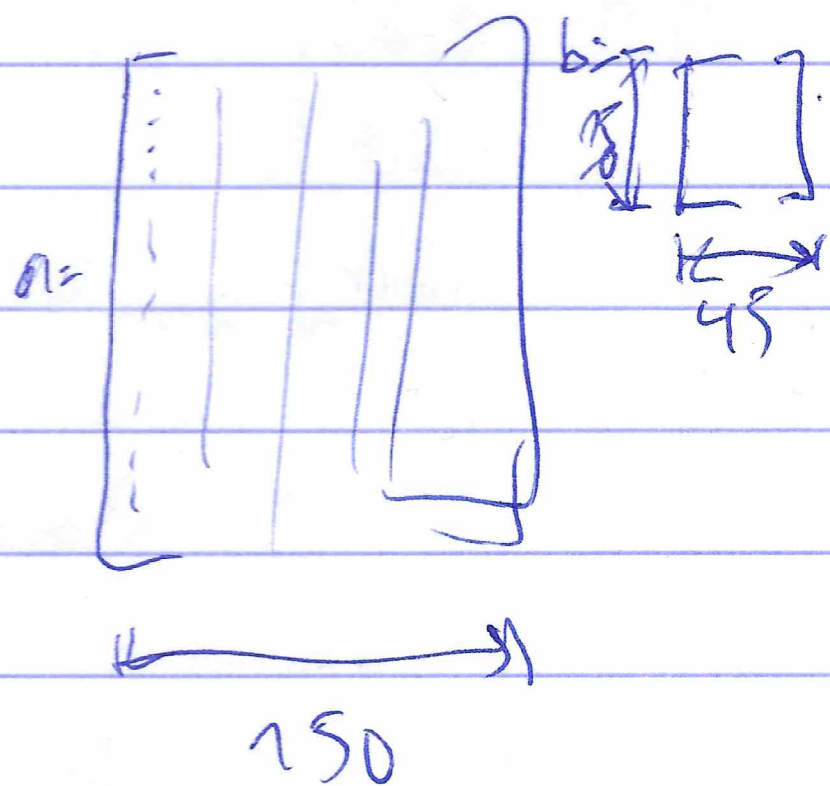


- n_x input features per example; $X \in \mathbb{R}^{n_x \times m}$

- $\text{np.dot}(a, b)$: matrix multiplication

- $a * b$: element-wise multiplication

? \rightarrow isn't the dot product element-wise?



$$c = \text{np.dot}(a, b)$$

$$c.\text{shape} = ?$$

$$(150, 150)?$$

$$(12288, 45)$$

$$A \in \mathbb{R}^{a \times b}, B \in \mathbb{R}^{b \times c}, C = A \cdot B, C \in \mathbb{R}^{a \times c}?$$

$$u = ab$$

$$v = ac$$

$$w = b+c$$

$$J = u + v - w$$

$$= ab + ac - b - c$$

$$= a(b+c) - (b+c)$$

$$= (b+c)(a-1)$$

- for i in range(3):

for j in range(4):

$$c[i][j] = a[i][j] + b[j]$$

$$a.\text{shape} = (3, 4)$$

$$b.\text{shape} = (4, 1)$$

$$[\dots] + [\dots] = [\dots]$$

How to vectorise?

$$\hookrightarrow c = a + b.T$$