Intuition Behind Perceptron

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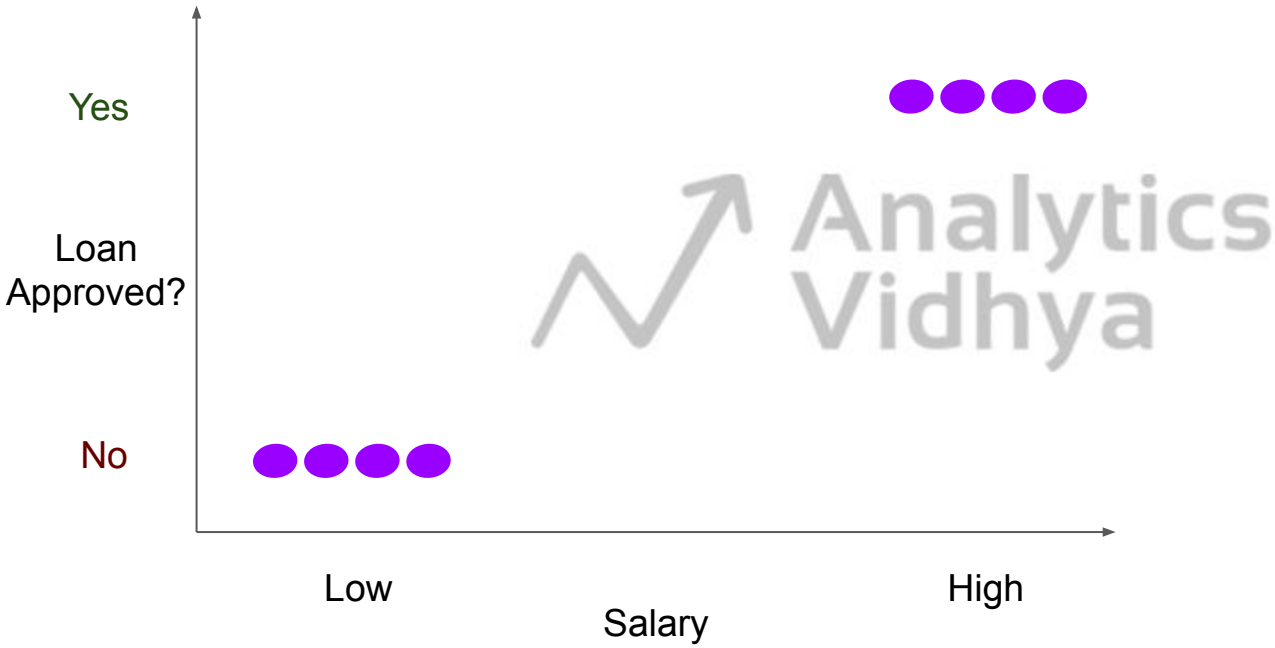

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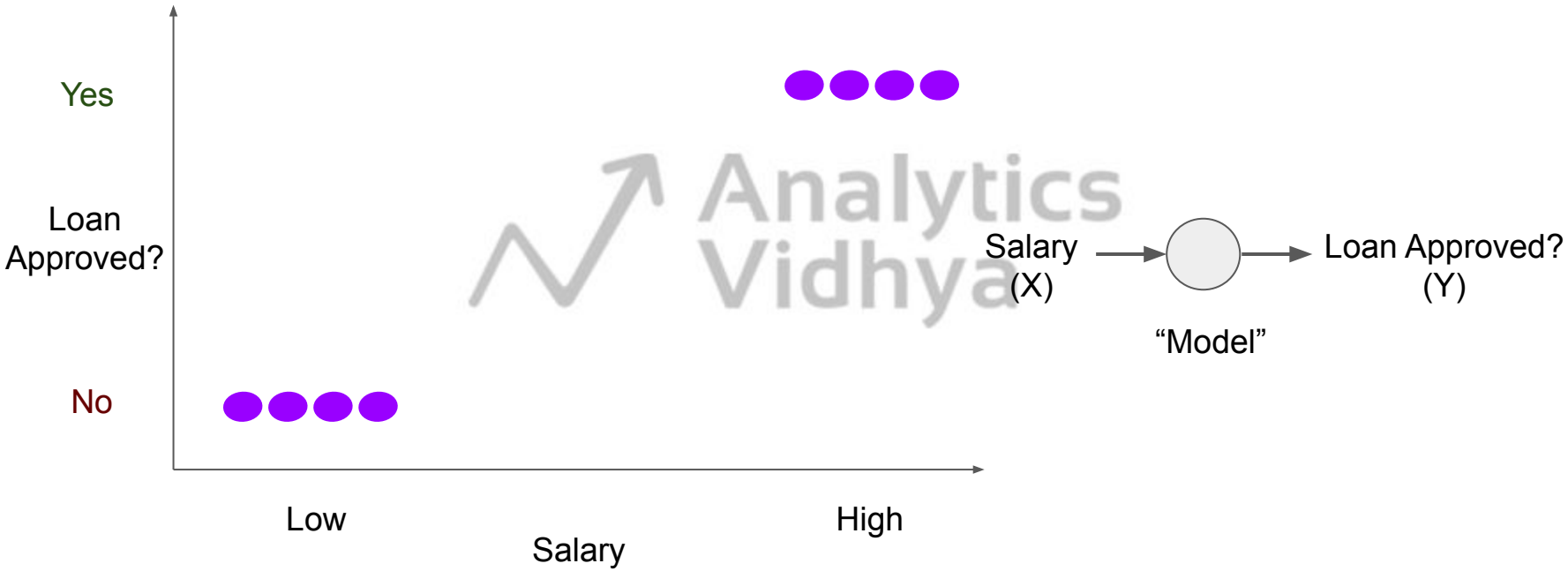

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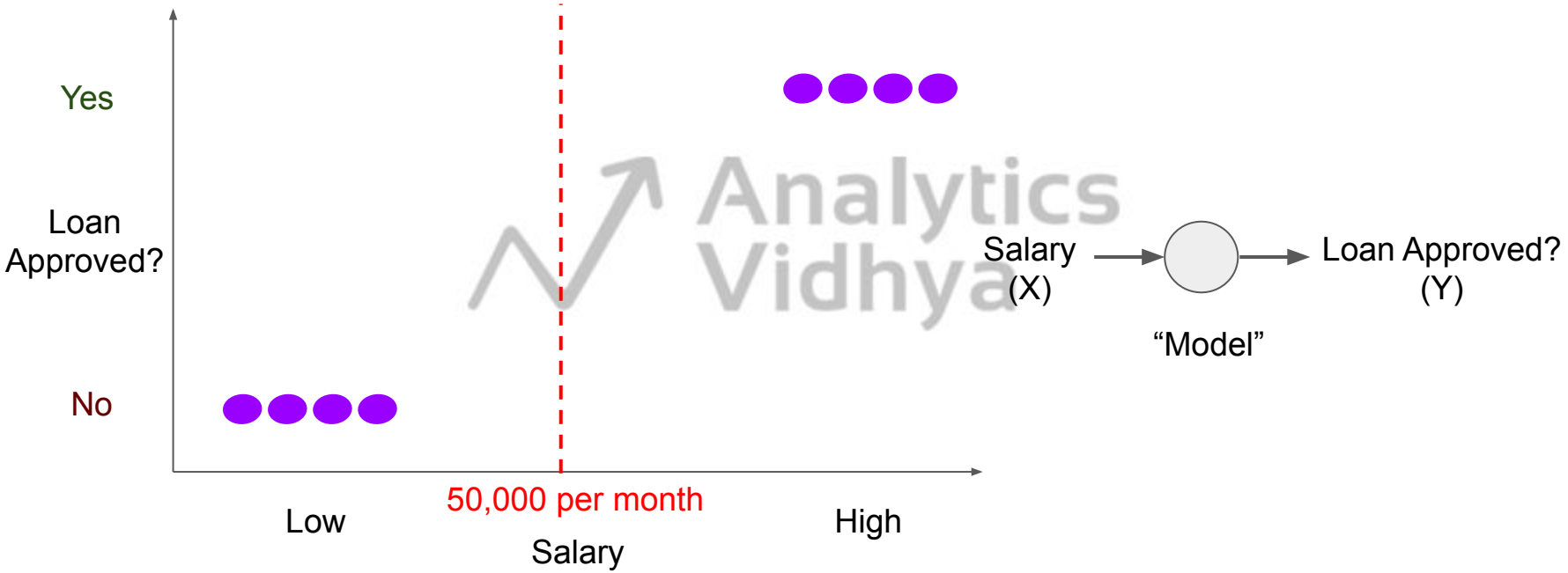
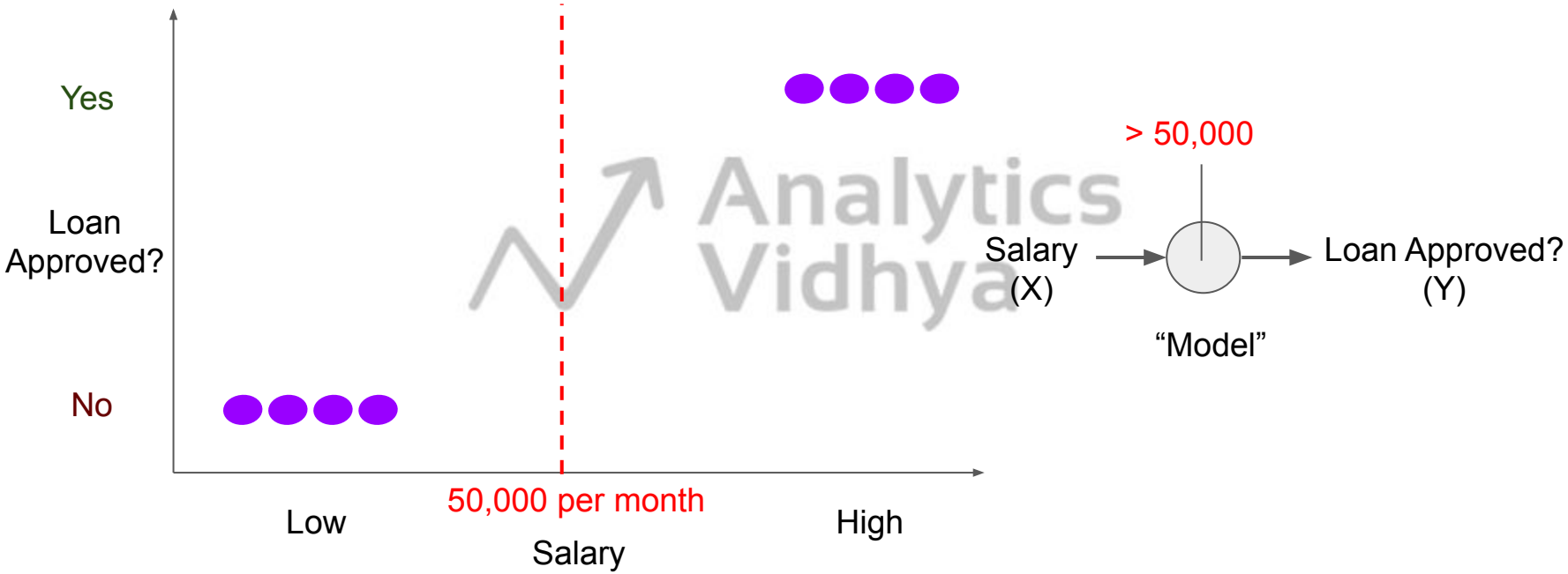
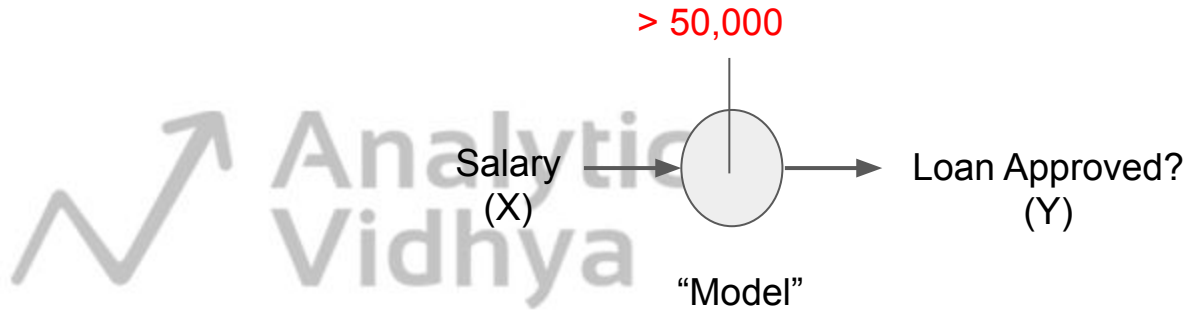


Intuition Behind Perceptron



Intuition Behind Perceptron

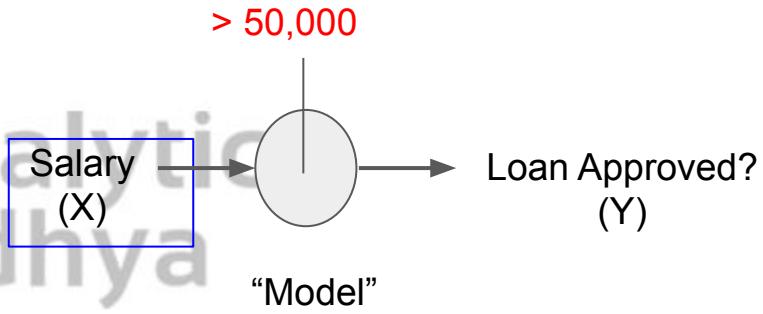
Tasks of the Model:



Intuition Behind Perceptron

Tasks of the Model:

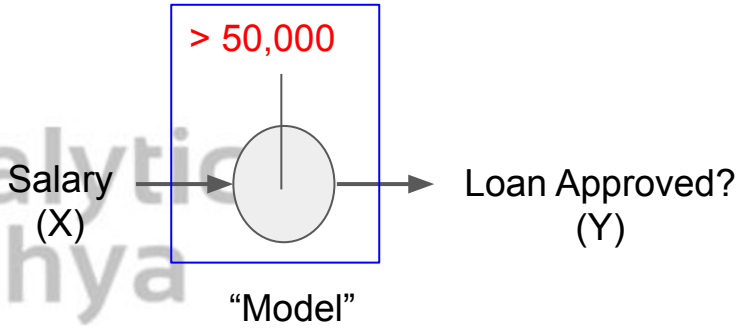
- Salary as input



Intuition Behind Perceptron

Tasks of the Model:

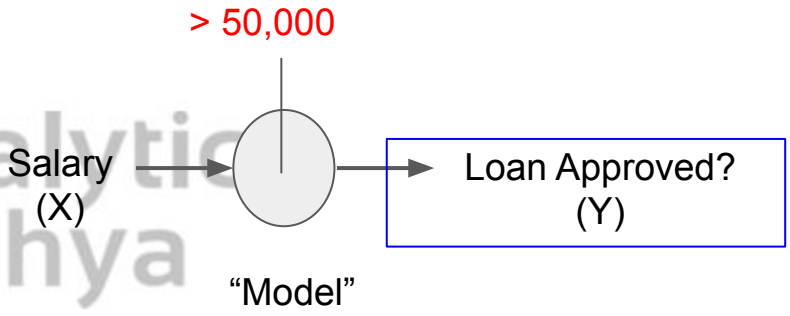
- Salary as input
- Check if it's at least 50,000 or not?



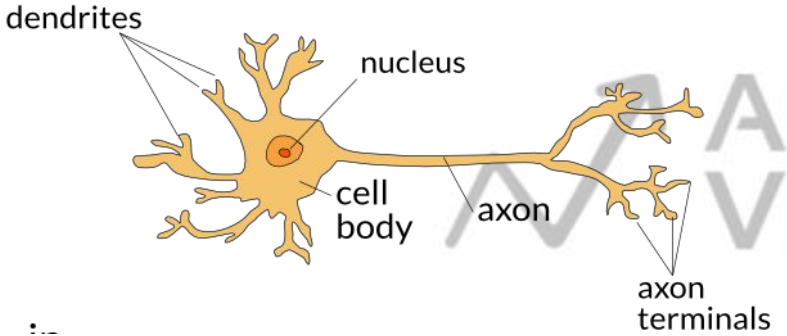
Intuition Behind Perceptron

Tasks of the Model:

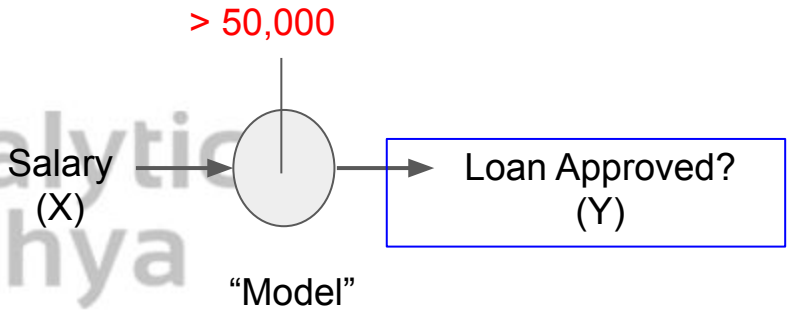
- Salary as input
- Check if it's at least 50,000 or not?
- If the condition is true only then output a "Yes"



Intuition Behind Perceptron



Biological Neuron

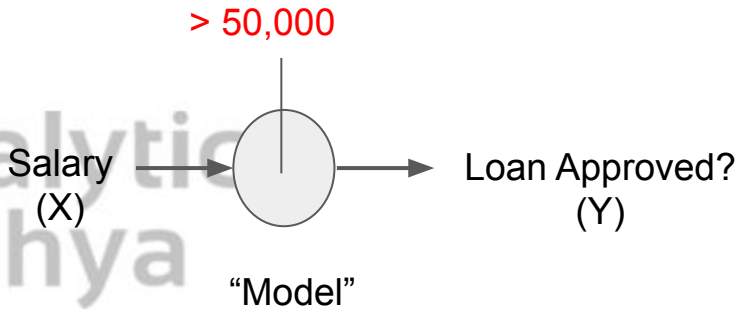


Neuron

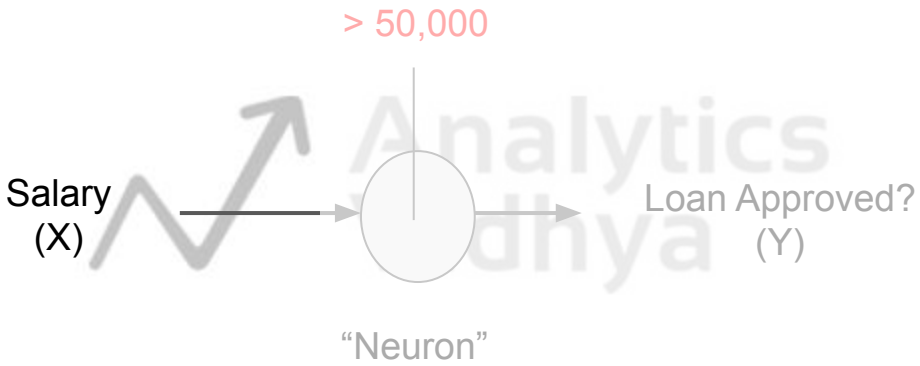
Intuition Behind Perceptron

Tasks of the Model:

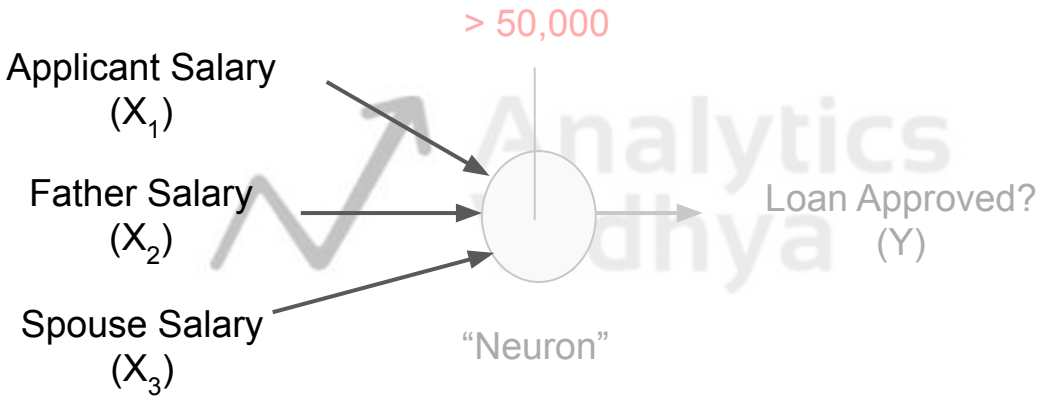
- Salary as input
- Check if it's at least 50,000 or not?
- If the condition is true only then output a "Yes"



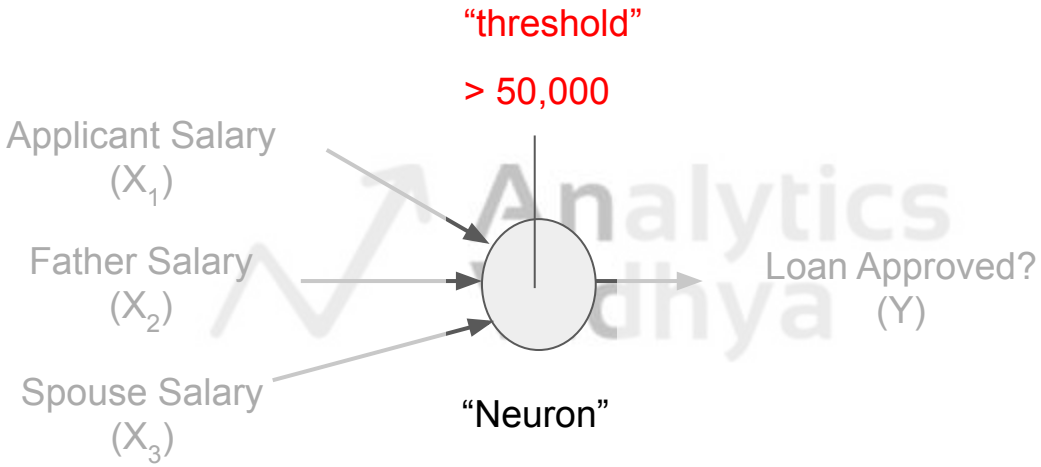
Intuition Behind Perceptron : Inputs



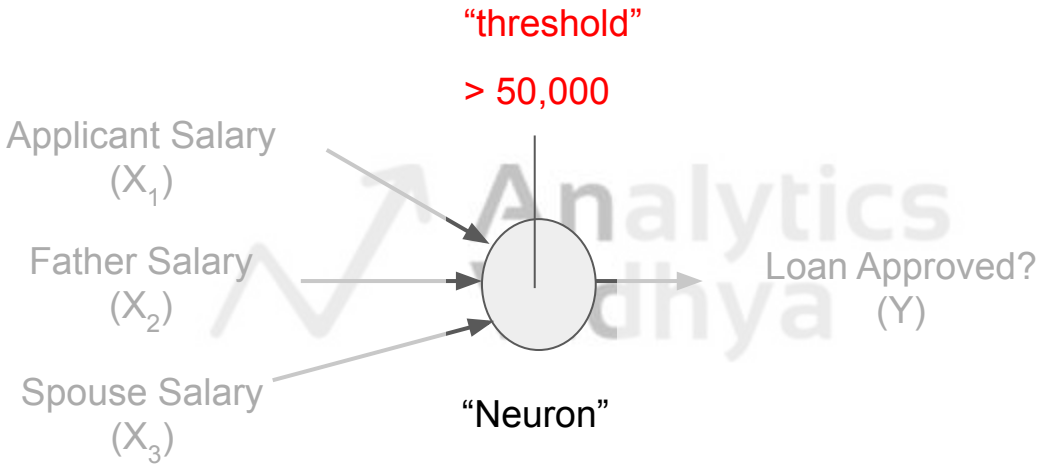
Intuition Behind Perceptron : Inputs



Intuition Behind Perceptron : Bias



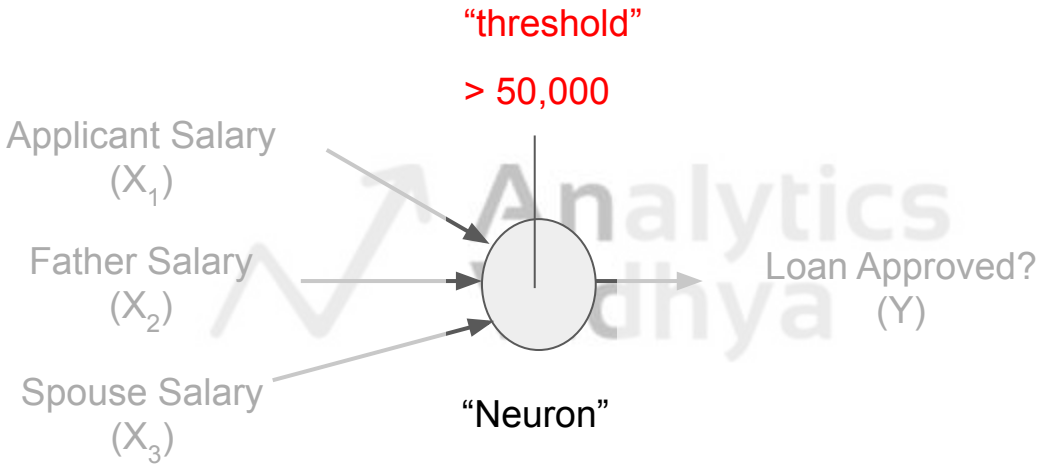
Intuition Behind Perceptron : Bias



Total Income = Applicant Salary (X_1) + Father Salary (X_1) + Spouse Salary (X_3)

Total Income > threshold ?

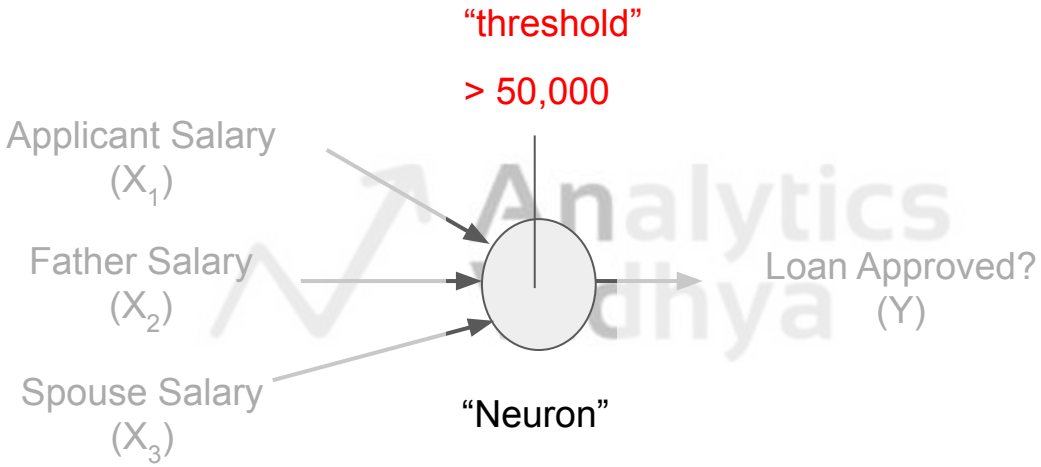
Intuition Behind Perceptron : Bias



Total Income > threshold

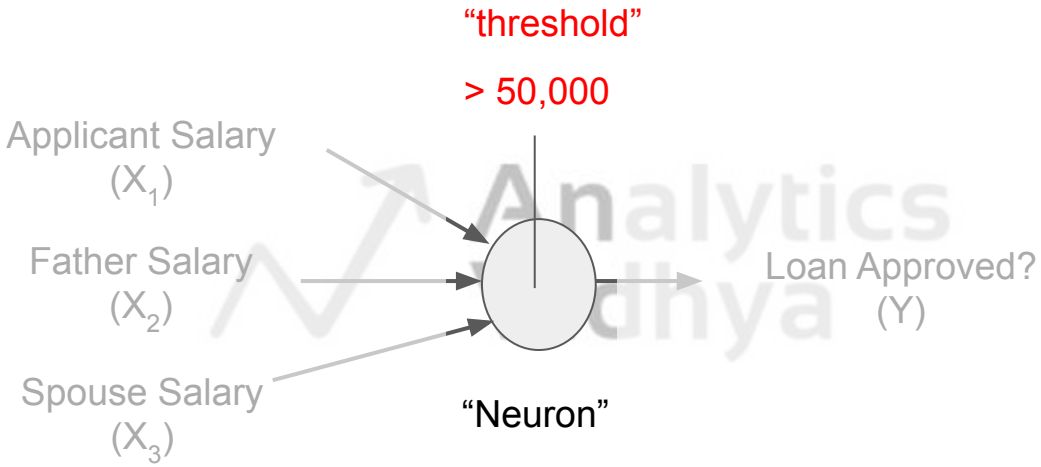
$X_1+X_2+X_3$ > threshold

Intuition Behind Perceptron : Bias



$X_1+X_2+X_3$ - threshold > 0

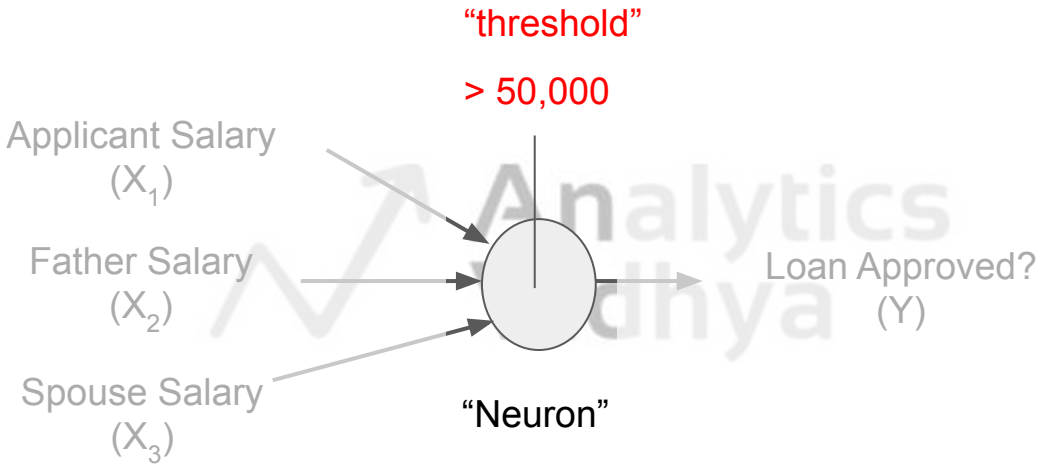
Intuition Behind Perceptron : Bias



$$X_1+X_2+X_3 - \text{threshold} > 0$$

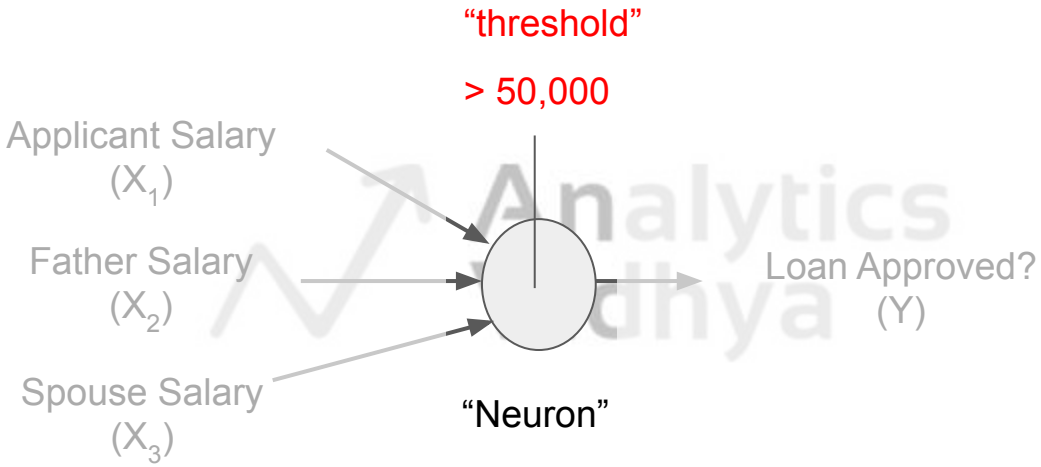
"bias"

Intuition Behind Perceptron : Bias



$X_1+X_2+X_3$ + bias > 0

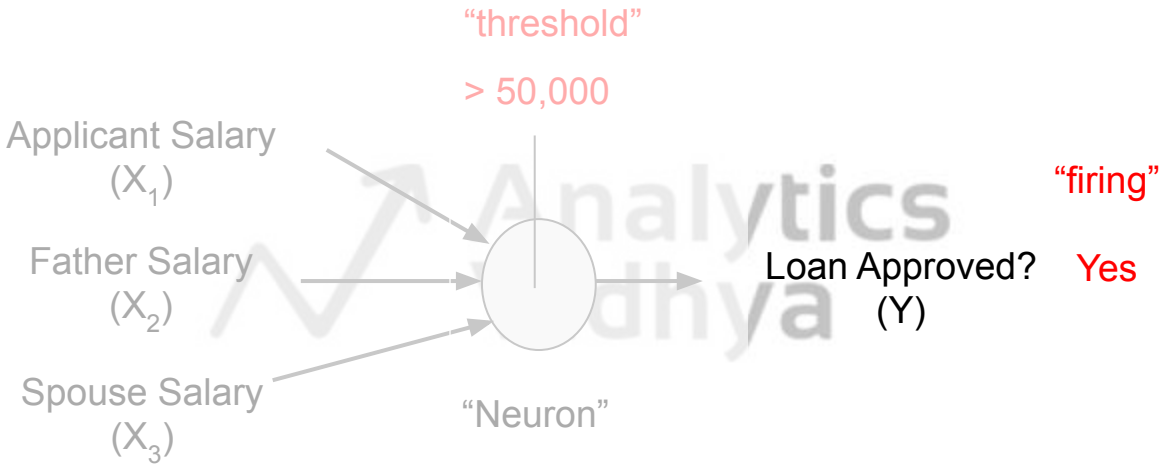
Intuition Behind Perceptron : Bias



$X_1+X_2+X_3$ + bias > 0

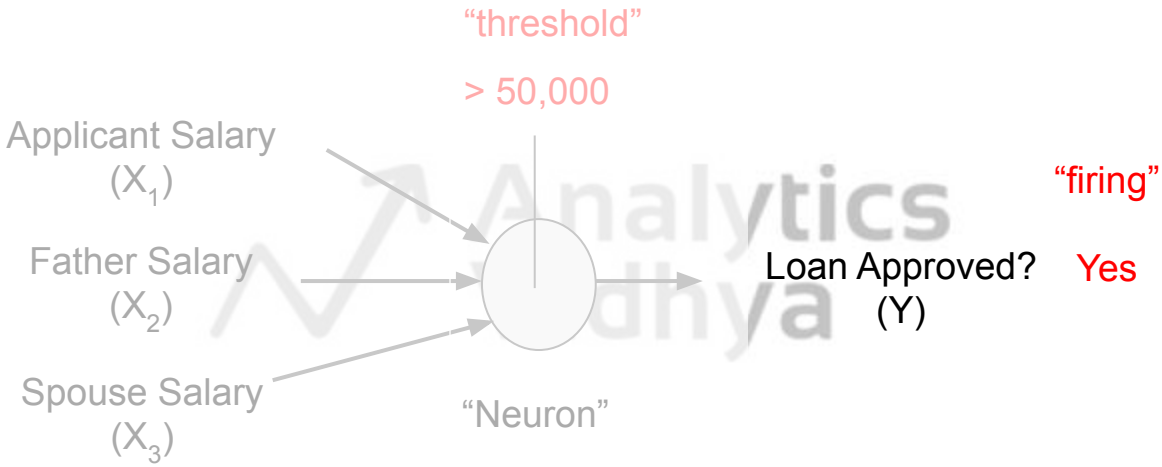
learned

Intuition Behind Perceptron : Firing



$X_1+X_2+X_3$ + bias > 0

Intuition Behind Perceptron : Firing



if $X_1+X_2+X_3$ + bias > 0 then output should be 1

if $X_1+X_2+X_3$ + bias ≤ 0 then output should be 0

Intuition Behind Perceptron : Activation Function

$Z = X_1 + X_2 + X_3 + \text{bias}$

Output = will be 1 if ($Z = X_1 + X_2 + X_3 + \text{bias}$) > 0 , it will be 0 otherwise.

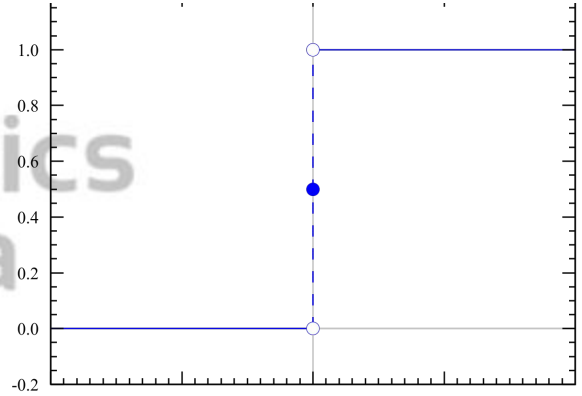
Use Step function!

Intuition Behind Perceptron : Activation Function

$Z = X_1 + X_2 + X_3 + \text{bias}$

Output = will be 1 if ($Z = X_1 + X_2 + X_3 + \text{bias}$) > 0 , it will be 0 otherwise.

Use Step function!



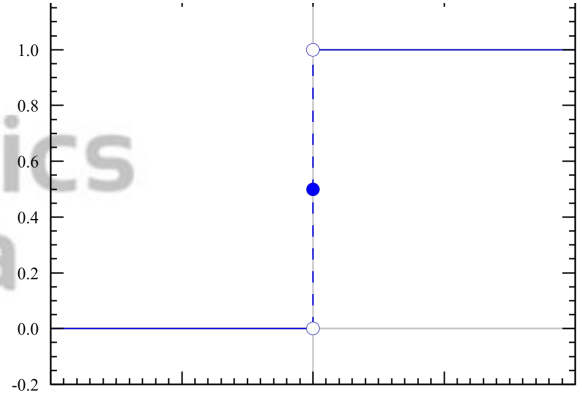
Intuition Behind Perceptron : Activation Function

$Z = X_1 + X_2 + X_3 + \text{bias}$

Output = will be 1 if ($Z = X_1 + X_2 + X_3 + \text{bias}$) > 0 , it will be 0 otherwise.

Use Step function!

$$\text{Output} = \begin{cases} 1, & Z > 0 \\ 0, & Z \leq 0 \end{cases}$$



Intuition Behind Perceptron : Activation Function

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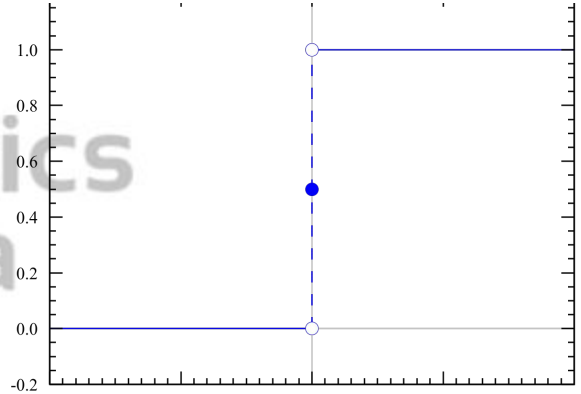
Use Step function!



$$\text{Output} = \begin{cases} 1, & Z > 0 \\ 0, & Z \leq 0 \end{cases}$$

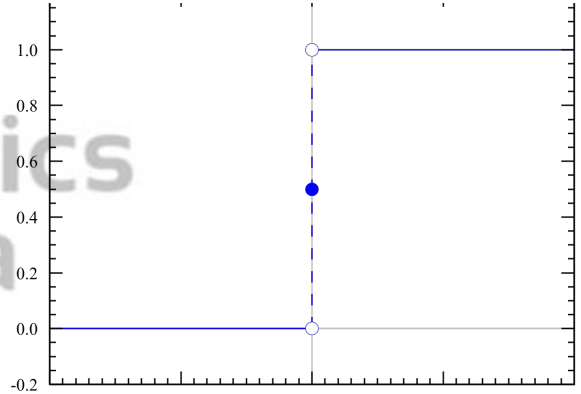
Output = step function (Z) or Output = **step** (Z)

Intuition Behind Perceptron : Activation Function

$Z = X_1 + X_2 + X_3 + \text{bias}$

Output = will be 1 if ($Z = X_1 + X_2 + X_3 + \text{bias}$) > 0 , it will be 0 otherwise.

Use Step function!

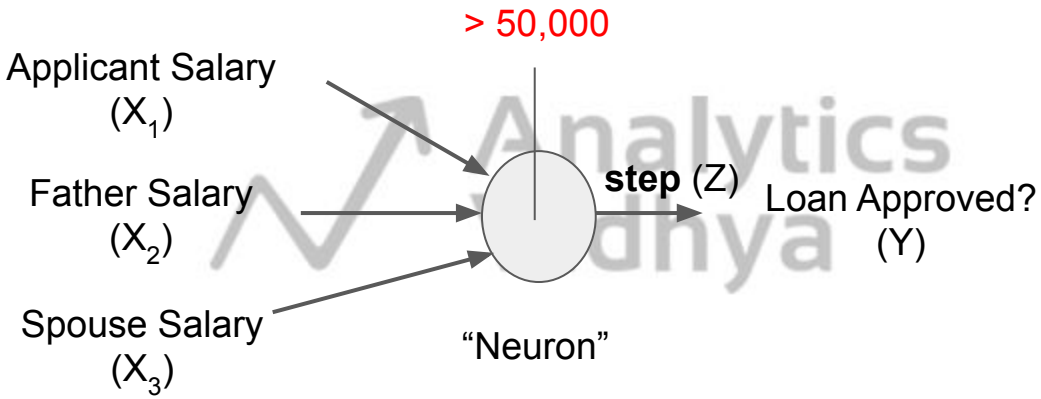


$$\text{Output} = \begin{cases} 1, & Z > 0 \\ 0, & Z \leq 0 \end{cases}$$

Output = step function (Z) or Output = **step** (Z)

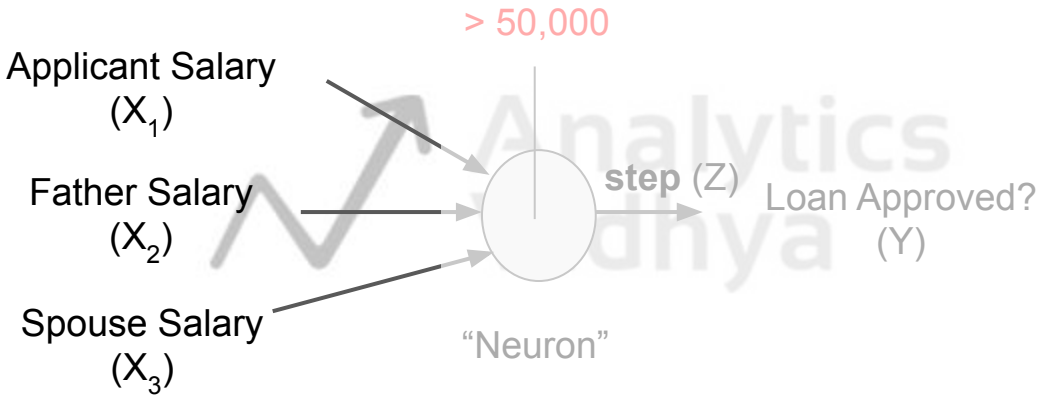
"activation functions"

Intuition Behind Perceptron



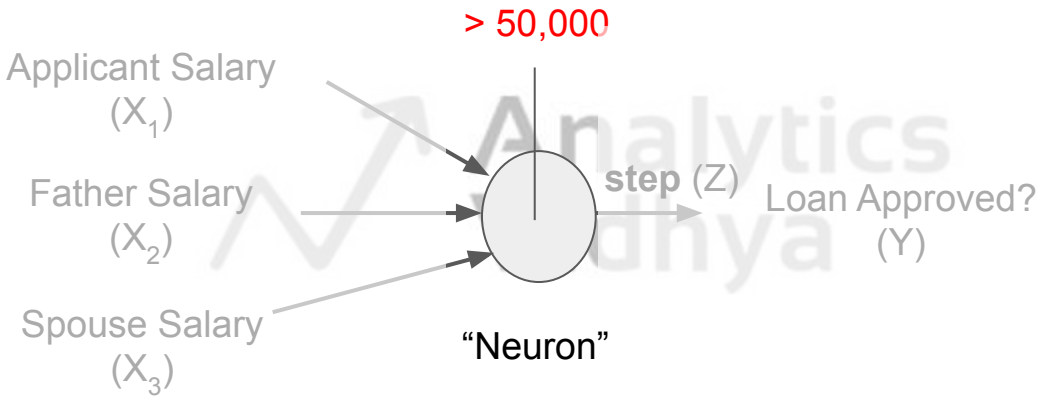
Perceptron Model

Intuition Behind Perceptron



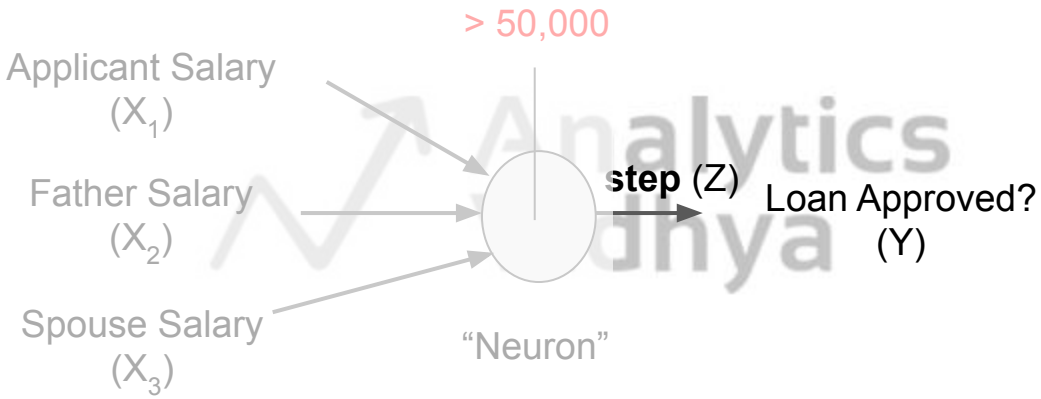
Perceptron Model

Intuition Behind Perceptron



Perceptron Model

Intuition Behind Perceptron



Perceptron Model

Thank You