IMAGE NOISE REDUCTION WITH AUTO-ENCODERS →

* ◦ Autoencoders is an algorithm which helps to reduce dimensionality of data with the help of neural network.

* ◦ In this project, I have created 2 neural network model →
  ① Trained to perform classification on handwritten dataset.
  ② To denoise input data

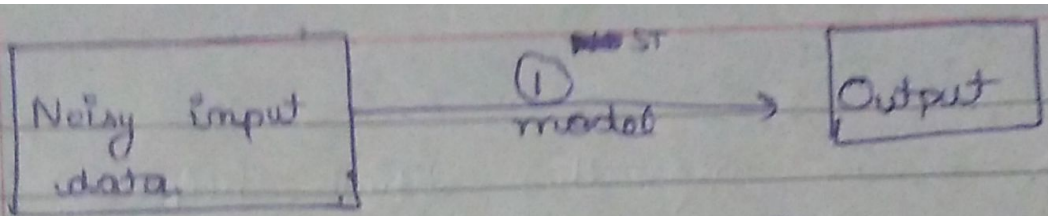
◦ ① + ② ⟶ Single Model

* ◦ Image data → Our values are from range 0-255
  → Data will be in the form of numpy array.
  → Shape is (60000, (28, 28))
  - 60000 → Total No. of images
  - (28, 28) → (Rows, Columns)

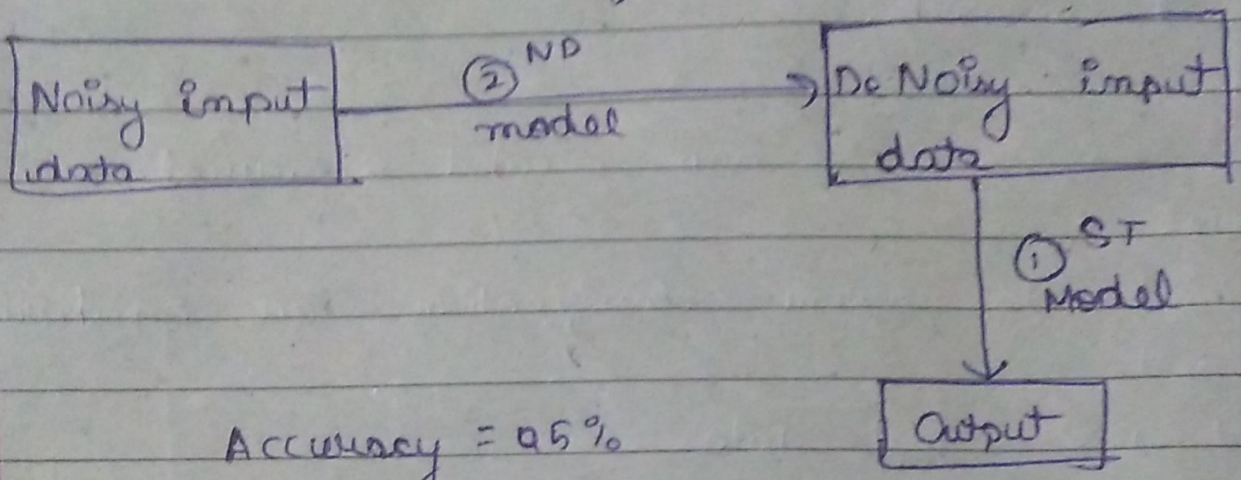
  → Reshape into (60000, 784)
  - 784 → (28, 28)

* ◦ Denoisy input data → ① ST model → Output

accuracy = 96%



accuracy = 16%



Accuracy = 95%

* How Auto encoders works →

dimensionality → 64 → 784
784

- when we will reduce dimensionality, our model
  → will focus only on important stuff
  → will able to denoise OR ignore data which is not important.