```
Python 3.9.0 (tags/v3.9.0:9cf6752, Oct  5 2020, 15:34:40) [MSC v.1927 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import numpy as np
>>> x = np.random.rand(100,2)
>>> import matplotlib.pyplot as plt
>>> x
array([[0.7967119 , 0.98203384],
       [0.17512082, 0.26177059],
       [0.48150285, 0.49513679],
       [0.51936905, 0.32032043],
       [0.20323644, 0.91122354],
       [0.25028567, 0.55888014],
       [0.36340661, 0.89917418],
       [0.09552682, 0.10892873],
       [0.07462519, 0.62886795],
       [0.62484927, 0.38262077],
       [0.91400529, 0.39230306],
       [0.68890534, 0.07874196],
       [0.26412359, 0.83880523],
       [0.14147796, 0.93226583],
       [0.20817971, 0.39182331],
       [0.44976794, 0.36882588],
       [0.0112157 , 0.84954345],
       [0.38923636, 0.09610521],
       [0.97403817, 0.54515813],
       [0.11320898, 0.74329856],
       [0.3701822 , 0.13323574],
       [0.87807849, 0.34963258],
       [0.3255499 , 0.57921573],
       [0.55949676, 0.66642355],
       [0.42275682, 0.30613854],
       [0.81957964, 0.31151875],
       [0.41520597, 0.73224974],
       [0.30911749, 0.20281921],
       [0.94646814, 0.4209273 ],
       [0.49837686, 0.68069629],
       [0.88175794, 0.36868242],
       [0.74229851, 0.29067217],
       [0.06338854, 0.02760143],
       [0.35248964, 0.35629797],
       [0.91331658, 0.99311013],
       [0.72324749, 0.67276288],
       [0.28290501, 0.00592813],
       [0.00929672, 0.54478701],
       [0.65677751, 0.94156409],
       [0.40602232, 0.18666786],
       [0.18267192, 0.53318578],
       [0.9916203 , 0.47763227],
       [0.07720126, 0.69522058],
       [0.13806481, 0.40108302],
       [0.68717035, 0.02179449],
       [0.47900801, 0.05191438],
       [0.69161703, 0.83294294],
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       [0.32339926, 0.05978031],
       [0.43934822, 0.08413526],
       [0.82566127, 0.56334926],
       [0.0163163 , 0.77756531],
       [0.82439944, 0.41735934],
       [0.72115118, 0.76784854],
       [0.48632606, 0.36791379],
       [0.48817399, 0.50884208],
       [0.41214708, 0.4885281 ],
       [0.04527779, 0.86607892],
       [0.21844316, 0.85336086],
       [0.41301933, 0.72369228],
       [0.58529525, 0.68058118],
       [0.32473497, 0.0125074 ],
       [0.86749149, 0.76381756],
       [0.28354454, 0.1428151 ],
       [0.19364742, 0.62463048],
       [0.55998566, 0.00644255],
       [0.11712121, 0.13782927],
       [0.39588916, 0.72530302],
       [0.03113676, 0.76573393],
       [0.32998849, 0.90772896],
       [0.82428034, 0.52973963],
       [0.54009988, 0.83530855],
       [0.59054523, 0.78183639],
       [0.16894088, 0.02925328],
       [0.70328815, 0.13290328],
       [0.4098428 , 0.82398831],
       [0.70407405, 0.9604092 ],
       [0.93125872, 0.82526331],
       [0.38728971, 0.97951283],
       [0.47730048, 0.45945909],
       [0.23553099, 0.42857131],
       [0.41234117, 0.67607051],
       [0.51506252, 0.82824883],
       [0.91202525, 0.30141674],
       [0.17558485, 0.22185574],
       [0.88028914, 0.68383118],
       [0.12773422, 0.88375546],
       [0.34740144, 0.38373326],
       [0.97598421, 0.45611409],
       [0.69567331, 0.09142437],
       [0.58034045, 0.59365807],
       [0.38431599, 0.60720482],
       [0.17363942, 0.15335913],
       [0.74481011, 0.51283687],
       [0.53207603, 0.83302743],
       [0.34547856, 0.61657814],
       [0.75114774, 0.07113165],
       [0.12060655, 0.03499114],
       [0.80710191, 0.07799551],
       [0.67182526, 0.56142268],
       [0.38981483, 0.34029904]])
>>> plt.scatter(x[:,0], x[:,1])
```

```
<matplotlib.collections.PathCollection object at 0x0000022BE1480280>
>>> plt.show()

>>> x = np.random.rand(20,2)
>>> x
array([[0.95938882, 0.1972972 ],
       [0.04049537, 0.8738636 ],
       [0.85451342, 0.35373277],
       [0.41643804, 0.59537546],
       [0.39580116, 0.83431765],
       [0.88284447, 0.82385364],
       [0.61849599, 0.42428563],
       [0.68389561, 0.11276276],
       [0.23593022, 0.95287194],
       [0.97746199, 0.19647148],
       [0.98668563, 0.67770841],
       [0.97931285, 0.30675976],
       [0.84481018, 0.89072662],
       [0.84597987, 0.84149368],
       [0.66637377, 0.66013394],
       [0.08911415, 0.87023262],
       [0.20980339, 0.06671076],
       [0.82030552, 0.9506443 ],
       [0.3500675 , 0.11591979],
       [0.29795204, 0.08536693]])
>>> plt.scatter(x[:,0], x[:,1])
<matplotlib.collections.PathCollection object at 0x0000022BEDF6AC10>
>>> plt.plot()
[]
>>> plt.show()
>>> plt.show()
>>> plt.scatter(x[:,0], x[:,1])
<matplotlib.collections.PathCollection object at 0x0000022BEE109400>
>>> plt.show()
>>> x[:10] += 3
>>> x
array([[3.95938882, 3.1972972 ],
       [3.04049537, 3.8738636 ],
       [3.85451342, 3.35373277],
       [3.41643804, 3.59537546],
       [3.39580116, 3.83431765],
       [3.88284447, 3.82385364],
       [3.61849599, 3.42428563],
       [3.68389561, 3.11276276],
       [3.23593022, 3.95287194],
       [3.97746199, 3.19647148],
       [0.98668563, 0.67770841],
       [0.97931285, 0.30675976],
       [0.84481018, 0.89072662],
       [0.84597987, 0.84149368],
       [0.66637377, 0.66013394],
       [0.08911415, 0.87023262],
       [0.20980339, 0.06671076],
       [0.82030552, 0.9506443 ],
```

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       [0.3500675 , 0.11591979],
       [0.29795204, 0.08536693]])
>>> plt.scatter(x[:,0], x[:,1])
<matplotlib.collections.PathCollection object at 0x0000022BEE292400>
>>> plt.show()
>>> # Now we'll add 'labels' to each point
>>> Y = np.random.randn(10,2)
>>> # That was a mistake
>>> Y = np.zeros(20)
>>> Y[:10] = 1
>>> Y
array([1., 1., 1., 1., 1., 1., 1., 1., 1., 1., 0., 0., 0., 0., 0., 0., 0.,
       0., 0., 0.])
>>> # Y will be our 'label' array
>>> plt.scatter(x[:,0], x[:,1], c=y)
Traceback (most recent call last):
  File "<pyshell#25>", line 1, in <module>
    plt.scatter(x[:,0], x[:,1], c=y)
NameError: name 'y' is not defined
>>> plt.scatter(x[:,0], x[:,1], c=Y)
<matplotlib.collections.PathCollection object at 0x0000022BEE19B490>
>>> plt.show()
>>> plt.scatter(x[:,0], x[:,1], c=y)
Traceback (most recent call last):
  File "<pyshell#28>", line 1, in <module>
    plt.scatter(x[:,0], x[:,1], c=y)
NameError: name 'y' is not defined
>>> plt.scatter(x[:,0], x[:,1], c=Y)
<matplotlib.collections.PathCollection object at 0x0000022BEE29F550>
>>> plt.show()
>>>
```