

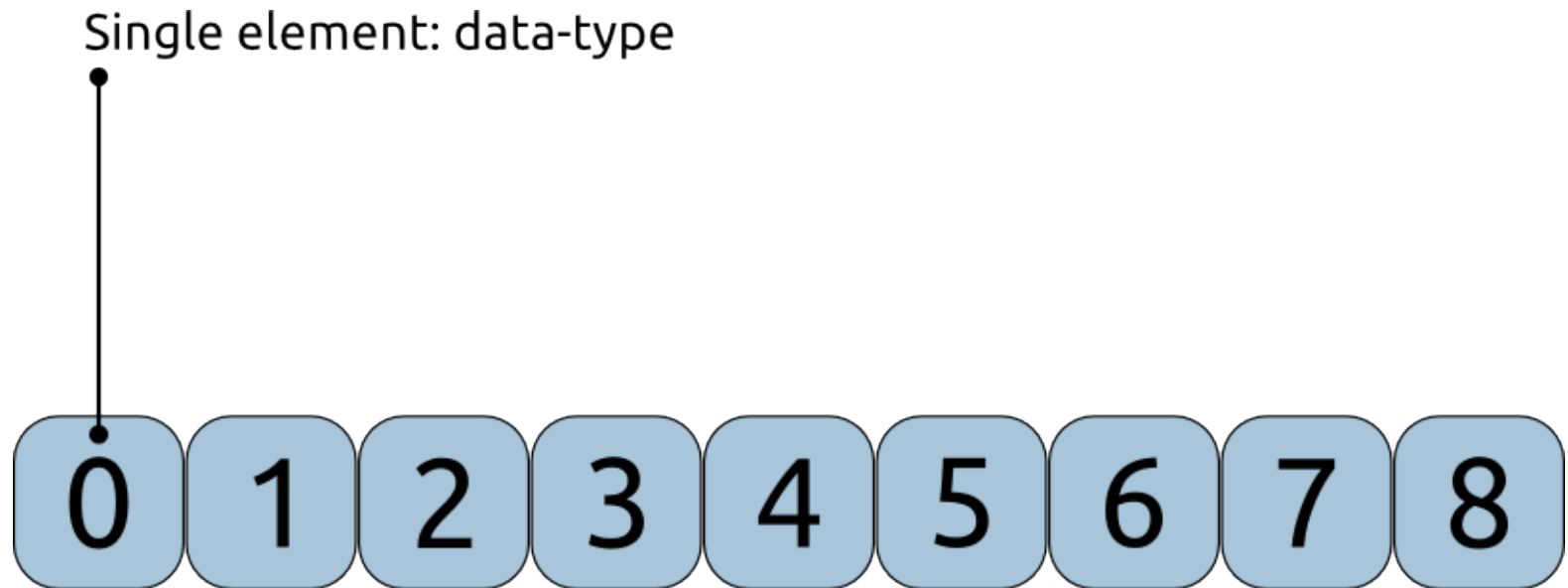
An introduction to NumPy

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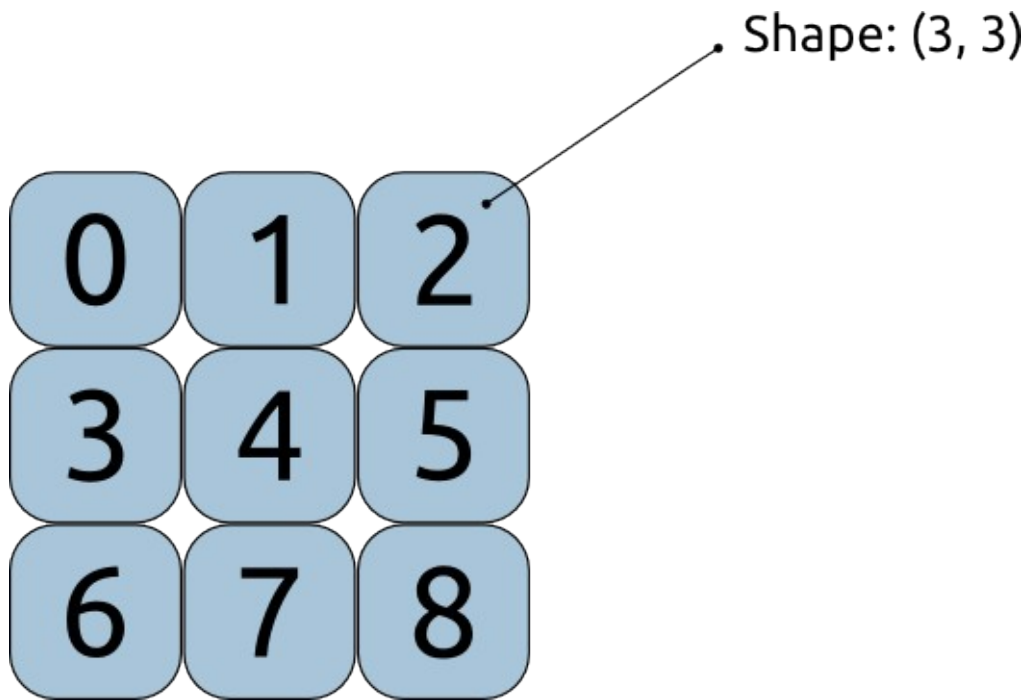
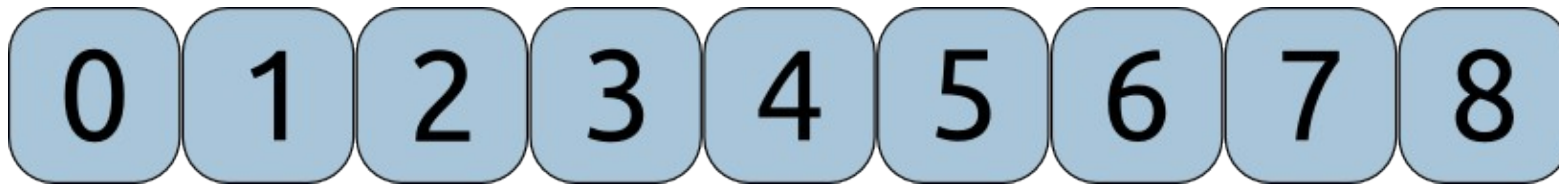
The ndarray data structure



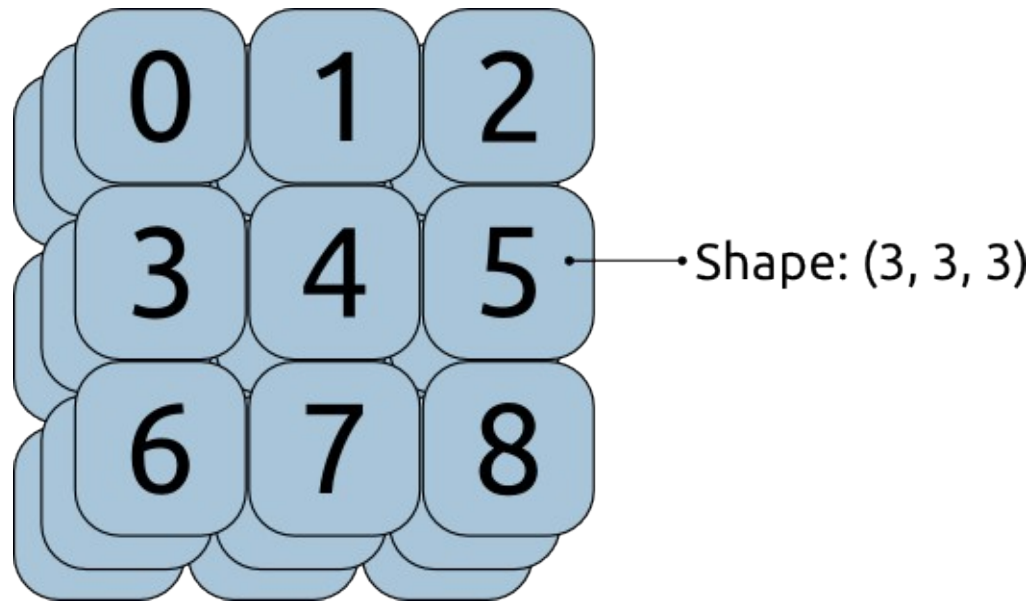
The ndarray data structure



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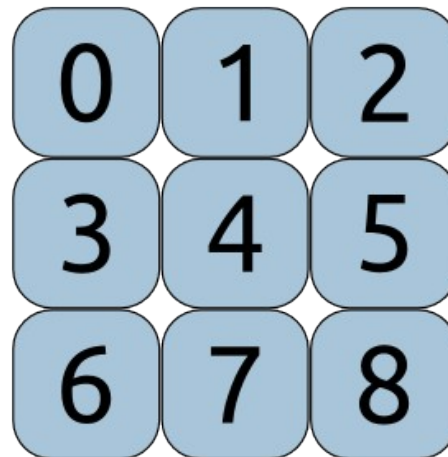


The ndarray data structure

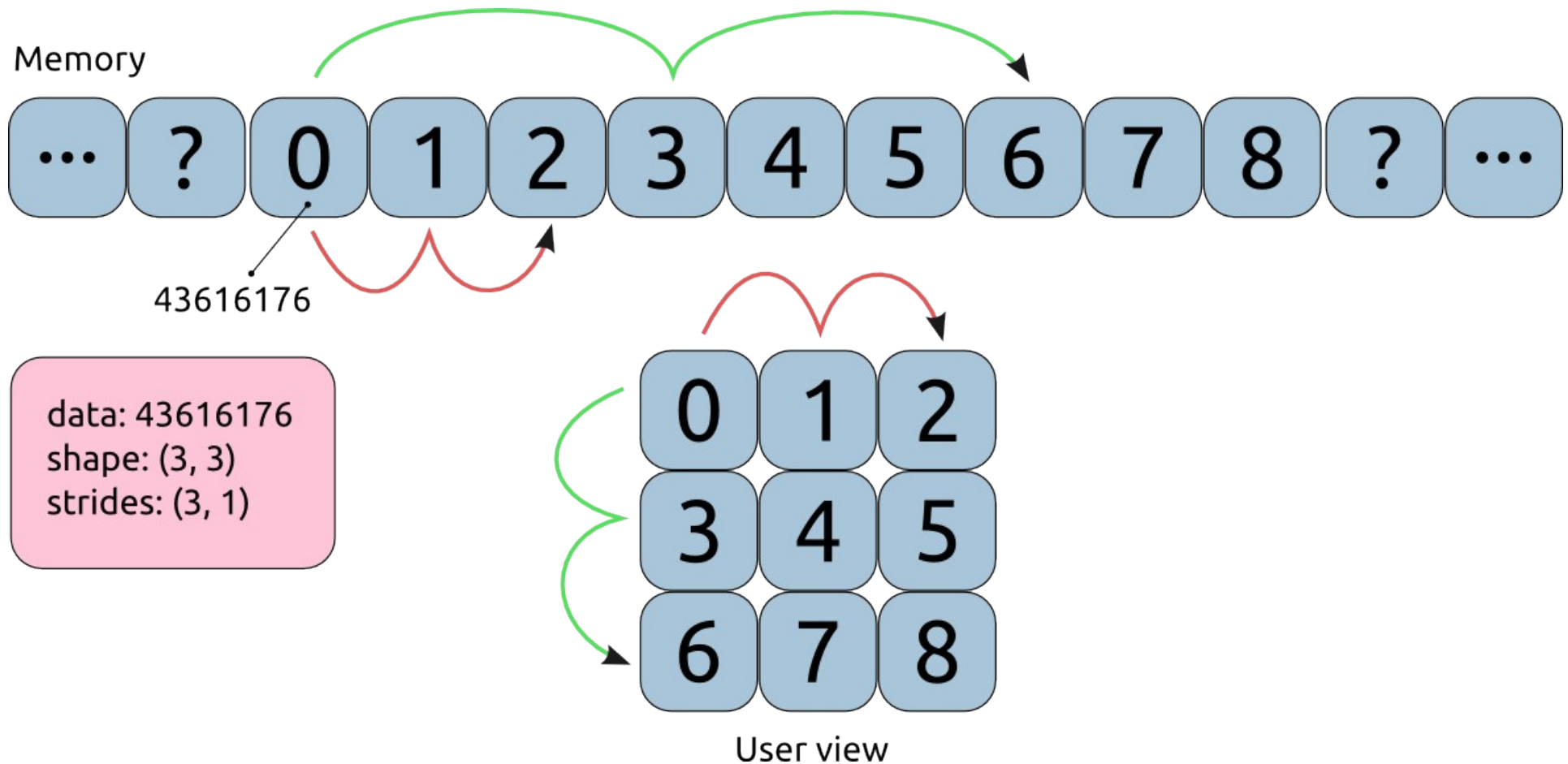
Memory



User view



The ndarray data structure

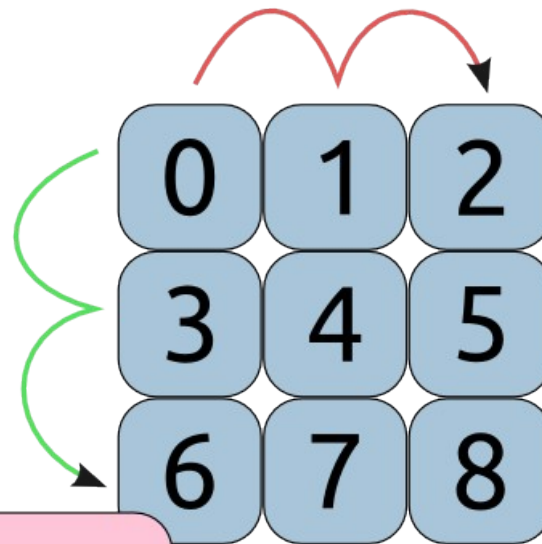


The ndarray data structure

Memory

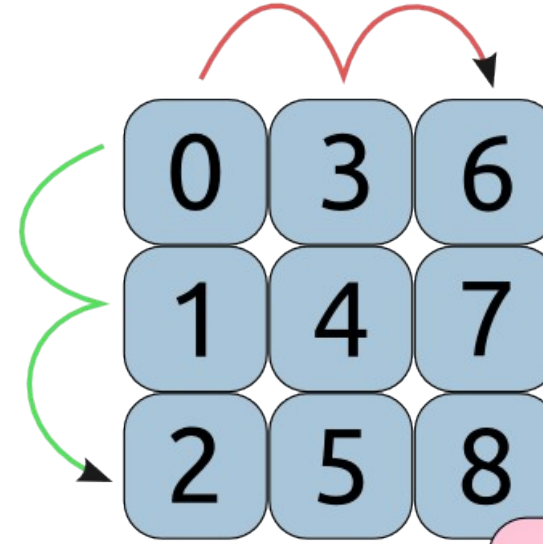


43616176



User view

data: 43616176
shape: (3, 3)
strides: (3, 1)

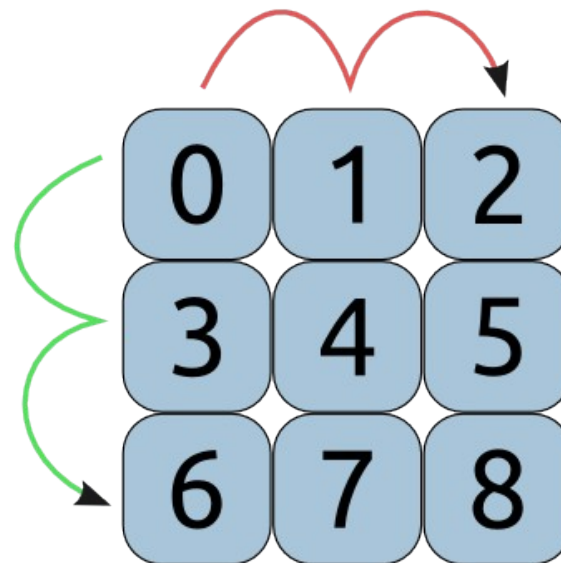
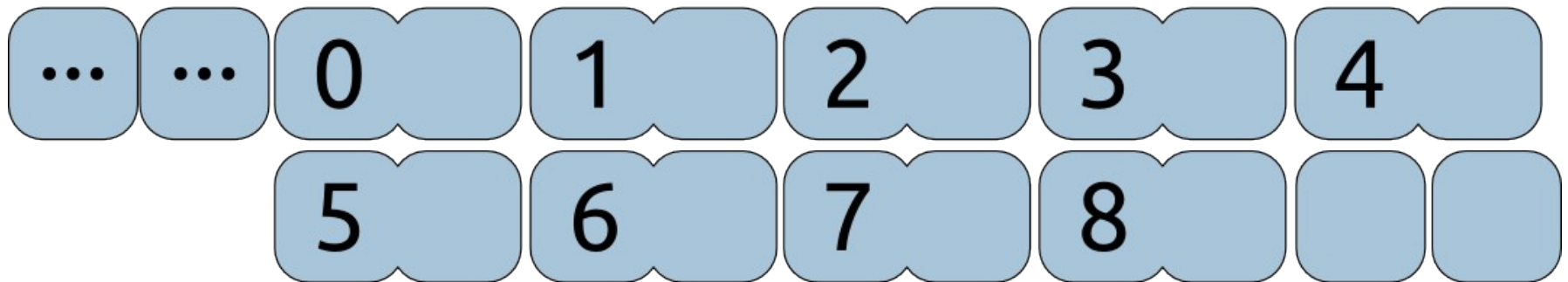


User view

data: 43616176
shape: (3, 3)
strides: (?, ?)

The ndarray data structure

Memory



User view

data: 43616176
shape: (3, 3)
strides: (6, 2)
dtype: uint16

2 bytes

Array methods

- Construct:

`np.zeros((3, 4)), np.arange(12), np.eye(3), np.array`

- Reductions, operations:

`a.mean(), a.mean(axis=0), a.argmax()`

- Manipulation:

`a.reshape((4, 3)), a.real, a.ravel(), a.fill(0),
a.clip(0, 1)`

- Structure: `a.shape, a.dtype, a.strides, a.data`

Demo

Beyond the ndarray

Available subpackages

random

Random number generation

linalg

Linear algebra

fft

Fast Fourier transform

polynomial

Polynomials

f2py

Fortran to Python interface generator

Beyond NumPy

statsmodels

scikit-image

scikit-learn

Pandas

Matplotlib

SciPy

NumPy