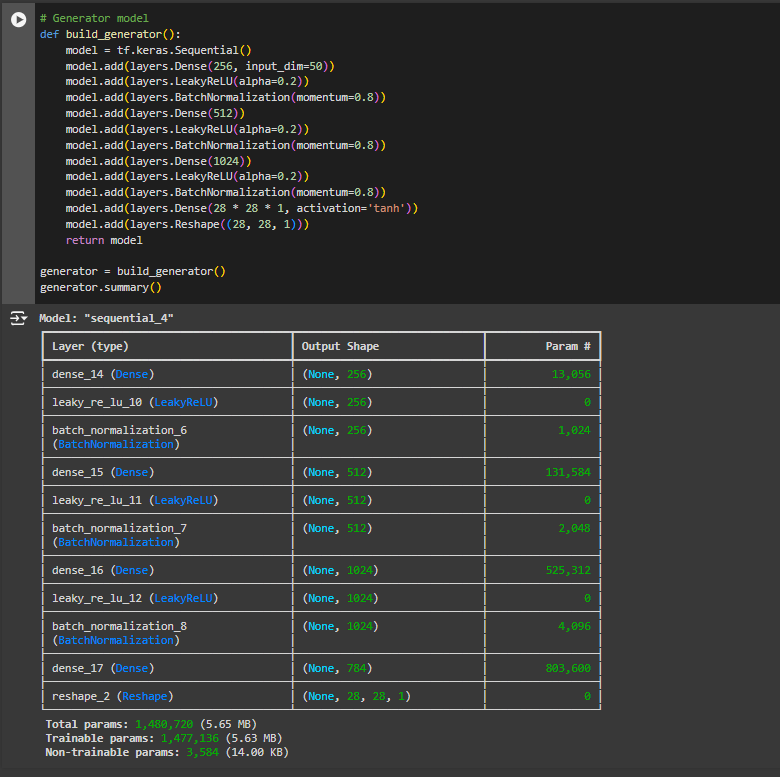
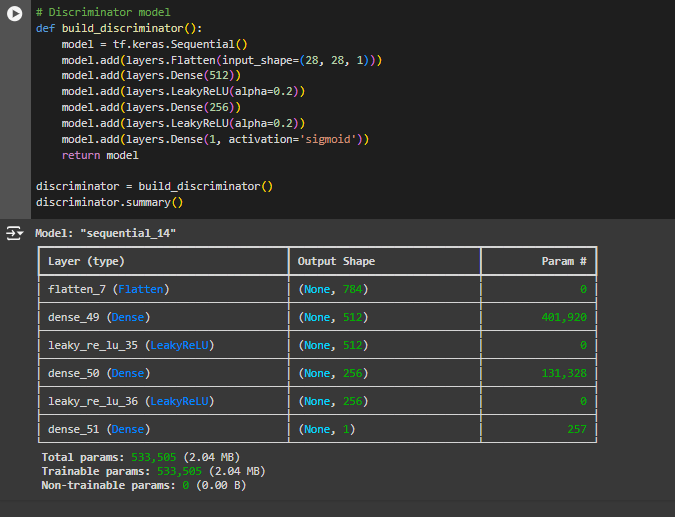
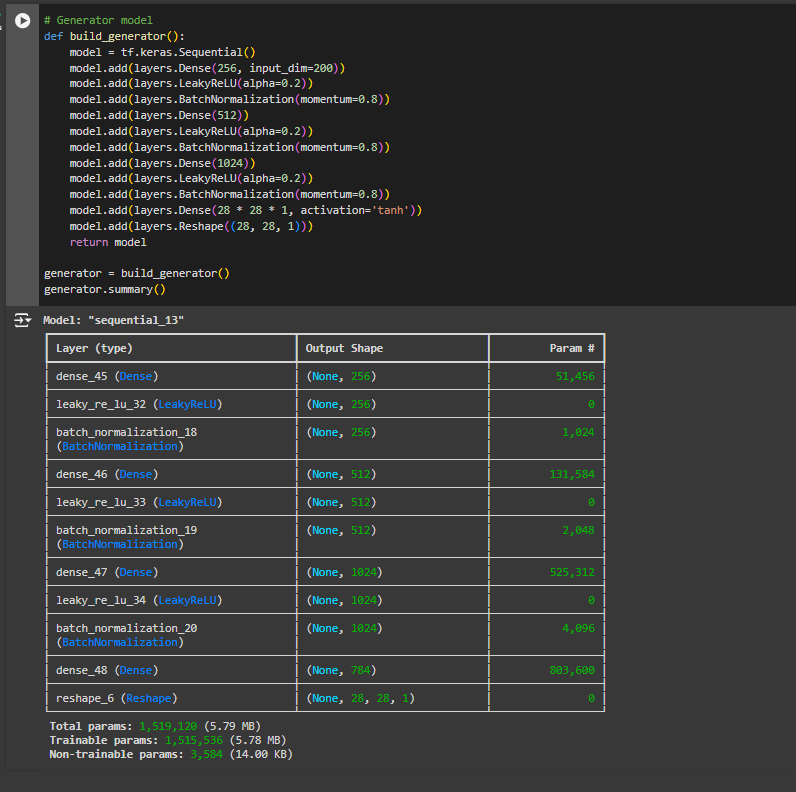
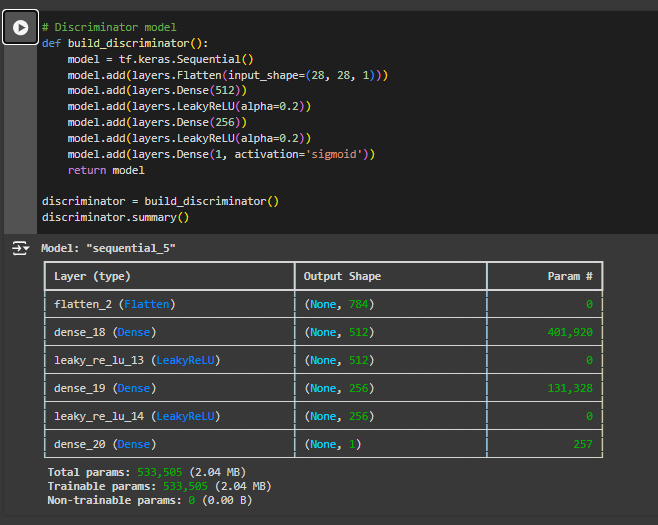
Part 01

IT21192050





**Question 01: Modify the Latent Space Size**

* **Latent Space = 50**: Images were less diverse and less detailed due to reduced information.
* **Latent Space = 200**: Images showed more variety and clearer details but took longer to converge.

**Question 02: Train the GAN for 10,000 Epochs**

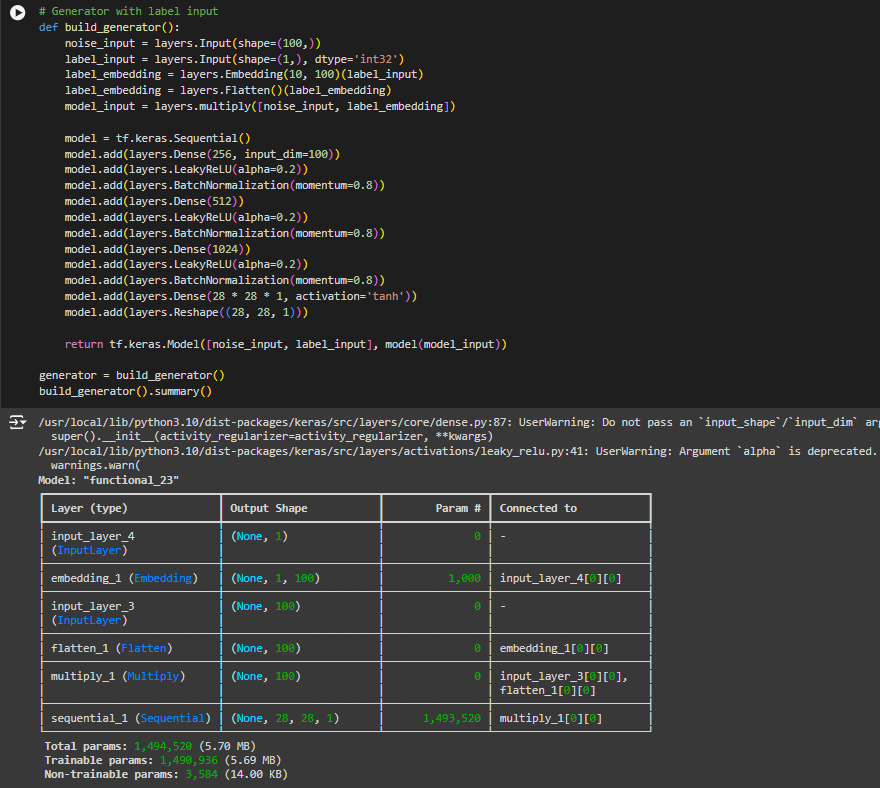
* Early epochs (1,000): Generated images were mostly noise.
* Mid epochs (3,000-5,000): Recognizable digit shapes started to appear.
* Final epochs (10,000): Images became sharp and nearly identical to real MNIST digits.

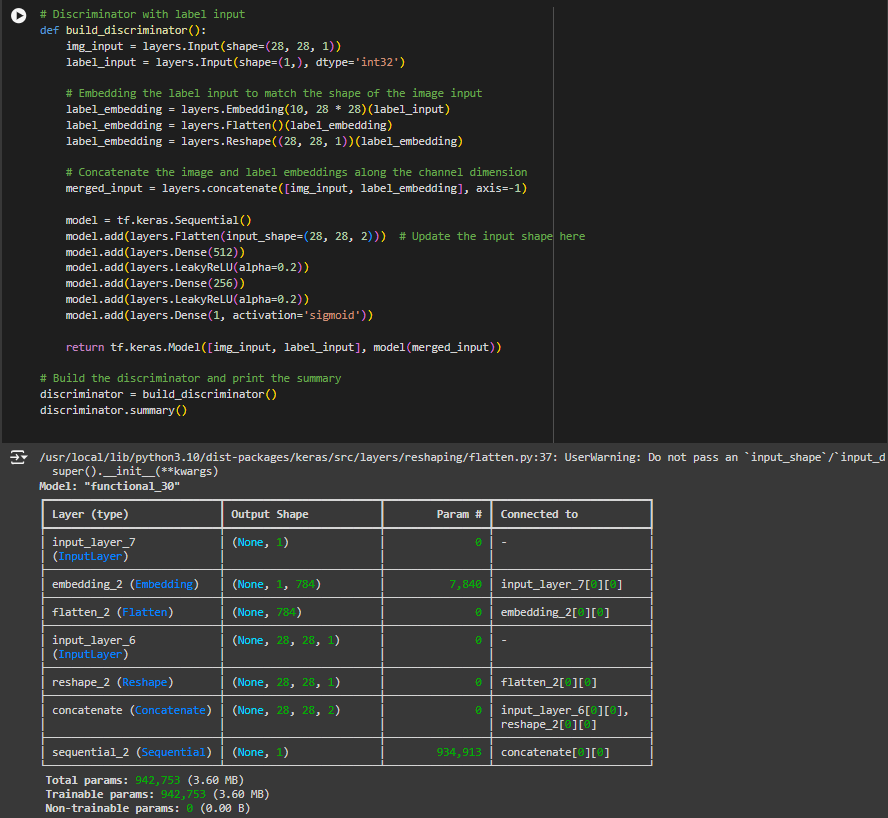
**Question 03: Change the Optimizer**

* **Adam**: Fast convergence with high-quality images.
* **RMSprop**: Slower but stable convergence, with comparable image quality.
* **SGD**: Much slower training, and images were less sharp after 10,000 epochs.

**Question 04: Experiment with Batch Sizes**

* **Small batch size (32)**: Slower convergence, noisier training, but good final results.
* **Large batch size (256)**: Faster convergence but less variety in images.
* **Moderate batch size (128)**: Balanced speed and image quality.

Part 02



Part 03

A screenshot of a computer program

Description automatically generated

