

## \* Classification on Fashion MNIST using Neural

Example

- Fashion MNIST dataset is a MNIST like dataset of total 70000 samples, each an image of  $28 \times 28$  to be classified into 10 classes.
- Pytorch has been used to load the dataset and for further defining the architecture of the neural network, along with its backward propagation & optimization.
- First the image is flattened into an array of 784 values, which will be fed into an artificial neural network's first layer.
- The network configuration is as follows:
  - i/p layer : 784 units
  - hidden layer 1 : 256 units (ReLU)
  - hidden layer 2 : 228 units (ReLU)
  - hidden layer 3 : 64 units (ReLU)
  - o/p layer : 10 units (softmax)There are 10 units in o/p layer, 1 corresponding to each class in the task of classification.
- The ReLU (Rectified Linear Unit) has been used instead of softmax or tanh in the hidden layers, because of the issue of vanishing gradients. vanishing gradients is the issue of the value of gradients becoming very very small as they are backpropagated in a ~~neural~~ deep network that the weight adjustment becomes either very slow or becomes negligible.