Pattern Recognition

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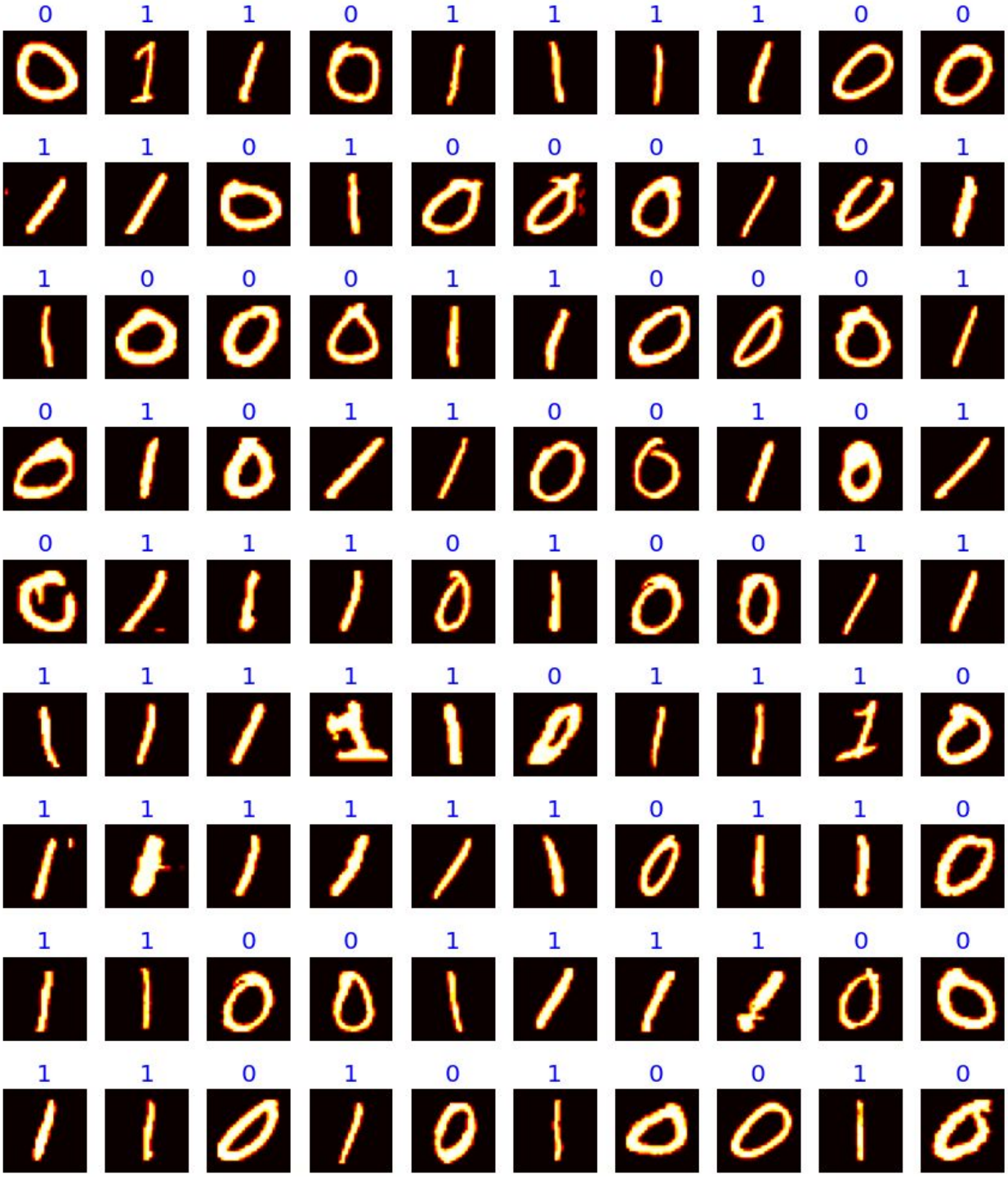
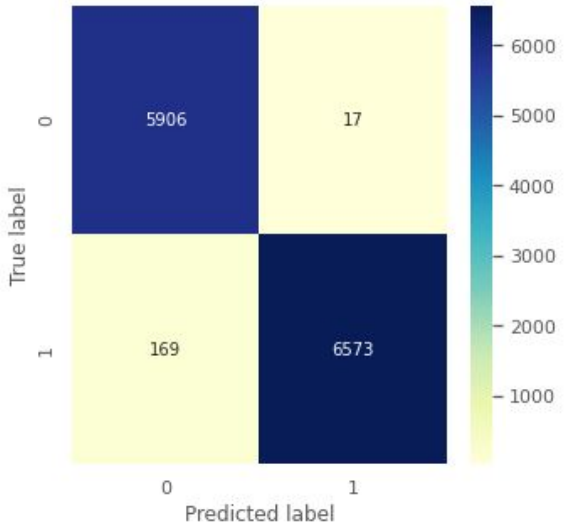
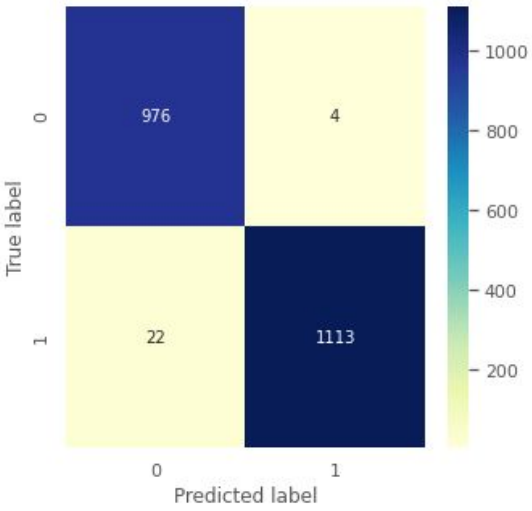
- **0 and 1 Classifier**





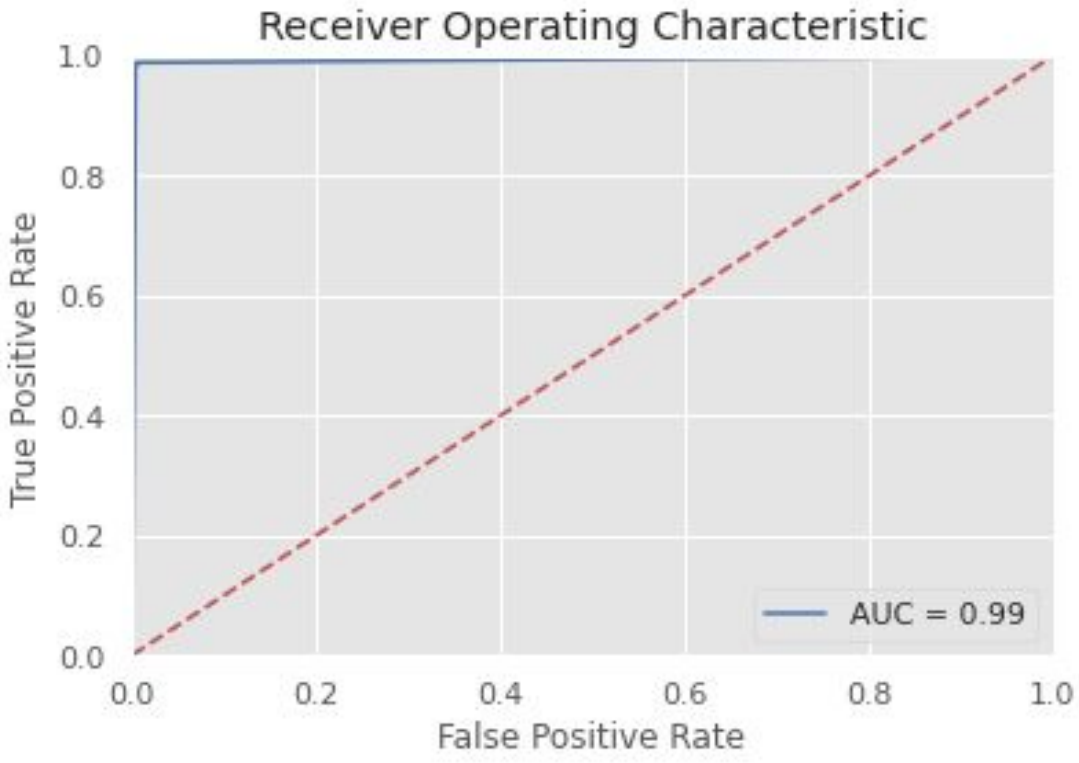
Training Set

Acc: 0.9853138570864588

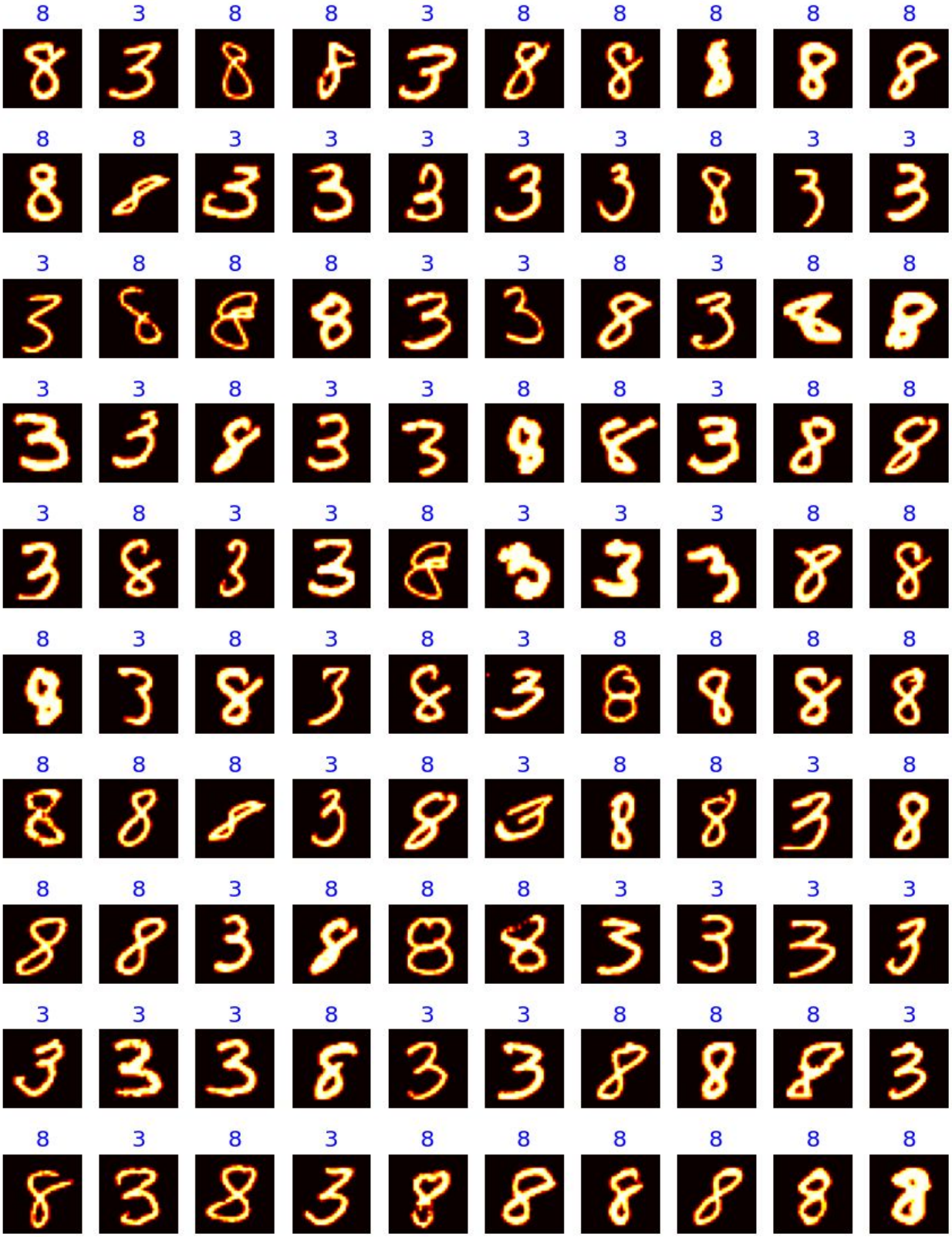


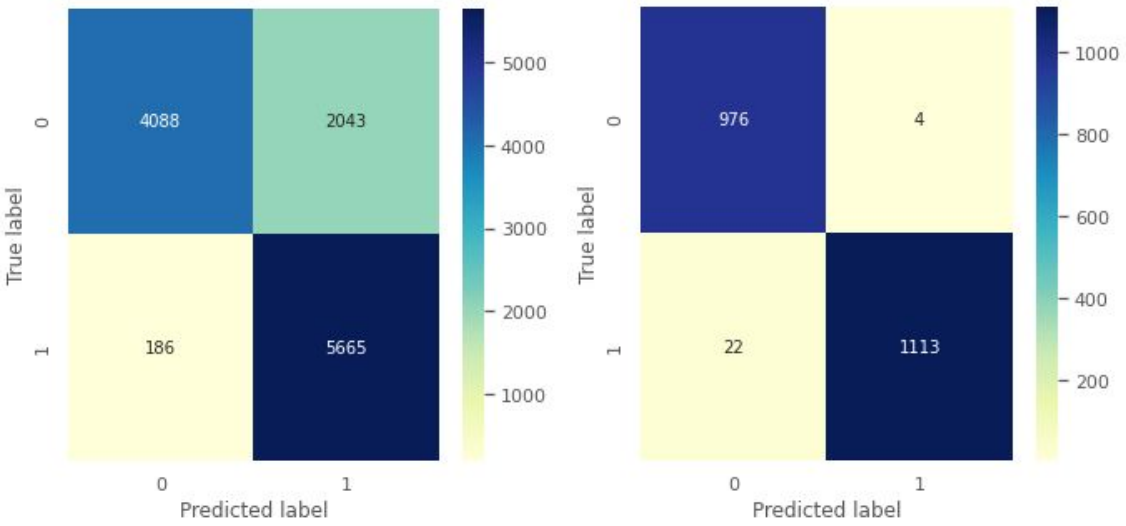
Test set

Acc： 0.9877068557919622



• 3 and 8 Classifier



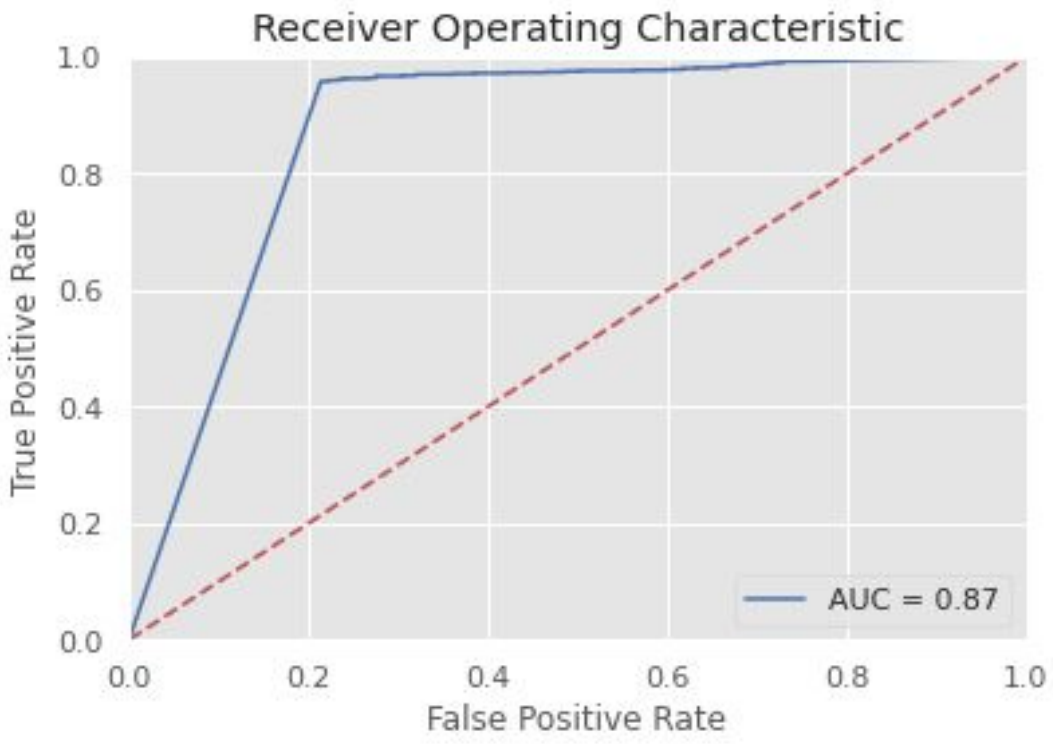


Training Set

Test set

Acc: `0.813970956434652`

Acc： `0.813970956434652`



Comparison

A Bayes Classifier has been designed for classification between 0 and 1 indices initially, and then 3 and 8 classes. The distribution was assumed to be multiclass, given the input feature data ranging from 0 to 255. Pre-processing of data involved separating specific number classes from the whole MNIST dataset. Due to MNIST being an established dataset, not much else contextual pre-processing was required.

• 0 vs 1 Classi cation Accuracy: 98.77%, AUC: 0.99

• 3 vs 8 Classi cation Accuracy: 81.70%, AUC: 0.87

The Bayesian model performed better in 0 vs 1 classification than 3 vs 8. This might

be due to the fact that digits 3 and 8 look-alike.

Link to code:-

https://colab.research.google.com/drive/1bOALCt6bmGaW6xsUtBVd3nb09khj077u?usp=sharing