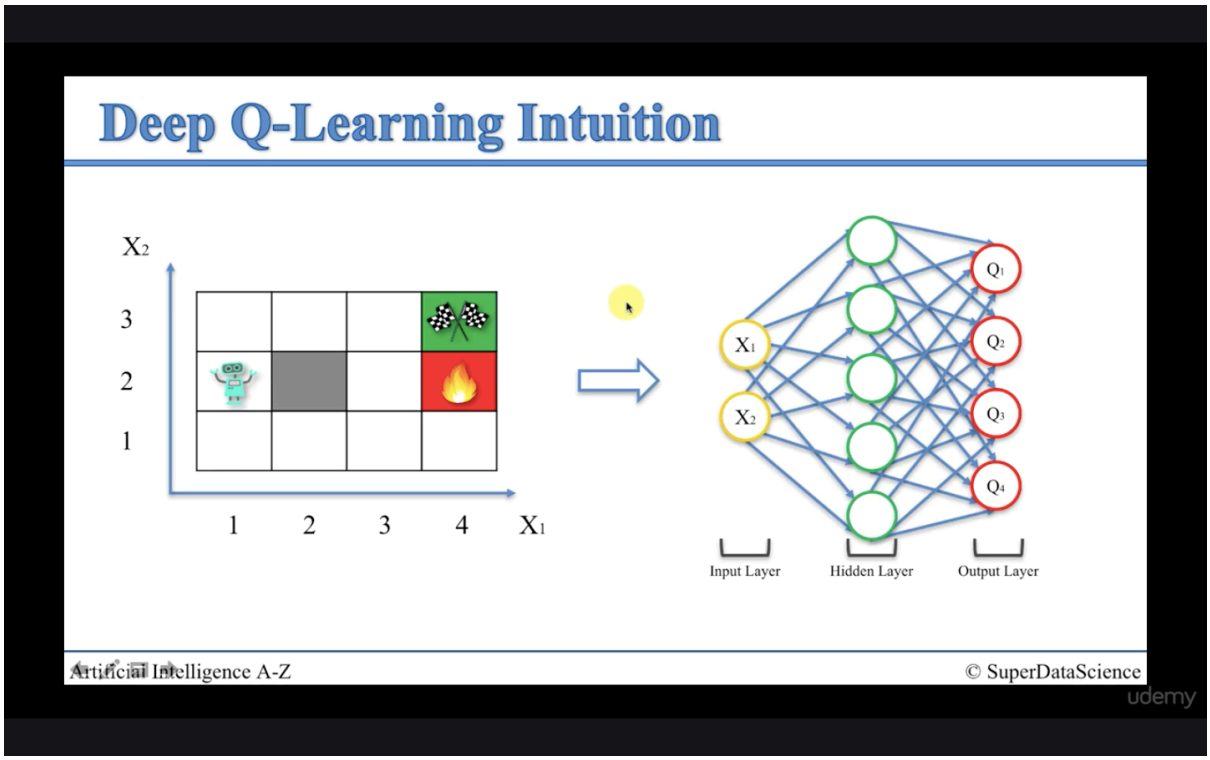
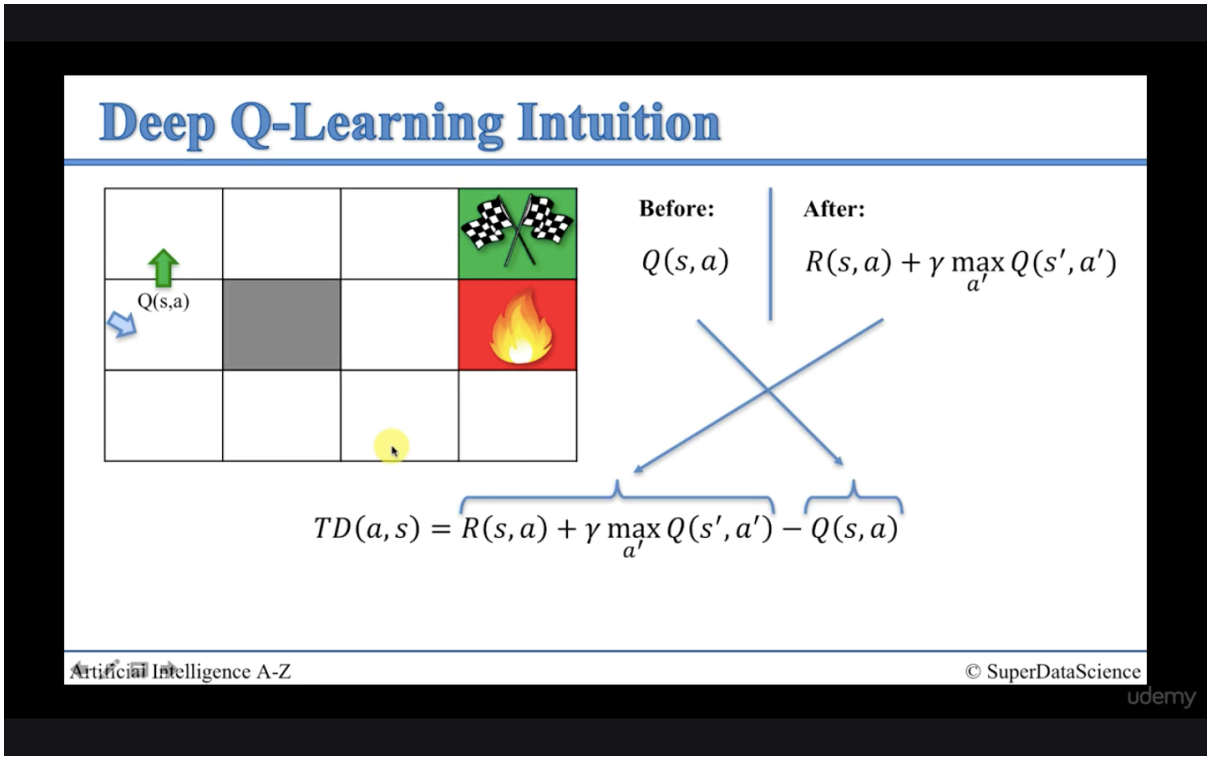


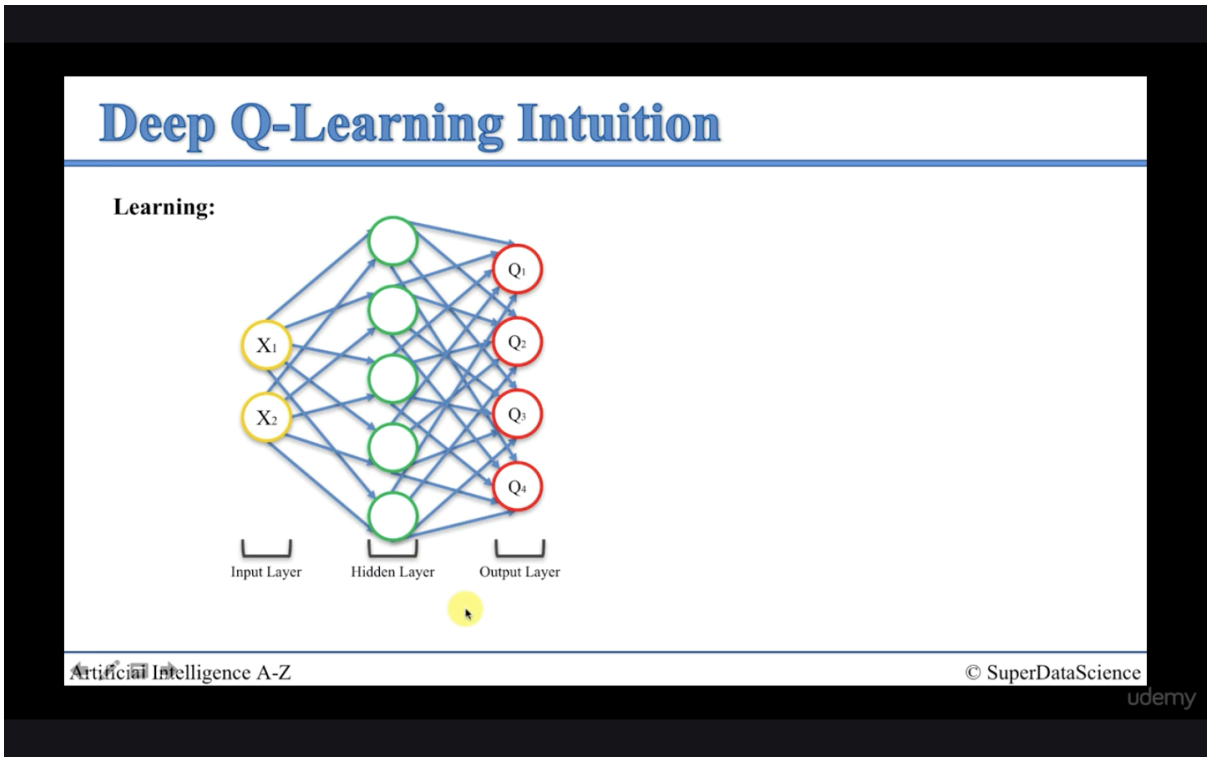


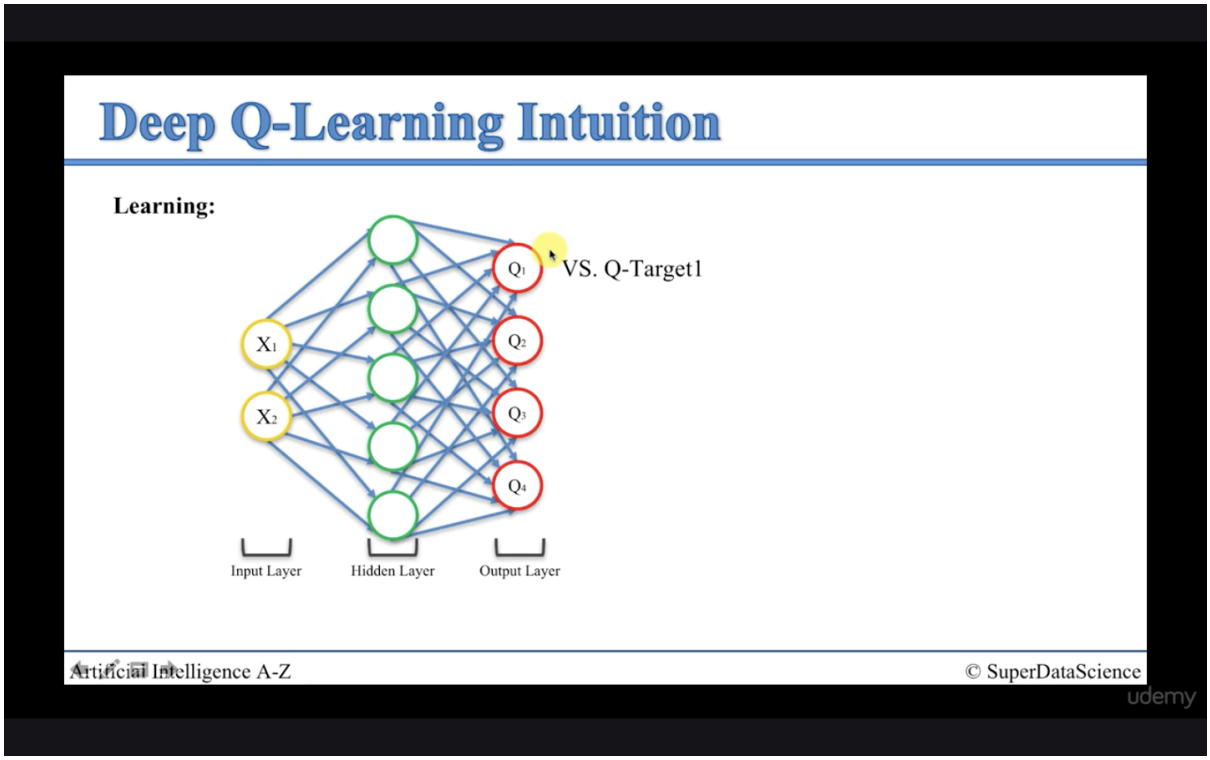


The reason why we don't use only Q-Learning like before is because it worked only on a very simple environment but for a more complex environment like self-driving car project we need the artificial neural network as well. As you can see there is 4 Q in here which is the 4 directions

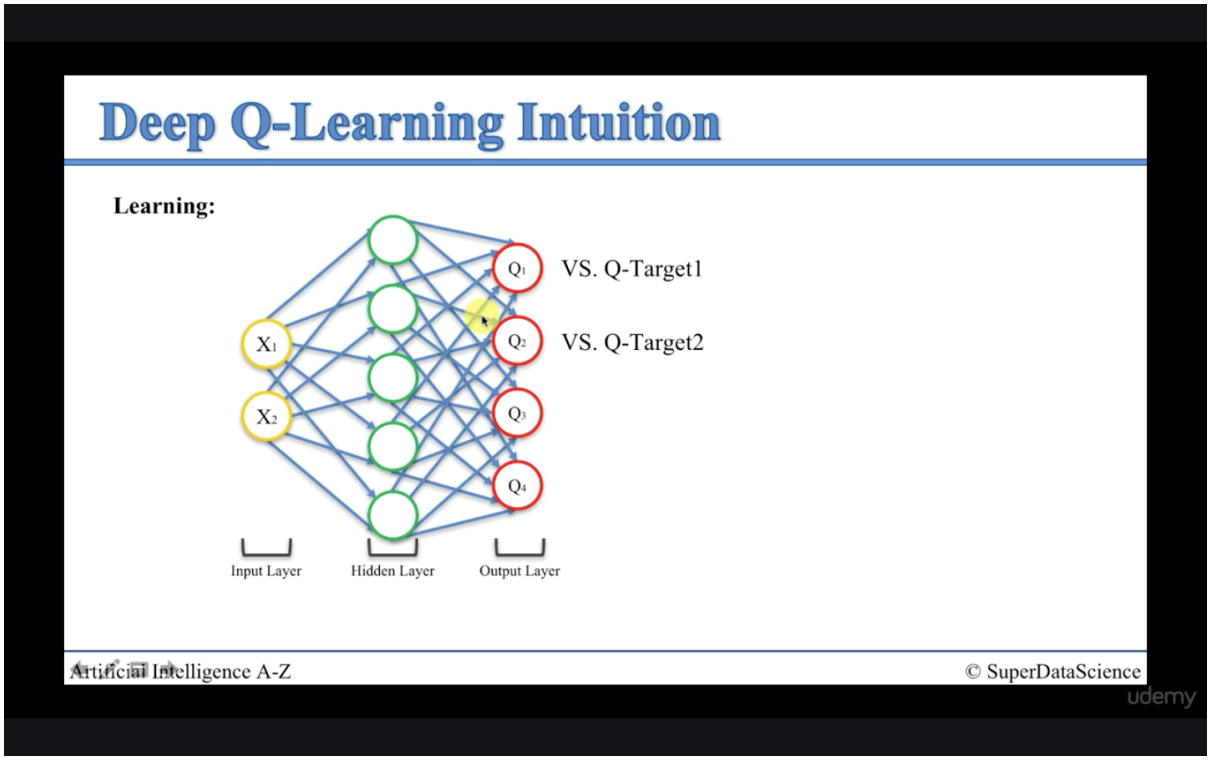


In simple Q-Learning we have before and after but in ANN we predict 4 of these values and so there is no before and after in here. and also in ANN, we remember the values that calculated long time ago in a specific state and it stores it for the future so when in future it is in that specific state again, it will compare the predicted value of Q to this value that it had had previously





Target is the next one of that Q.



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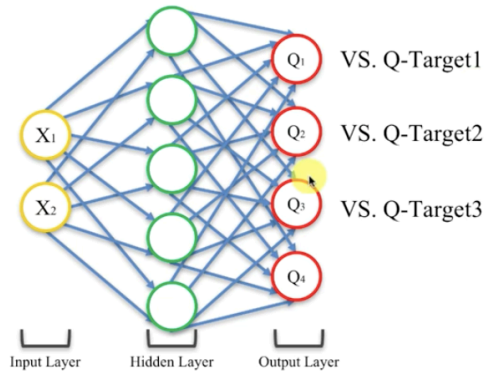
Learning:



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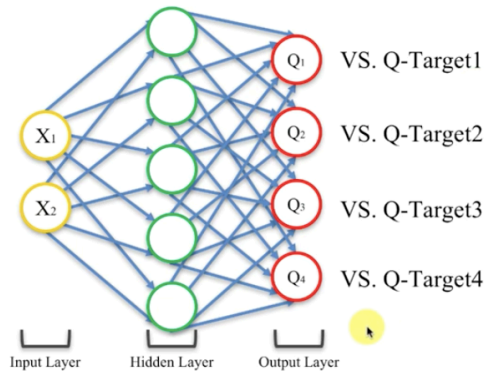
Learning:



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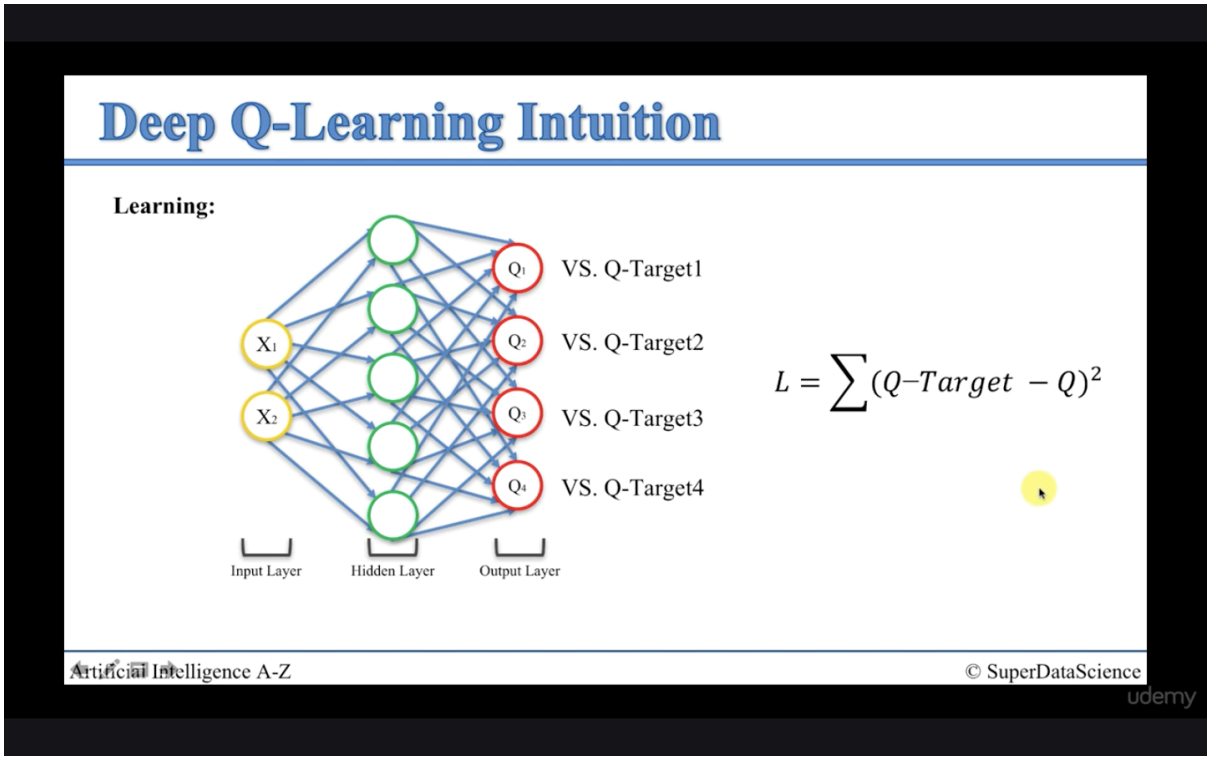
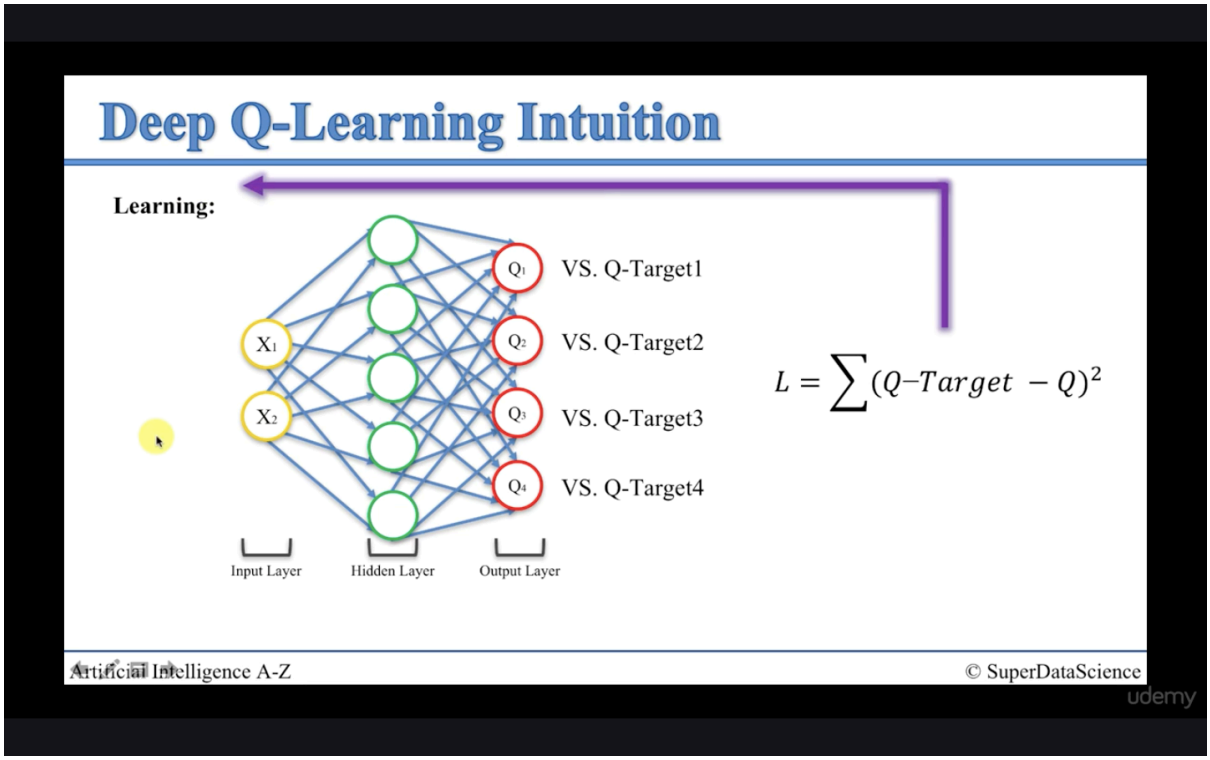
In here ANN will update its weights to a better performance



This is Loss and we want to be as close to 0 as possible.



Back propagating for updating the weights. This action is an iteration and it's not going to happen only one time.