# 3/7 2장 실습시간 코드

20174119 한지훈

import numpy as np

a=np.array([1,2,3,4,5,6])

a.shape

(6,)

a1=a[np.newaxis,:]

a1

array([[1, 2, 3, 4, 5, 6]])

a1.shape

(1, 6)

a2=a[:,np.newaxis]

a2

array([[1],

[2],

[3],

[4],

[5],

[6]])

ages = np.array([18,19,25,30,28])

ages[1:3]

array([19, 25])

ages[:2]

array([18, 19])

y = ages > 20

y

array([False, False, True, True, True])

ages[ ages > 20 ]

array([25, 30, 28])

a = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]])

a[0, 2]

3

a[0, 0] = 12

a

array([[12, 2, 3],

[ 4, 5, 6],

[ 7, 8, 9]])

a = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]])

a[0:2, 1:3]

array([[2, 3],

[5, 6]])

arr1 = np.array([[1, 2], [3, 4], [5, 6]])

arr2 = np.array([[1, 1], [1, 1], [1, 1]])

result = arr1 + arr2

result

array([[2, 3],

[4, 5],

[6, 7]])

miles = np.array([1, 2, 3])

result = miles \* 1.6

result

array([1.6, 3.2, 4.8])

arr1 = np.array([[1, 2], [3, 4], [5, 6]])

arr2 = np.array([[2, 2], [2, 2], [2, 2]])

result = arr1 \* arr2

result

array([[ 2, 4],

[ 6, 8],

[10, 12]])

arr1 = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]])

arr2 = np.array([[2, 2], [2, 2], [2, 2]])

result = arr1.dot(arr2)

result

array([[12, 12],

[30, 30],

[48, 48]])

A = np.array([0, 1, 2, 3])

10 \* np.sin(A)

array([0. , 8.41470985, 9.09297427, 1.41120008])

a = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]])

a.sum()

45

a.min()

1

a.max()

9

scores = np.array([[99, 93, 60], [98, 82, 93],[93, 65, 81], [78, 82, 81]])

scores.mean(axis=0)

array([92. , 80.5 , 78.75])

np.random.seed(100)

np.random.rand(5)

array([0.54340494, 0.27836939, 0.42451759, 0.84477613, 0.00471886])

np.random.rand(5, 3)

array([[0.12156912, 0.67074908, 0.82585276],

[0.13670659, 0.57509333, 0.89132195],

[0.20920212, 0.18532822, 0.10837689],

[0.21969749, 0.97862378, 0.81168315],

[0.17194101, 0.81622475, 0.27407375]])

np.random.randn(5)

array([ 0.67272081, -0.10441114, -0.53128038, 1.02973269, -0.43813562])

np.random.randn(5, 4)

array([[-1.11831825, 1.61898166, 1.54160517, -0.25187914],

[-0.84243574, 0.18451869, 0.9370822 , 0.73100034],

[ 1.36155613, -0.32623806, 0.05567601, 0.22239961],

[-1.443217 , -0.75635231, 0.81645401, 0.75044476],

[-0.45594693, 1.18962227, -1.69061683, -1.35639905]])

m, sigma = 10, 2

m + sigma\*np.random.randn(5)

array([ 7.53513097, 8.91112168, 8.66365653, 10.01462913, 8.77412253])

mu, sigma = 0, 0.1

np.random.normal(mu, sigma, 5)

array([ 0.12997481, -0.17330956, -0.09833101, 0.03575078, -0.16135785])

a = np.array([11, 11, 12, 13, 14, 15, 16, 17, 12, 13, 11, 14, 18, 19, 20])

unique\_values = np.unique(a)

unique\_values

array([11, 12, 13, 14, 15, 16, 17, 18, 19, 20]) arr = np.array([[1, 2], [3, 4], [5, 6]])

print(arr.T)

[[1 3 5]

[2 4 6]]

x = np.array([[1, 2, 3, 4], [5, 6, 7, 8], [9, 10, 11, 12]])

x.flatten()

array([ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12])

import pandas as pd

df = pd.read\_csv("https://raw.githubusercontent.com/cs109/2014\_data/master/countries.csv")

df











