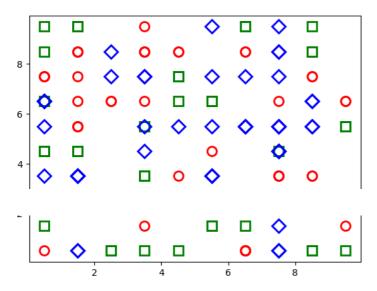
plt.show()

```
!pip install minisom
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from minisom import MiniSom
from sklearn.datasets import load iris
    Looking in indexes: <a href="https://pypi.org/simple">https://us-python.pkg.dev/colab-wheels/public/simple/</a>
     Requirement already satisfied: minisom in /usr/local/lib/python3.9/dist-packages (2.3.1)
iris = load_iris()
X = iris.data
y = iris.target
from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
X = sc.fit_transform(X)
grid_size = (10, 10)
input_len = X.shape[1]
sigma = 1.0
learning_rate = 0.5
som = MiniSom(grid_size[0], grid_size[1], input_len, sigma=sigma, learning_rate=learning_rate)
som.random_weights_init(X)
num_iterations = 1000
for i in range(num_iterations):
 random_idx = np.random.randint(len(X))
random sample = X[random idx, :]
from pylab import bone, pcolor, colorbar, plot, show
bone()
pcolor(som.distance map().T)
colorbar()
     <matplotlib.colorbar.Colorbar at 0x7fce89545820>
      10
                                                                   1.0
                                                                   0.9
       8
                                                                   0.8
                                                              Show diff
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                                                                   0.6
                                                                   0.5
       4
                                                                   0.4
                                                                   0.3
                                                                   0.2
                             4
                                        6
                                                  8
                                                           10
markers = ['o', 's', 'D']
colors = ['r', 'g', 'b']
for i, x in enumerate(X):
    w = som.winner(x)
```

 $\texttt{plt.plot}(\texttt{w[0]} + 0.5, \texttt{w[1]} + 0.5, \texttt{markers}[\texttt{y[i]}], \texttt{markeredgecolor=colors}[\texttt{y[i]}], \texttt{markerfacecolor='None'}, \texttt{markersize=10}, \texttt{markeredgecolor=colors}[\texttt{y[i]}], \texttt{markerfacecolor='None'}, \texttt{markersize=10}, \texttt{markeredgecolor=colors}[\texttt{y[i]}], \texttt{markeredgecolor=colors}[\texttt{y[i]}]], \texttt{markeredgecolor=colors}[\texttt{y[i]}], \texttt{markeredgecolor=$ 

```
https://colab.research.google.com/drive/1XreLm-imIBPbVmGIUKyPIUkeHKxgcFJt\#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHKxgcFJt#scrollTo=FaV9qxzC4qR-imIBPbVmGIUKyPIUkeHxyC4qR-imIBPbVmGIUKyPIUkeHxyC4qR-imIBPbVmGIUKyPIUkeHxyC4qR-imIPBVmGIUKyPIUkeHxyC4qR-imIPBVmQIUKyPIUkeHxyC4qR-imIPBVmQIUKyPIUkeHxyC4qR-imIPBVmQIUKyPIUkeHxyC4qR-imIPBVmQIUKyPIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4qR-imIPBVmQIUkeHxyC4q
```



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