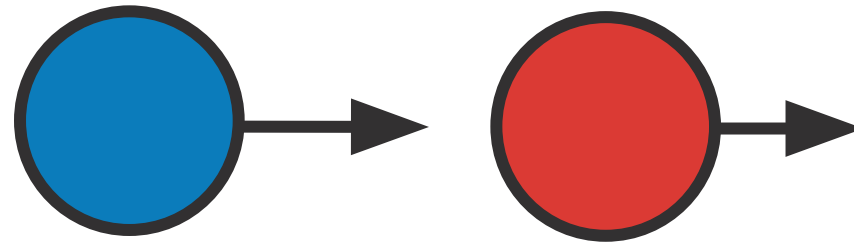


Artificial Neural Networks Regression

Deep Learning Pre-Work

Example



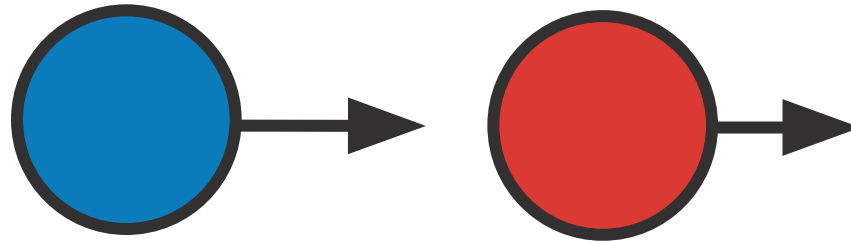
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Example



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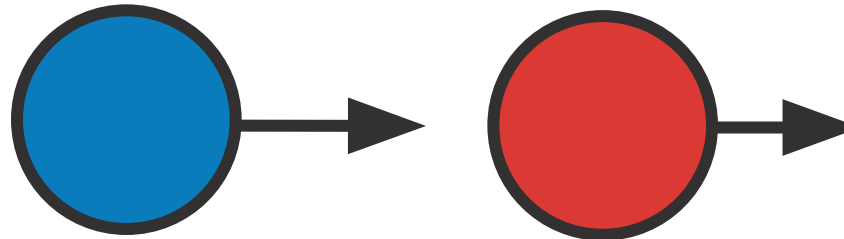
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Example

Mileage

8	8	8	7	2
7	7	7	6	1
4	4	8	1	3
5	5	5	4	F
4	4	4	3	E

Source: Wikimedia Commons

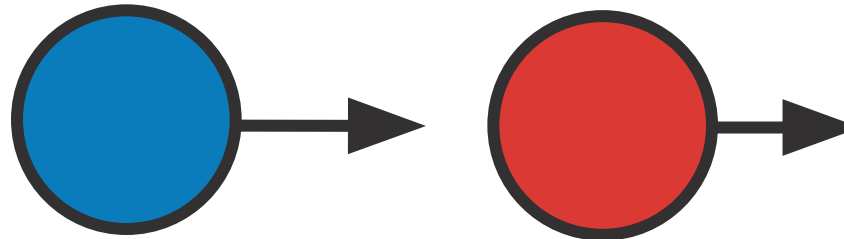


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Example

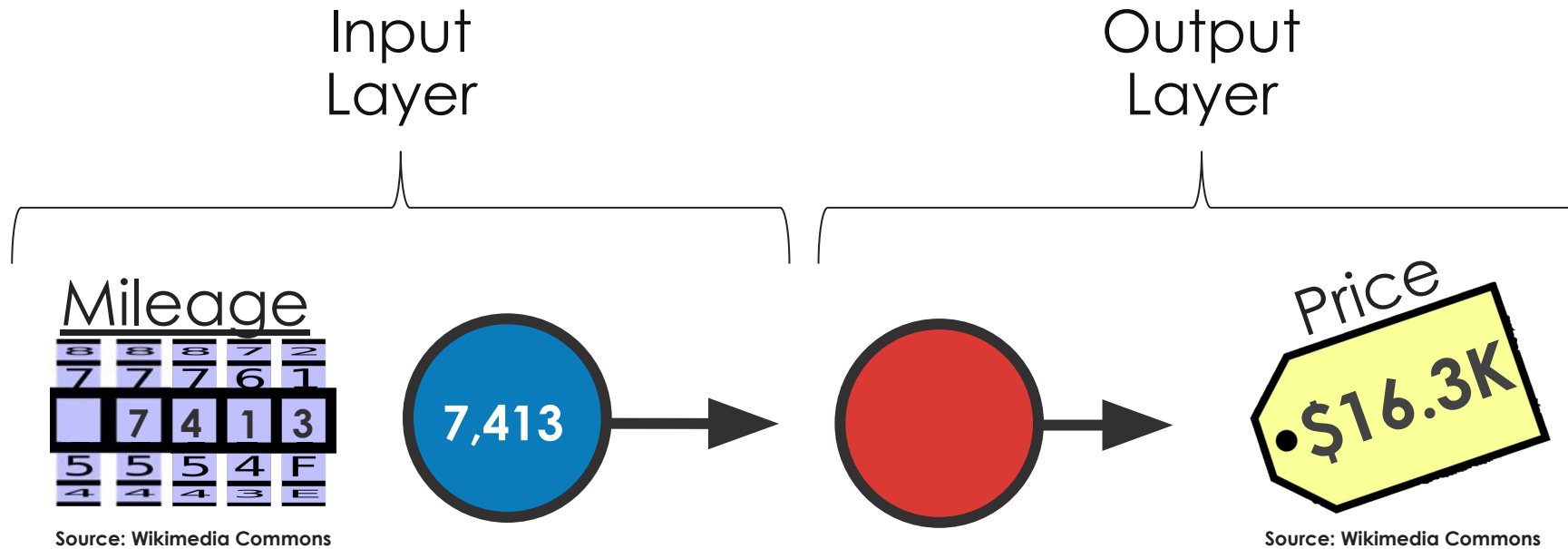


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Input/Output Layers



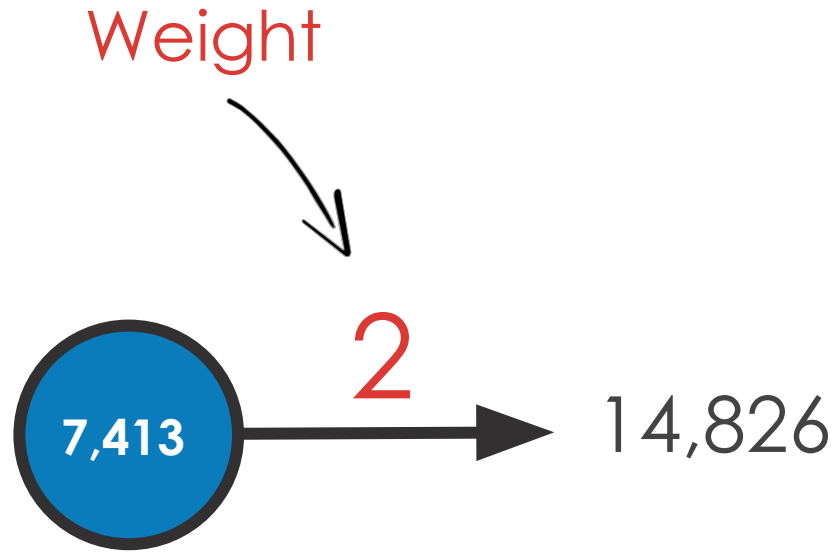
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Weights



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Equation

$$X * \text{Weight}$$

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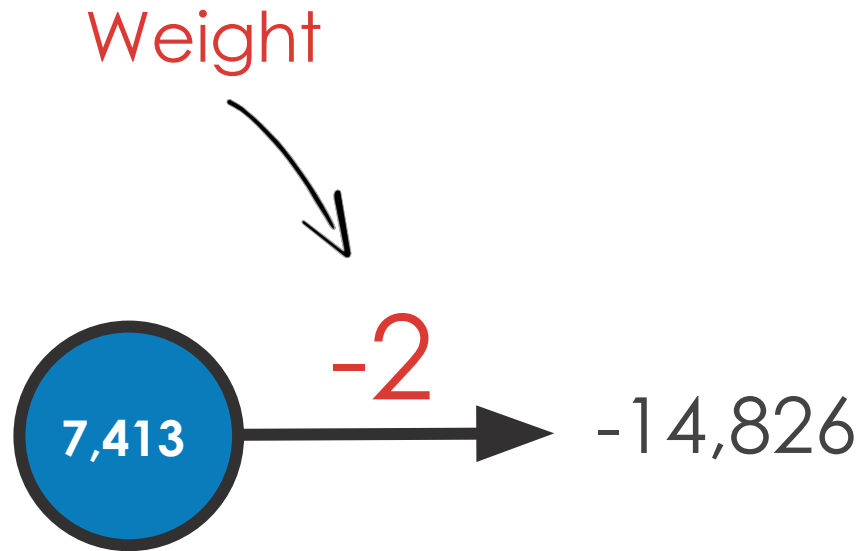
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Weights

Mileage

8	8	8	7	2
7	7	7	6	1
	7	4	1	3
5	5	5	4	F
4	4	4	3	E

Source: Wikimedia Commons



Equation

$$X * \text{Weight}$$

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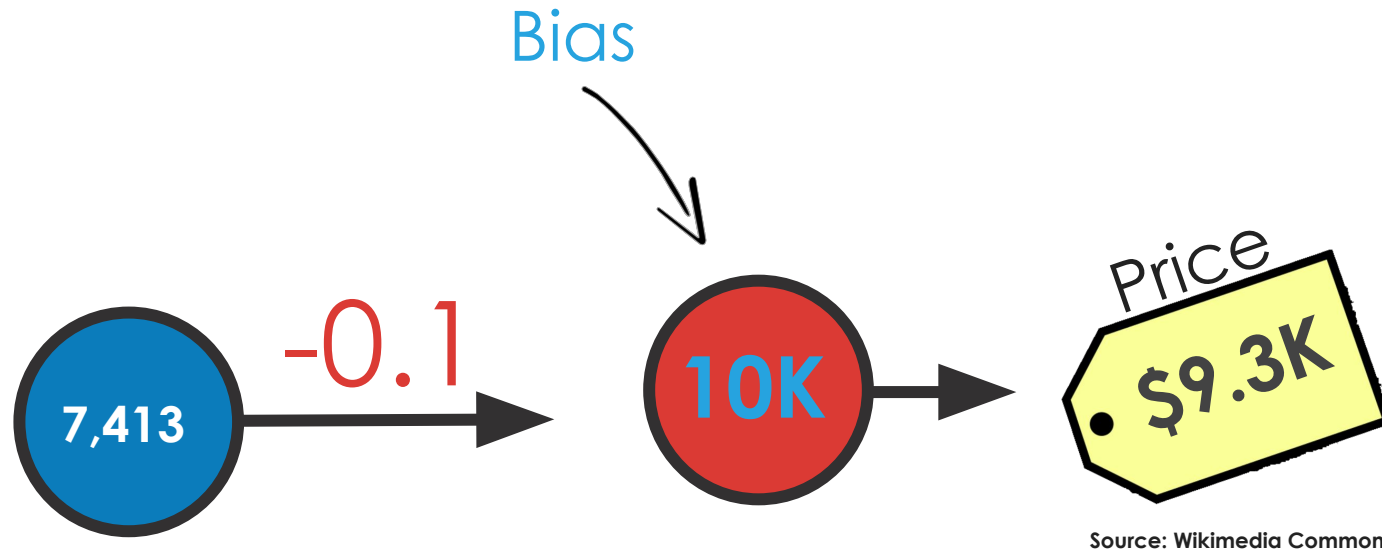
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Biases

Mileage

8	8	8	7	2
7	7	7	6	1
	7	4	1	3
5	5	5	4	F
4	4	4	3	E

Source: Wikimedia Commons



Equation

$$X * \text{Weight} + \text{Bias}$$

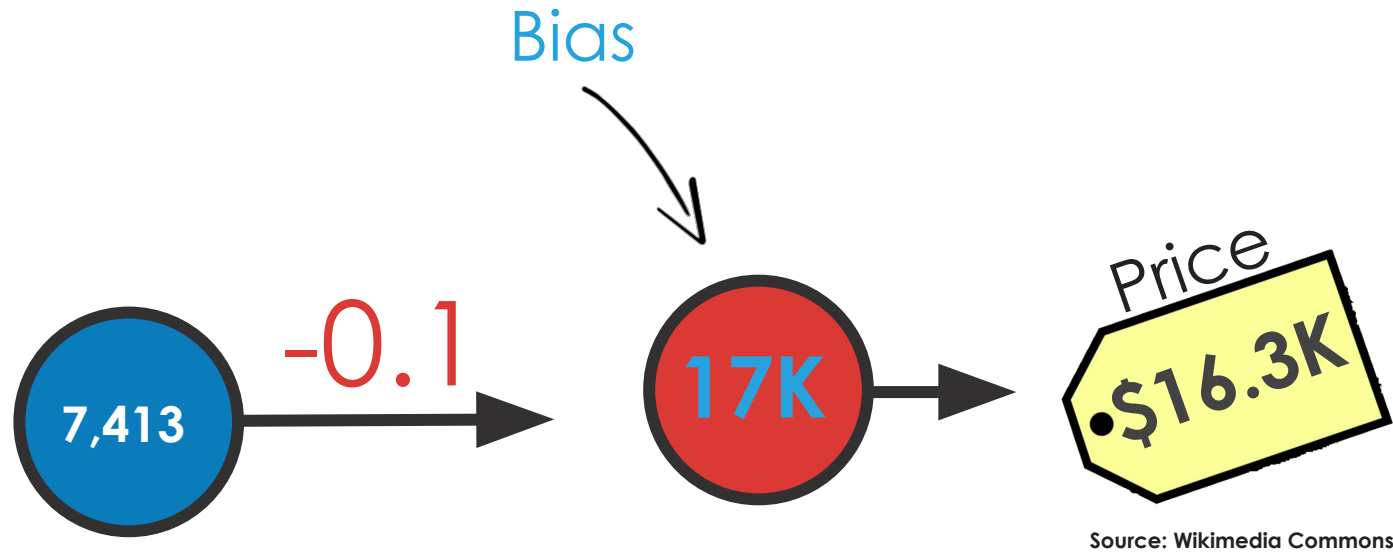
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Biases



Source: Wikimedia Commons



Source: Wikimedia Commons

Equation

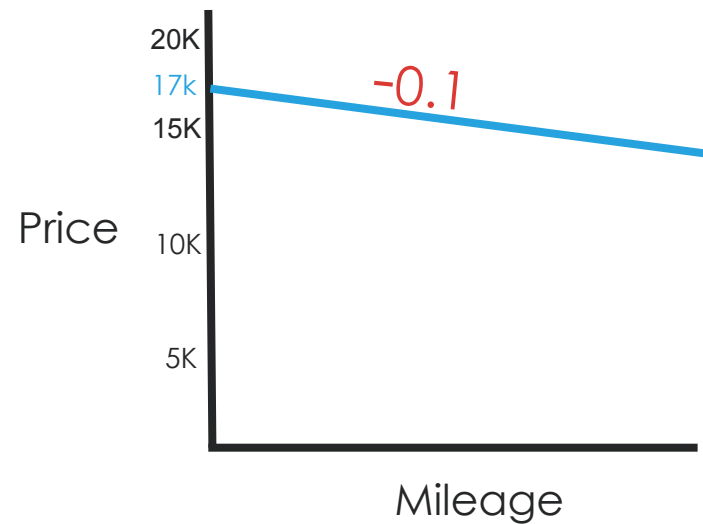
$$X * \text{Weight} + \text{Bias}$$

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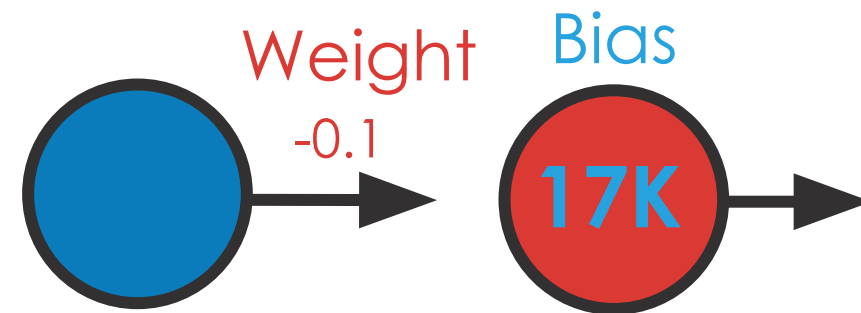
Linear Regression

$$\hat{Y} = X * \text{Slope} + \text{Y-intercept}$$

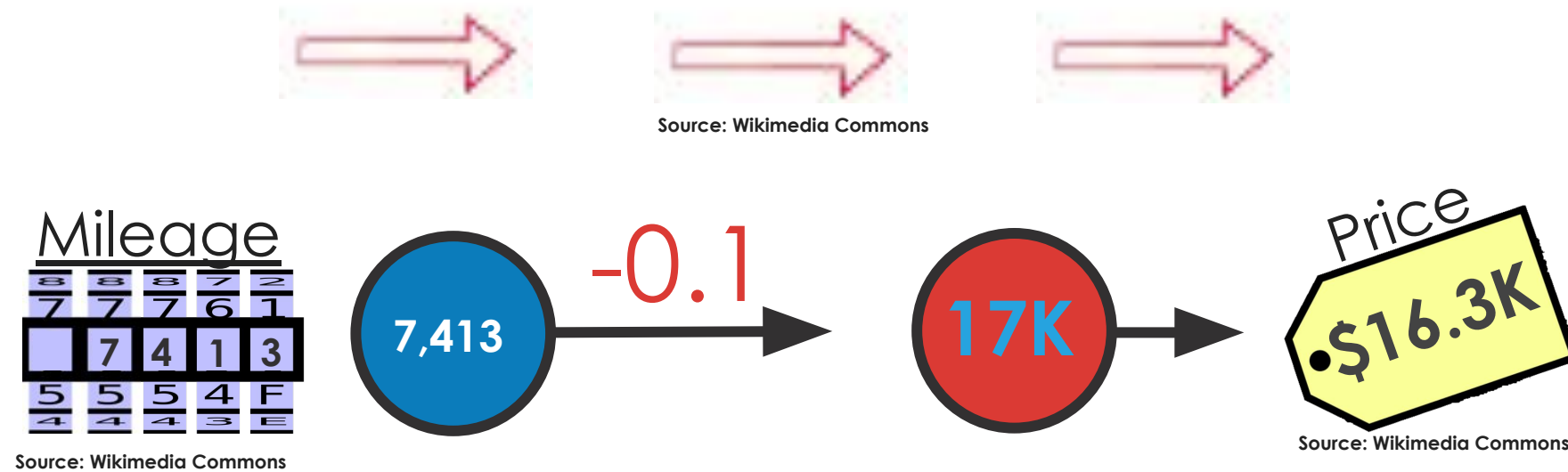


ANN

$$\hat{Y} = X * \text{Weight} + \text{Bias}$$



Forward Propagation



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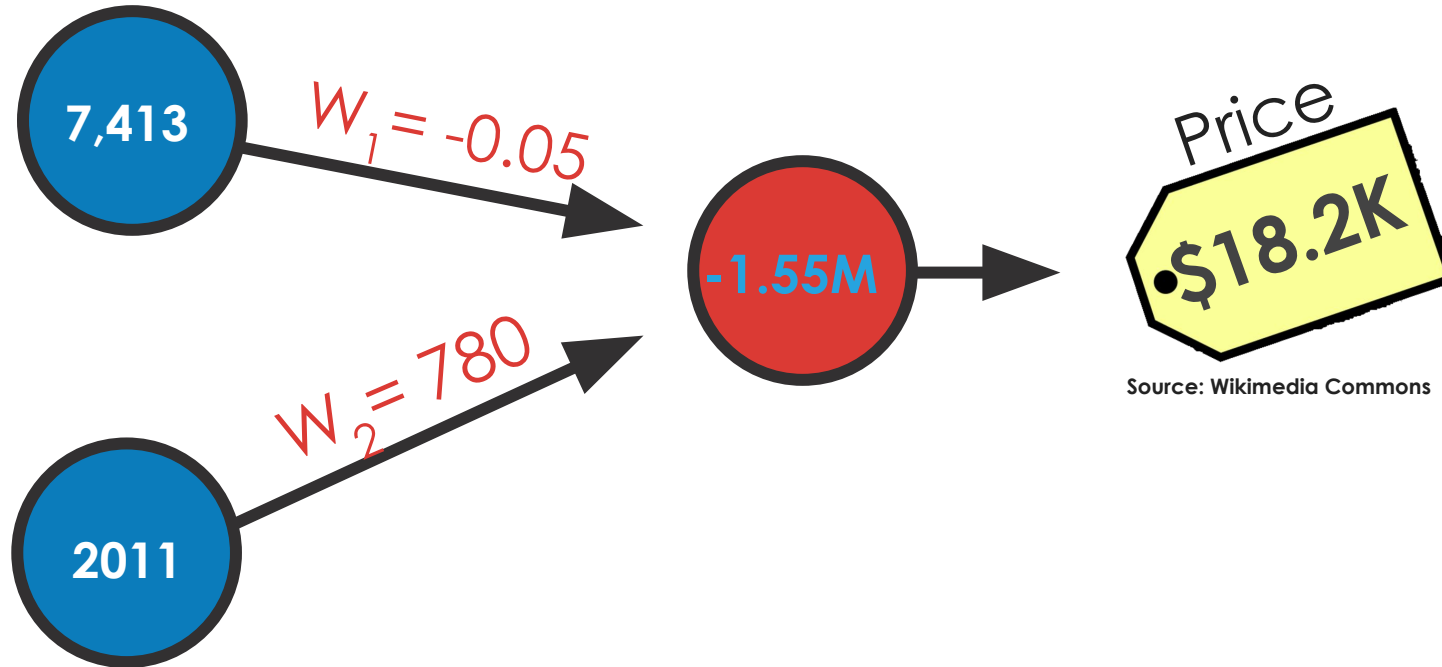
Multiple Input Neurons

Mileage

8	8	8	7	2
7	7	7	6	1
7	4	1	3	
5	5	5	4	F
4	4	4	3	E

Source: Wikimedia Commons

Year
2011



Equation

$$X_1 * \text{Weight}_1 + X_2 * \text{Weight}_2 + \text{Bias}$$

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