```
!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: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
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
```

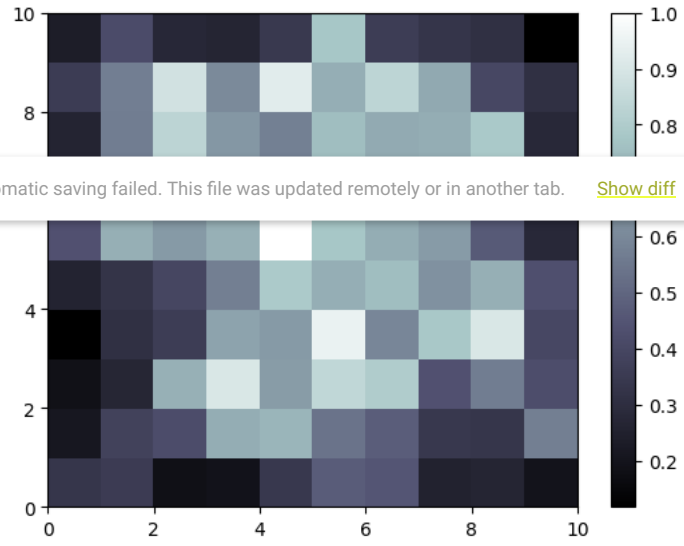
```
som = MiniSom(grid_size[0], grid_size[1], input_len, sigma=sigma, learning_rate=learning_rate)
```

```
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>
```




```
markers = ['o', 's', 'D']
colors = ['r', 'g', 'b']
for i, x in enumerate(X):
    w = som.winner(x)
    plt.plot(w[0] + 0.5, w[1] + 0.5, markers[y[i]], markeredgecolor=colors[y[i]], markerfacecolor='None', markersize=10, marke
plt.show()
```