In [1]:

```python
import re
from sklearn.datasets import load_digits
from sklearn.model_selection import train_test_split
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn import metrics
%matplotlib inline
digits=load_digits()
```
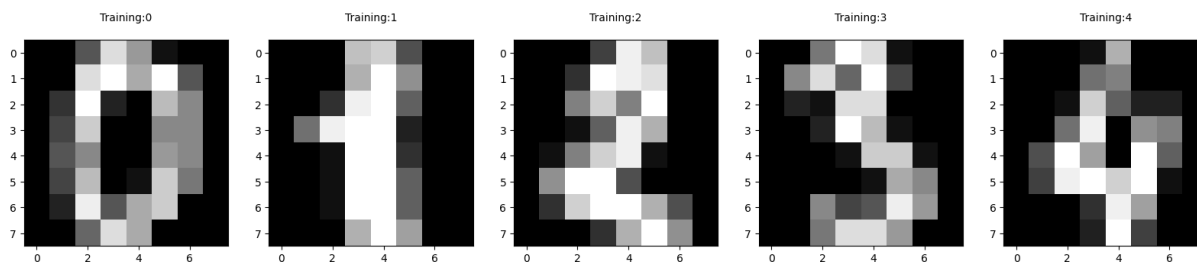
In [2]:

```python
print("Image Data shape",digits.data.shape)
print("Label Data shape",digits.target.shape)
```

```
Image Data shape (1797, 64)
Label Data shape (1797,)
```

In [3]:

```python
plt.figure(figsize=(20,4))
for index,(image,label)in enumerate(zip(digits.data[0:5],digits.target[0:5])):
 plt.subplot(1,5,index+1)
 plt.imshow(np.reshape(image,(8,8)),cmap=plt.cm.gray)
 plt.title('Training:%i\n'%label,fontsize=10)
```


In [4]:

```python
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(digits.data,digits.target,test_size=0.30,random_state=2
```

In [5]:

```python
print(x_train.shape)
```

```
(1257, 64)
```

In [6]:

```python
print(y_train.shape)
```

```
(1257,)
```

In [7]:

```python
print(x_test.shape)
```

```
(540, 64)
```

In [8]:

```python
print(y_test.shape)
```

(540,)

In [9]:

```python
from sklearn.linear_model import LogisticRegression
```

In [10]:

```python
logisticRegr=LogisticRegression(max_iter=10000)
logisticRegr.fit(x_train,y_train)
```

Out[10]:

```
▼         LogisticRegression
LogisticRegression(max_iter=10000)
```