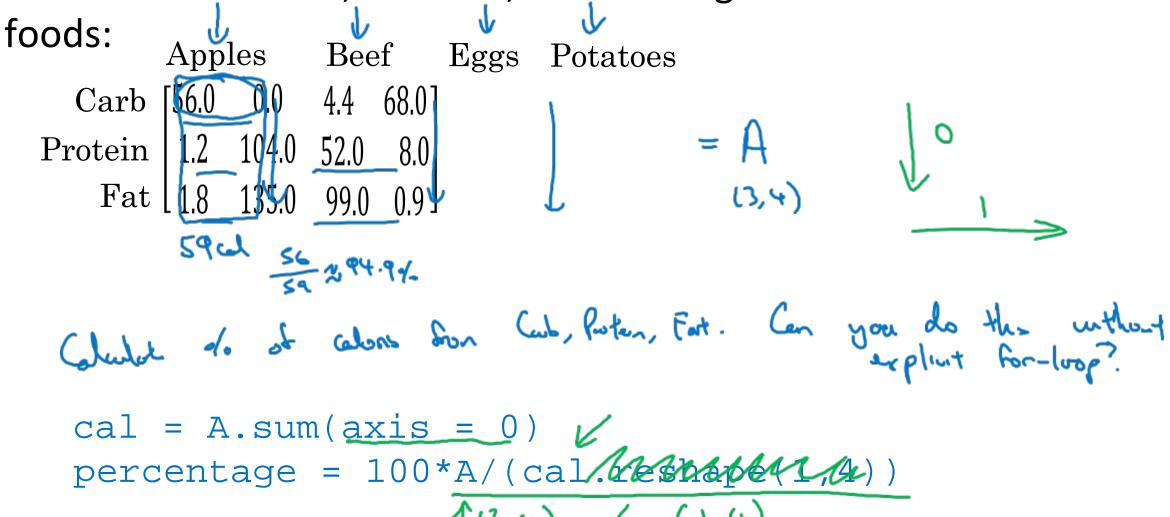


deeplearning.ai

Basics of Neural Network Programming Broadcasting in Python

Broadcasting example

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



Broadcasting example

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

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

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

General Principle

$$(M, 1) \qquad \frac{+}{x} \qquad (1, n) \qquad \sim modn'x \qquad (M, 1) \qquad modn'x \qquad (M, 1) \qquad modn'x \qquad (M, n)$$

$$(M, 1) \qquad + \qquad R$$

$$\begin{bmatrix} 1 \\ 2 \\ 1 \end{bmatrix} \qquad + \qquad 100 \qquad = \begin{bmatrix} 101 \\ 102 \\ 103 \end{bmatrix}$$

$$C1 \qquad 23 \qquad 1 \qquad 100 \qquad = \begin{bmatrix} 101 \\ 102 \\ 103 \end{bmatrix}$$

$$Moddab/Octone: bsxfun$$