REPORT
ORI LEIBOVITZ
205793896

I train a multi-class neural network for the Fashion-MNIST dataset. In the network there is one hidden layer with the ReLU activation function.
The int
ut is 28*28 size of picture , from there it goes to the hidden layer (size of 110) and after this, we run the Relu function on the result that create the input for the next layer .
This layer run on the size of the clusters (10) and then running the softmax function for the classification of the input.

```
# Global
HIDE_SIZE = 110
ETA = 0.09
INPUT_SIZE = 28 * 28
CLUSTER = 10
EPOCHS = 24
```

Why I choose: at first I use the validation set to check the best count of epochs that lead to the the best result and learning rate.

I choose a 24 as **epochs** because I wanted to be sure that we don't have underfitting but also I didn't get to much iterations so we do not have overfitting.

In addition**,** after testing various values I figured out that **the best learning rate** is 0.09

❼ for this rate I got the most stable percentage of success (avg of 87%) after running the code with this rate.

I started with learning rate of 0.2 that lead me to 66% of success.

Then I tried to give much smaller learning rate- 0.01, that lead me to 76% of success.I decide to found learning rate between 0.01 and 0.2 – so I tried different numbers until I got for 0.09 the highest percent of succus (87%).

the size of the **hidden layer**, after some testing, needed to be between 70-160.

The most stable result was for 110 and that why I choosed that number.

Normalize in code – by the pixels we got , we could dividing the value by 255.