numpy_code

May 6, 2021

[1]:
```
import numpy as np
x=np.arange(9).reshape((3,3))
```

[2]:
```
x
```

[2]:
```
array([[0, 1, 2],
       [3, 4, 5],
       [6, 7, 8]])
```

[3]:
```
x.strides
```

[3]:
```
(12, 4)
```

[4]:
```
xt=x.T
xt
```

[4]:
```
array([[0, 3, 6],
       [1, 4, 7],
       [2, 5, 8]])
```

[5]:
```
xt.strides
```

[5]:
```
(4, 12)
```

[7]:
```
z=x.reshape((1,9))
z
```

[7]:
```
array([[0, 1, 2, 3, 4, 5, 6, 7, 8]])
```

[8]:
```
z.strides
```

[8]:
```
(36, 4)
```

[16]:
```
z.dtype=np.dtype('uint8')
z
```

[16]:
```
array([[0, 0, 0, 0, 1, 0, 0, 0, 2, 0, 0, 0, 3, 0, 0, 0, 4, 0, 0, 0, 5, 0,
        0, 0, 6, 0, 0, 0, 7, 0, 0, 0, 8, 0, 0, 0]], dtype=uint8)
```

[15]:
```
z.strides
```

[15]:
```
(36, 1)
```

[13]:
```
a = np.array([1, 3, 5])
b = 3 * a
b
```

[13]:
```
array([ 3,  9, 15])
```

[17]:
```
a = np.array([1, 2, 3, 4, 5])
b = np.array([10, 20, 30, 40, 50])
print(a + b)
print(a * b)

a = np.array([[1, 2, 3], [2, 3, 4]])
b = np.array([[0, 1, 2], [1, 2, 3]])
print(a + b)
print(a * b)
```

```
[11 22 33 44 55]
[ 10  40  90 160 250]
[[1 3 5]
 [3 5 7]]
[[ 0  2  6]
 [ 2  6 12]]
```

[18]:
```
a = np.array([1, 2, 3, 4, 5])
b = 10
print(a + b)
print(a * b)

a = np.array([[1, 2, 3], [4, 5, 6]])
b = 10
print(a + b)
```

```
[11 12 13 14 15]
[10 20 30 40 50]
[[11 12 13]
 [14 15 16]]
```

[24]:
```
a = np.arange(0, 10).reshape([2, 5])
b = np.array([0, 1, 2, 3, 4])
print(a + b)
c = np.array([[5], [10]])
print(a + c)
```

```
[[ 0  2  4  6  8]
```

```
 [ 5  7  9 11 13]]
[[ 5  6  7  8  9]
 [15 16 17 18 19]]
```

[25]:
```
a = np.array([[0, 1, 2, 3, 4]])
b = np.array([[1, 2, 3, 4, 5]]).T
print(a + b)
```

```
[[1 2 3 4 5]
 [2 3 4 5 6]
 [3 4 5 6 7]
 [4 5 6 7 8]
 [5 6 7 8 9]]
```

[26]:
```
import math
a = np.array([0, 1, 2, 3])
b = [0, 1, 2, 3]
print(np.sin(a))
print(np.sin(b))
```

```
[0.         0.84147098 0.90929743 0.14112001]
[0.         0.84147098 0.90929743 0.14112001]
```

[29]:
```
t1 = np.arange(12).reshape((3,4))
print(t1)
print(t1.sum(axis=0))
print(t1.mean(axis=0))
print(t1.var(axis=0))
```

```
[[ 0  1  2  3]
 [ 4  5  6  7]
 [ 8  9 10 11]]
[12 15 18 21]
[4. 5. 6. 7.]
[10.66666667 10.66666667 10.66666667 10.66666667]
```