

In [1]:

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

In [2]:

```
print(len(data.images))
print(len(data.target))
```

```
1797
1797
```

In [3]:

```
images = data.images
labels = data.target
```

In [4]:

```
# reshaping the images

images = images.reshape((images.shape[0], -1))
images.shape
```

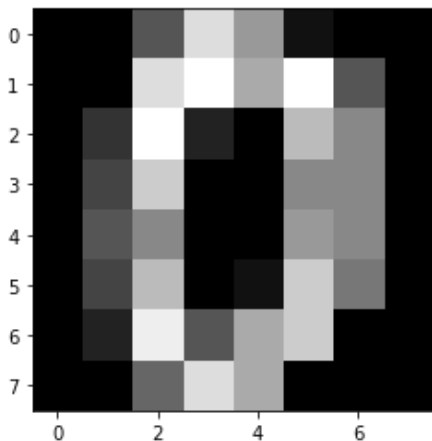
Out[4]:

```
(1797, 64)
```

In [5]:

```
import matplotlib.pyplot as plt
plt.gray()
imgplot = plt.imshow(data.images[0])
print("label: ", data.target[0])
plt.show()
```

label: 0



In [6]:

```
from sklearn import svm
```

In [7]:

```
model = svm.SVC(gamma = 0.001)
```

In [8]:

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(images, labels, test_size=0.33, random_state=42)
```

In [9]:

```
print(X_train.shape)
print(X_test.shape)
print(y_train.shape)
print(y_test.shape)
```

```
(1203, 64)
(594, 64)
(1203,)
(594,)
```

In [10]:

```
model.fit(X_train, y_train)
```

Out[10]:

```
SVC(C=1.0, break_ties=False, cache_size=200, class_weight=None, coef0=0.0,
    decision_function_shape='ovr', degree=3, gamma=0.001, kernel='rbf',
    max_iter=-1, probability=False, random_state=None, shrinking=True,
    tol=0.001, verbose=False)
```

In [11]:

```
score = model.score(X_test, y_test)
score
```

Out[11]:

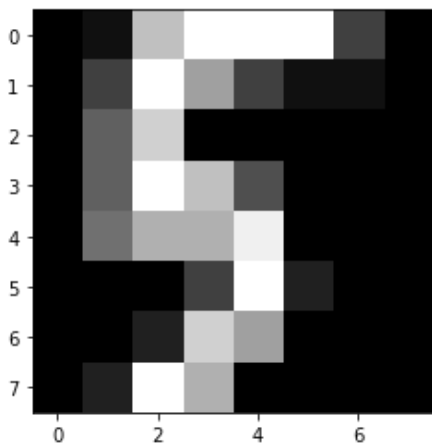
```
0.9898989898989899
```

In [12]:

```
plt.gray()
test_img = X_test[8].reshape(8,8)
imgplot = plt.imshow(test_img)
print("label: ",y_test[8])
plt.show()
```

```
t = X_test[5].reshape(1,-1)
pred = model.predict(t)
print("prediction: ",pred)
```

label: 5



prediction: [1]

In [12]: