

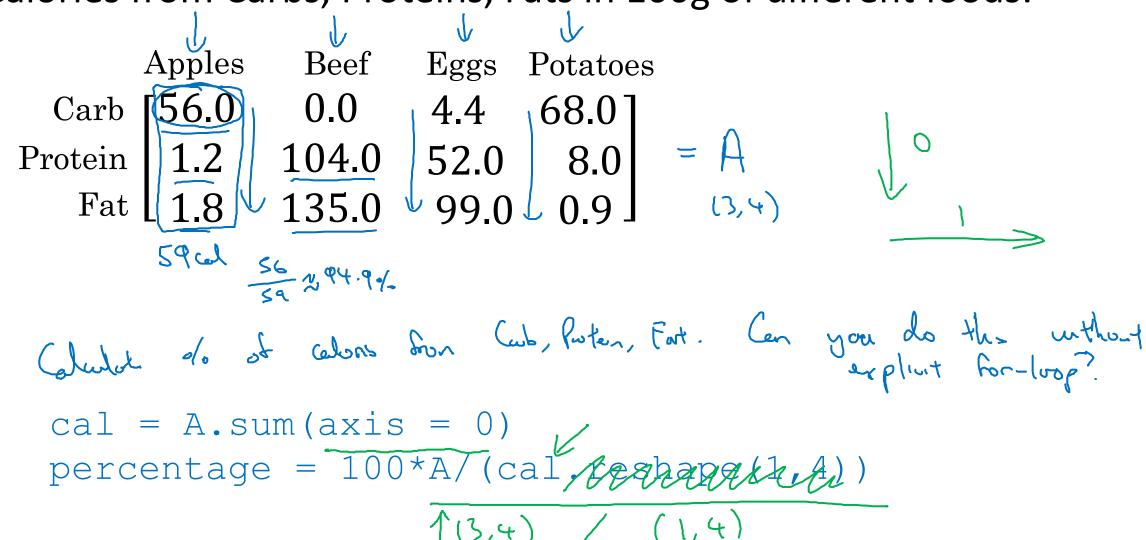
deeplearning.ai

Basics of Neural Network Programming

Broadcasting in Python

Broadcasting example

Calories from Carbs, Proteins, Fats in 100g of different foods:



Broadcasting example

$$\begin{bmatrix}
1 \\
2 \\
3 \\
4
\end{bmatrix} + \begin{bmatrix}
100 \\
100
\end{bmatrix} 100$$

$$\begin{bmatrix}
1 & 2 & 3 \\
4 & 5 & 6
\end{bmatrix} + \begin{bmatrix}
100 & 200 & 300 \\
100 & 200 & 300 \\
100 & 200 & 300
\end{bmatrix}$$

$$\begin{bmatrix}
1 & 2 & 3 \\
4 & 5 & 6
\end{bmatrix} + \begin{bmatrix}
100 & 100 & 100 & 100 \\
200 & 100 & 100
\end{bmatrix} = \begin{bmatrix}
(m,1) & 3 & 100 & 100 \\
(m,n) & 3 & 100
\end{bmatrix} = \begin{bmatrix}
(m,1) & 3 & 100 & 100 \\
(m,n) & 3 & 100
\end{bmatrix}$$

General Principle

$$(M, 1) \qquad \frac{1}{X} \qquad (M, 1) \qquad modrix \qquad (M, 1) \qquad$$

Matlab/Octave: bsxfun