cagl_ovr_blobs

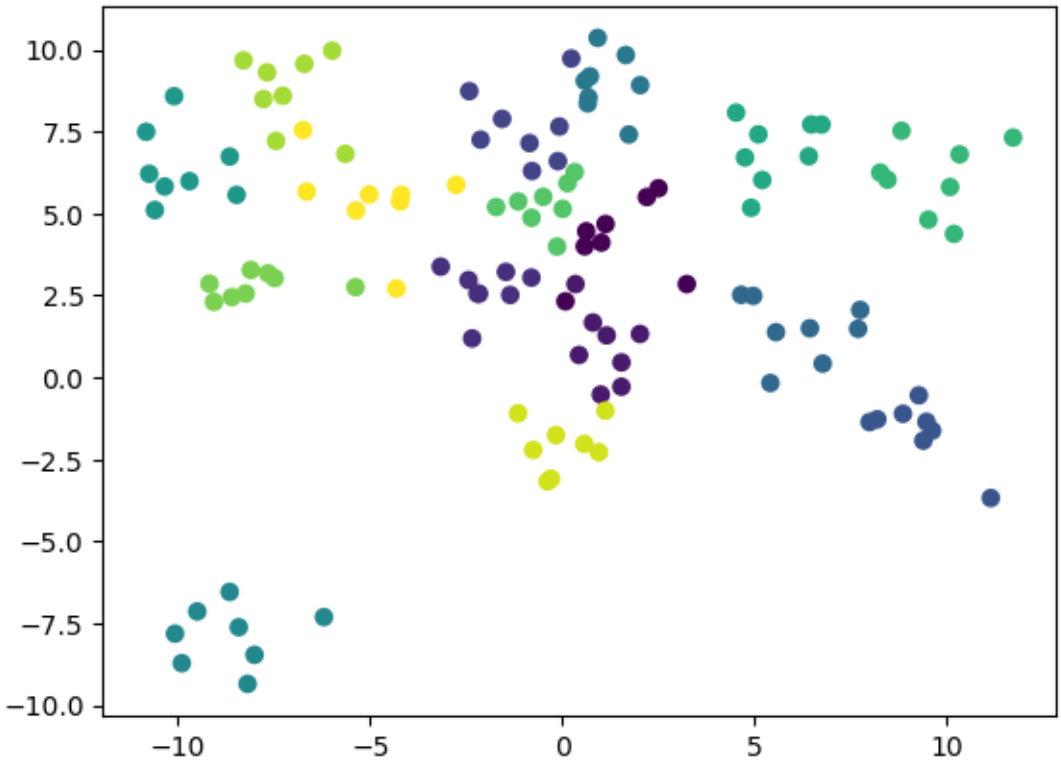
February 4, 2024

[1]:
```
#numpy
import numpy as np

#scikit
from sklearn.datasets import make_blobs
from sklearn.pipeline import Pipeline
from sklearn.preprocessing import StandardScaler
from sklearn.decomposition import PCA
from sklearn.multiclass import OutputCodeClassifier

#cagl
import cagl
from cagl.sklearn import HalfSphereCompact, PXOR

#plotting
import matplotlib
import matplotlib.pyplot as plt
from mlxtend.plotting import plot_decision_regions
```

[2]:
```
X, y = make_blobs(n_samples=128, centers=16, n_features=2, random_state=0 )
```

[3]:
```
fig = plt.figure()
ax = fig.add_subplot(111)
# plot x,y data with c as the color vector, set the line width of the markers␣
 ↪to 0
ax.scatter(X[:,0], X[:,1], c=y )
```

[3]:
```
<matplotlib.collections.PathCollection at 0x7939f06ba550>
```



[4]:
```
from sklearn.multiclass import OneVsRestClassifier
```

[5]:
```
clf = Pipeline((
    ('scaler0', StandardScaler()),
    ('pca', PCA(n_components=2, whiten=True )),
    ('compact', HalfSphereCompact()),
    ('ovr_pxor', OneVsRestClassifier(PXOR()))
))
```

[6]:
```
clf.fit(X, y )
```

[6]:
```
Pipeline(steps=[('scaler0', StandardScaler()),
                ('pca', PCA(n_components=2, whiten=True)),
                ('compact', HalfSphereCompact()),
                ('ovr_pxor', OneVsRestClassifier(estimator=PXOR()))])
```

[7]:
```
clf.score(X, y )
```

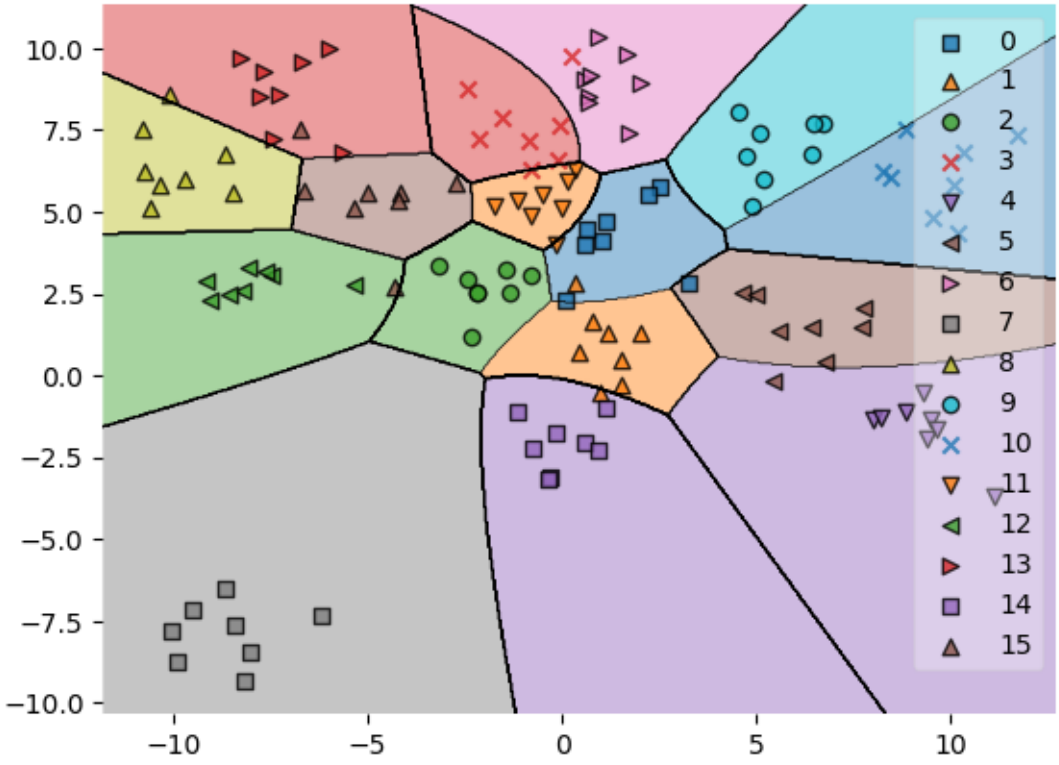
[7]:
```
0.9296875
```

[10]:
```
plot_decision_regions(X, y, clf=clf )
```

```
/home/lorenzo/.local/lib/python3.11/site-
```

```
packages/mlxtend/plotting/decision_regions.py:346: UserWarning: You passed a
edgecolor/edgecolors ('black') for an unfilled marker ('x').  Matplotlib is
ignoring the edgecolor in favor of the facecolor.  This behavior may change in
the future.
  ax.scatter(
```

[10]: <Axes: >



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