Notebook

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Classification Classwork

```
from sklearn.datasets import fetch_openml
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import SGDClassifier
from sklearn.model_selection import cross_val_predict
from sklearn.metrics import confusion_matrix, ConfusionMatrixDisplay
from sklearn.metrics import accuracy_score, precision_score, recall_score, f1_score, roc_auc_score
import pandas as pd
from sklearn.svm import SVC
from sklearn.preprocessing import StandardScaler
```

Importing Libraries

```
mnist = fetch_openml('mnist_784', as_frame=False)

X, y = mnist.data, mnist.target
```

Importing MNIST Dataset

```
indices = np.random.randint(0, X.shape[0], 3)
random_images = X[indices]
```

Choosign 3 Random Images

```
def plot_digit(image_data):
    image = image_data.reshape(28, 28)
    plt.imshow(image, cmap="binary")
    plt.axis("off")
```

```
plt.figure(figsize=(9, 9))
for idx in range(3):
    plt.subplot(1, 3, idx + 1)
    plot_digit(random_images[idx])
plt.subplots_adjust(wspace=0, hspace=0)
plt.show()
```

Plotting the Images

```
print(y[indices])
```

Printing the labels

```
## ['6' '5' '5']
```