Lab Assignment: 5

- Import require libraries
- Write device agnostic code
- Get iris dataset
- Write polt code for loss and accuracy
- Build simple neural networks model

```
IrisNN(
  (network): Sequential(
    (0): Linear(in_features=4, out_features=4, bias=True)
    (1): ReLU()
    (2): Linear(in_features=4, out_features=5, bias=True)
    (3): ReLU()
    (4): Linear(in_features=5, out_features=3, bias=True)
  )
)
```

- Take cross entropy as loss and torch metric for accuracy
- Then write a code for early stopping
- At last train the model
- Now take python 3.8 as base image for the Docker container
- Copies all the Python files in the current directory (the directory where the Dockerfile is located
- Copy requirements.txt file in exp folder of Docker container
- Install all pre require module from exp/requirements.txt
- Sets the working directory inside the Docker container
- Run docker container

Outcomes:

```
Epoch: 0 | Loss: 1.1339 | Test Loss: 1.1326 | acc: 0.3333 |
test_acc: 0.3333
Epoch: 200 | Loss: 1.0869 | Test Loss: 1.0872 | acc: 0.3333 |
test_acc: 0.3333
Epoch: 400 | Loss: 1.0480 | Test Loss: 1.0470 | acc: 0.3333 |
test_acc: 0.3333
Epoch: 600 | Loss: 0.8227 | Test Loss: 0.8188 | acc: 0.6917 |
test_acc: 0.6667
Epoch: 800 | Loss: 0.4389 | Test Loss: 0.4465 | acc: 0.9500 |
test_acc: 0.9333
Epoch: 1000 | Loss: 0.2616 | Test Loss: 0.2825 | acc: 0.9833 |
test_acc: 0.9667
Epoch: 1200 | Loss: 0.1678 | Test Loss: 0.1983 | acc: 0.9833 |
test_acc: 0.9667
```

```
Epoch: 1400 | Loss: 0.1210 | Test Loss: 0.1603 | acc: 0.9833 |
test_acc: 0.9667
Epoch: 1600 | Loss: 0.0958 | Test Loss: 0.1442 | acc: 0.9833 |
test_acc: 0.9667
Epoch: 1800 | Loss: 0.0805 | Test Loss: 0.1380 | acc: 0.9833 |
test_acc: 0.9667
```