

Logistic Regression Intuition

Logistic Regression

Linear Regression:

- **Simple:**

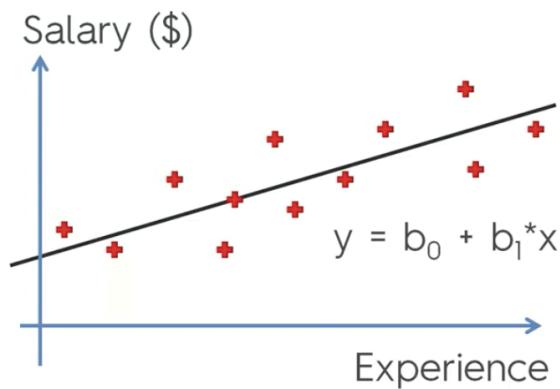
$$y = b_0 + b_1 * x$$

- **Multiple:**

$$y = b_0 + b_1 * x_1 + \dots + b_n * x_n$$

Logistic Regression

We know this:

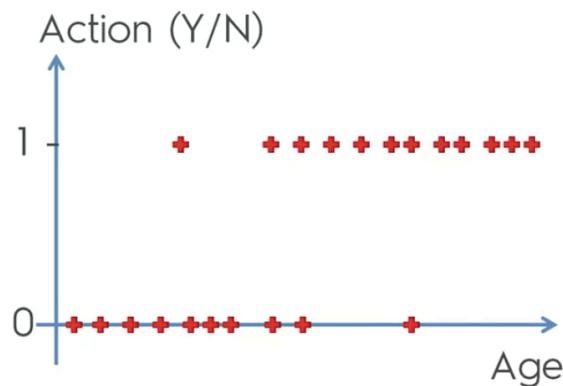


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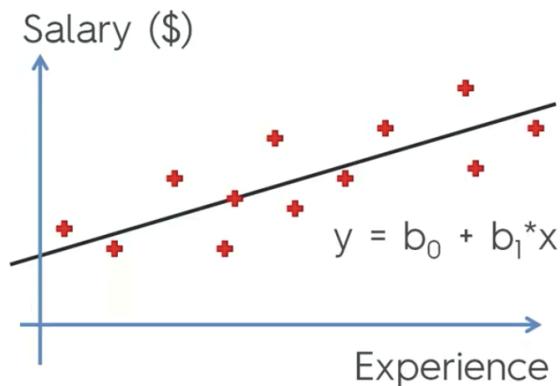
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This is new:



We know this:

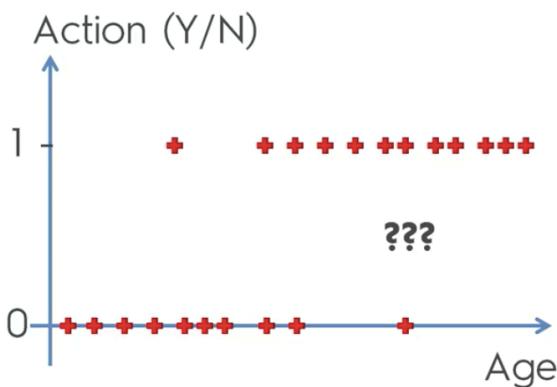


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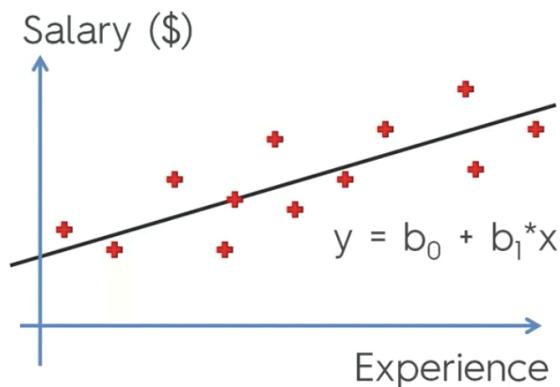
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This is new:

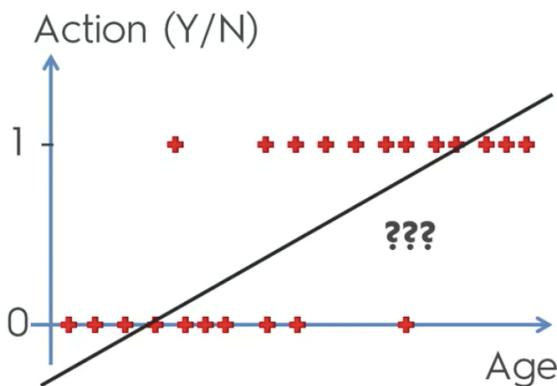


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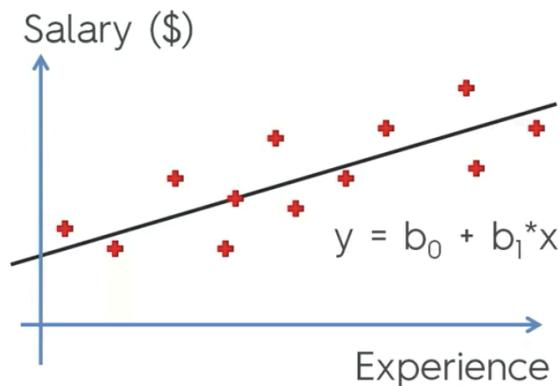


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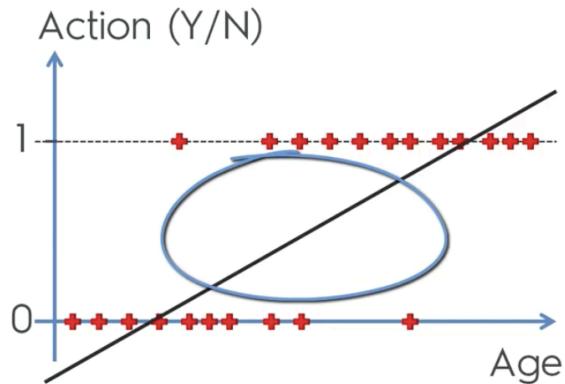
This is new:



We know this:



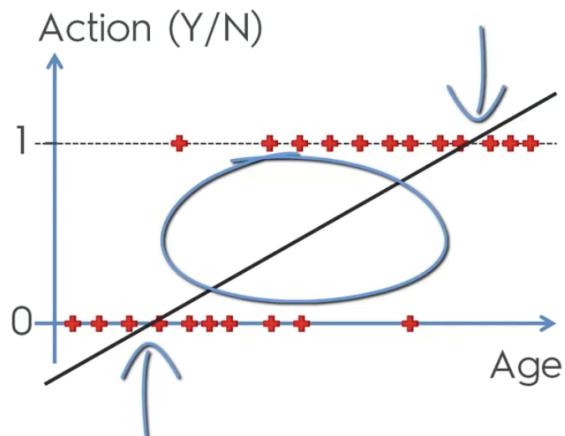
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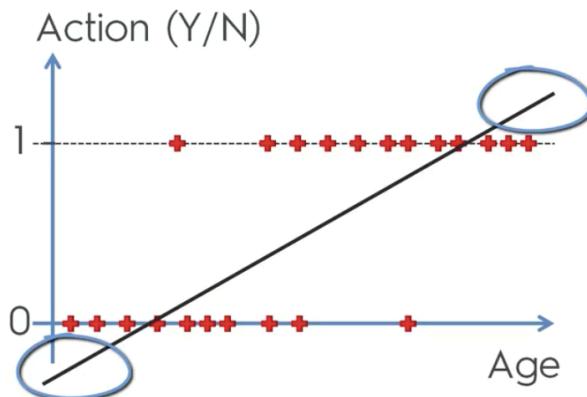
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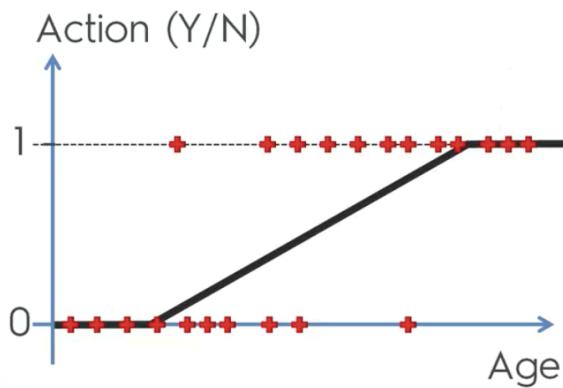
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The part above 1 indicates that the probability of happening is 100% and below indicates the 0% probability.

Logistic Regression



Logistic Regression

$$y = b_0 + b_1 * x$$

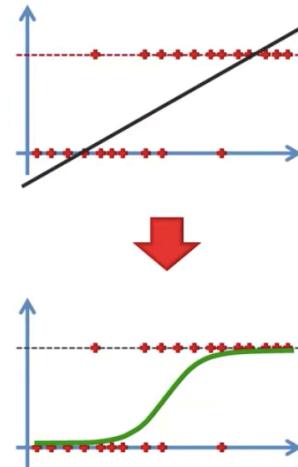
↓

Sigmoid Function

$$p = \frac{1}{1 + e^{-y}}$$

↓

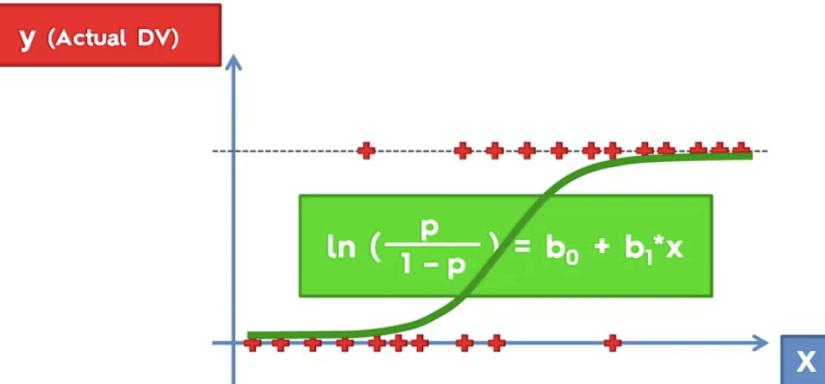
$$\ln \left(\frac{p}{1-p} \right) = b_0 + b_1 * x$$



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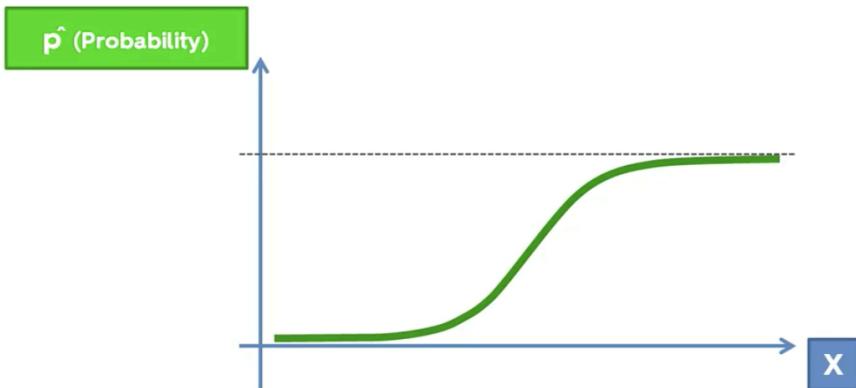
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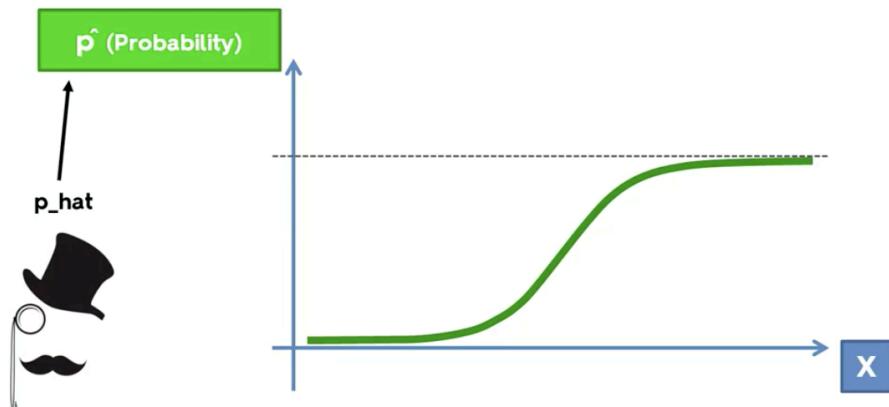
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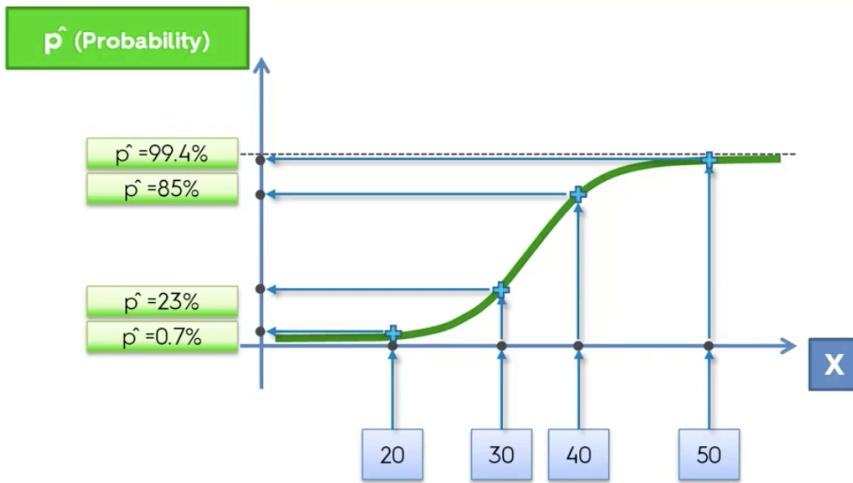
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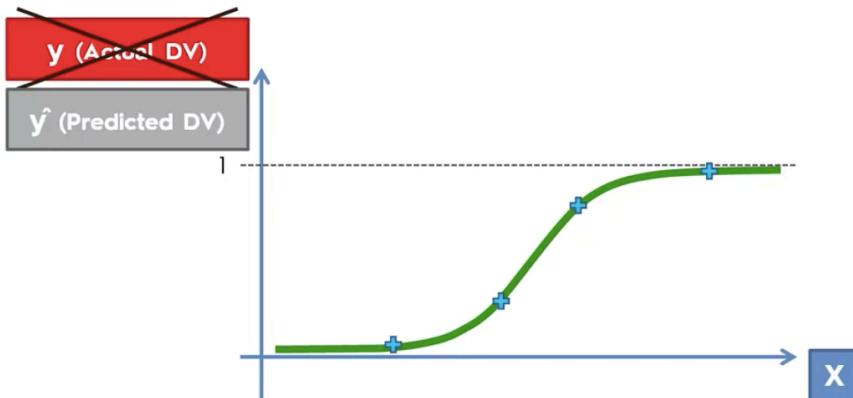
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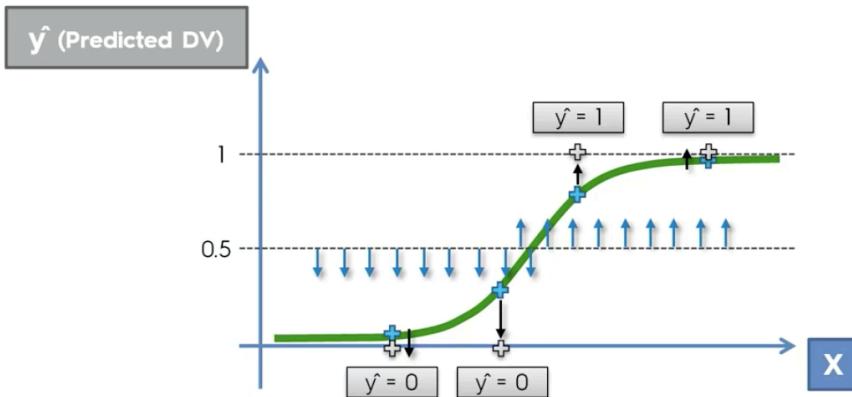
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Fin.