Import Library

```
import pandas as pd
import numpy as np
```

Access Google Drive contents

```
from google.colab import drive
drive.mount('/content/gdrive')
```

```
Mounted at /content/gdrive
```

Load Dataset

```
fileName = "/content/gdrive/My Drive/Colab Notebooks/content/train.csv"
dataset = pd.read_csv(fileName)
```

Summarize Dataset

```
print(dataset.shape)
print(dataset.head(5))
```

```
(42000, 785)
   label  pixel0  pixel1  pixel2  pixel3  pixel4  pixel5  pixel6  pixel7  \
0      1       0       0       0       0       0       0       0       0   
1      0       0       0       0       0       0       0       0       0   
2      1       0       0       0       0       0       0       0       0   
3      4       0       0       0       0       0       0       0       0   
4      0       0       0       0       0       0       0       0       0   

   pixel8  ...  pixel774  pixel775  pixel776  pixel777  pixel778  pixel779  \
0       0  ...         0         0         0         0         0         0   
1       0  ...         0         0         0         0         0         0   
2       0  ...         0         0         0         0         0         0   
3       0  ...         0         0         0         0         0         0   
4       0  ...         0         0         0         0         0         0   

   pixel780  pixel781  pixel782  pixel783  
0         0         0         0         0  
1         0         0         0         0  
2         0         0         0         0  
3         0         0         0         0  
4         0         0         0         0  

[5 rows x 785 columns]
```

Segregate Dataset into X & Y

```
X = dataset.iloc[:, 1:]
print(X)
print(X.shape)
```

```
       pixel0  pixel1  pixel2  pixel3  pixel4  pixel5  pixel6  pixel7  pixel8  \
0           0       0       0       0       0       0       0       0       0   
1           0       0       0       0       0       0       0       0       0   
2           0       0       0       0       0       0       0       0       0   
3           0       0       0       0       0       0       0       0       0   
4           0       0       0       0       0       0       0       0       0   
...       ...     ...     ...     ...     ...     ...     ...     ...     ...   
41995       0       0       0       0       0       0       0       0       0   
41996       0       0       0       0       0       0       0       0       0   
41997       0       0       0       0       0       0       0       0       0   
41998       0       0       0       0       0       0       0       0       0   
```

```
41999       0       0       0       0       0       0       0       0       0

       pixel9  ...  pixel774  pixel775  pixel776  pixel777  pixel778  \
0           0  ...         0         0         0         0         0   
1           0  ...         0         0         0         0         0   
2           0  ...         0         0         0         0         0   
3           0  ...         0         0         0         0         0   
4           0  ...         0         0         0         0         0   
...       ...  ...       ...       ...       ...       ...       ...   
41995       0  ...         0         0         0         0         0   
41996       0  ...         0         0         0         0         0   
41997       0  ...         0         0         0         0         0   
41998       0  ...         0         0         0         0         0   
41999       0  ...         0         0         0         0         0   

       pixel779  pixel780  pixel781  pixel782  pixel783  
0             0         0         0         0         0  
1             0         0         0         0         0  
2             0         0         0         0         0  
3             0         0         0         0         0  
4             0         0         0         0         0  
...         ...       ...       ...       ...       ...  
41995         0         0         0         0         0  
41996         0         0         0         0         0  
41997         0         0         0         0         0  
41998         0         0         0         0         0  
41999         0         0         0         0         0  

[42000 rows x 784 columns]
(42000, 784)
```

```
Y = dataset.iloc[:, 0]
print(Y)
print(Y.shape)
```

```
0        1
1        0
2        1
3        4
4        0
        ..
41995    0
41996    1
41997    7
41998    6
41999    9
Name: label, Length: 42000, dtype: int64
(42000,)
```

Splitting Dataset into Train & Test

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, Y, test_size = 0.25, random_state = 0)
```

Training

```
from sklearn.ensemble import RandomForestClassifier
model = RandomForestClassifier()
model.fit(X_train, y_train)
```

```
▾ RandomForestClassifier
RandomForestClassifier()
```

```
y_pred = model.predict(X_test)
```

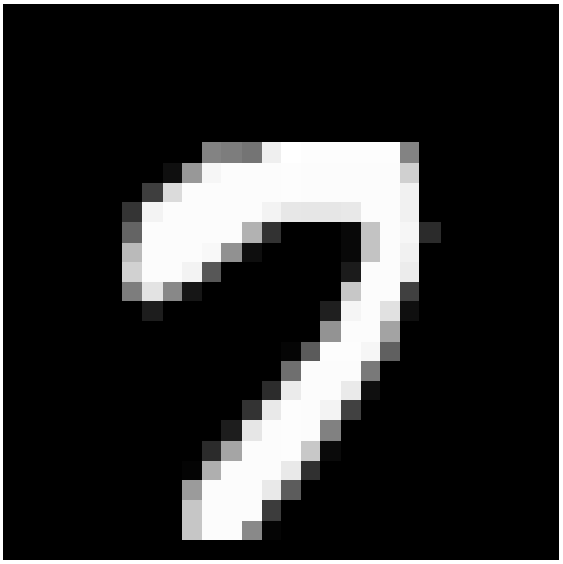
Model Accuracy

```
from sklearn.metrics import accuracy_score
print("Accuracy of the Model: {0}%".format(accuracy_score(y_test, y_pred)*100))
```

```
Accuracy of the Model: 96.28571428571429%
```

```
import matplotlib.pyplot as plt
index = 10
print("Predicted " + str(model.predict(X_test)[index]))
plt.axis('off')
plt.imshow(X_test.iloc[index].values.reshape((28, 28)),cmap='gray')
```

```
Predicted 7
<matplotlib.image.AxesImage at 0x7f69c423d6a0>
```



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