In [1]:

```
%matplotlib inline
import matplotlib.pyplot as plt
import seaborn as sns; sns.set()
import numpy as np
from sklearn.cluster import KMeans
```

In [2]:

```
from sklearn.datasets import load_digits
digits = load_digits()
digits.data.shape
```

Out[2]:

```
(1797, 64)
```

In [3]:

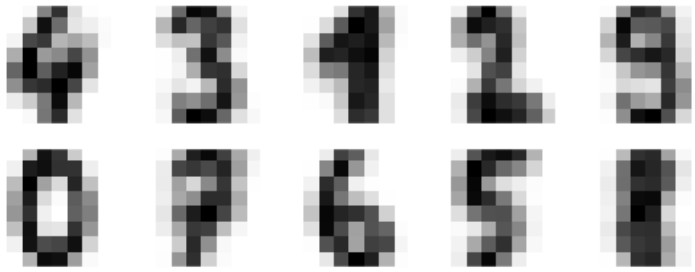
```
kmeans = KMeans(n_clusters = 10, random_state = 0)
clusters = kmeans.fit_predict(digits.data)
kmeans.cluster_centers_.shape
```

Out[3]:

```
(10, 64)
```

In [5]:

```
fig, ax = plt.subplots(2, 5, figsize=(8, 3))
centers = kmeans.cluster_centers_.reshape(10, 8, 8)
for axi, center in zip(ax.flat, centers):
    axi.set(xticks=[], yticks=[])
    axi.imshow(center, interpolation='nearest', cmap=plt.cm.binary)
```



In [6]:

```
from scipy.stats import mode
labels = np.zeros_like(clusters)
for i in range(10):
   mask = (clusters == i)
   labels[mask] = mode(digits.target[mask])[0]
```

In [7]:

```
from sklearn.metrics import accuracy_score
accuracy_score(digits.target, labels)
```

Out[7]:

```
0.7952142459654981
```

In [ ]: