Exercises

MLP and CNNs

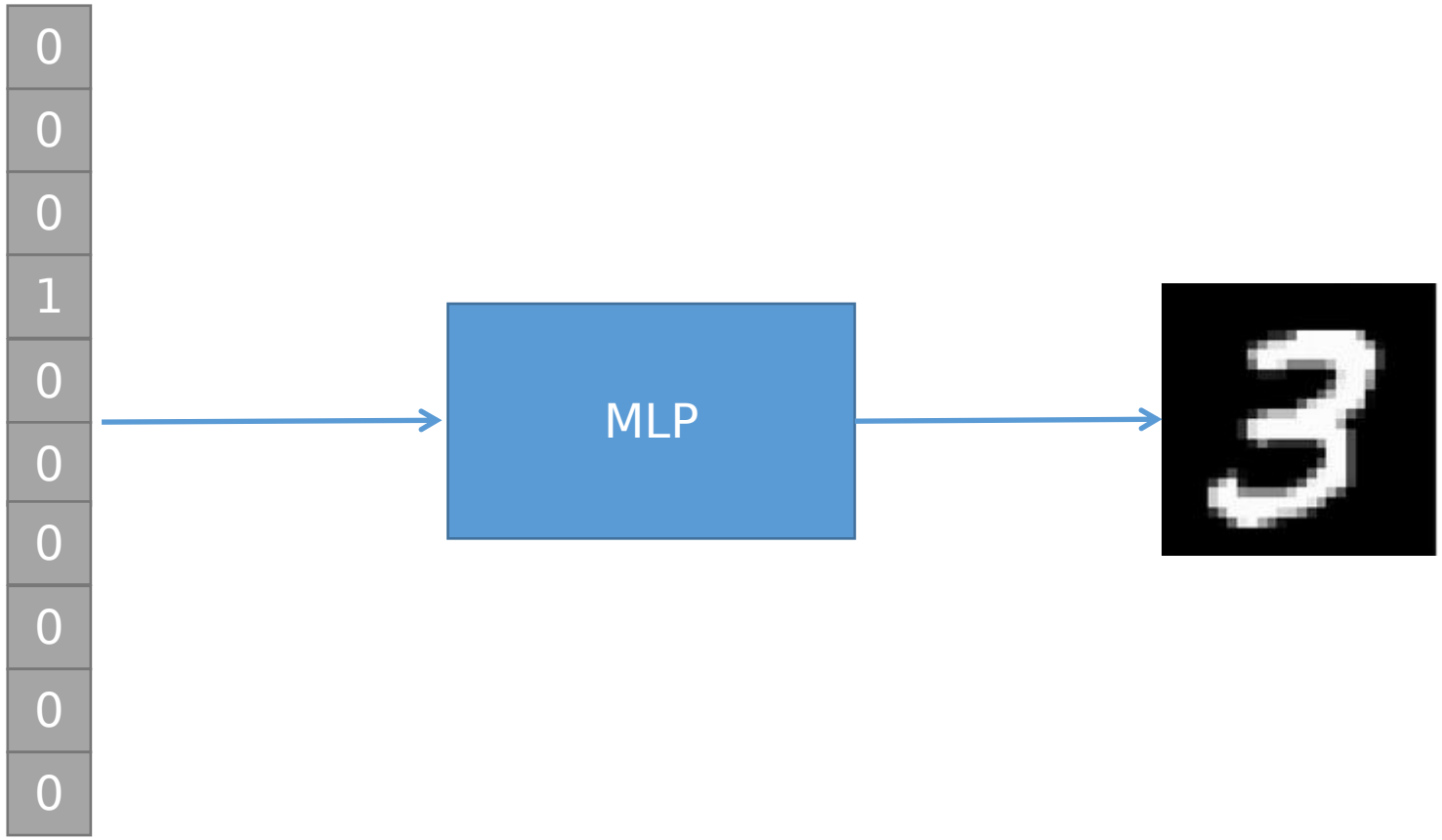
Exercise 1

Build a CNN classifier for the MNIST dataset

```
model = torch.nn.Sequential(
    torch.nn.Conv2d(1, 32, (5, 5), padding=1),
    torch.nn.ReLU(),
    torch.nn.MaxPool2d((2, 2), stride=1),
    torch.nn.Conv2d(32, 64, (4, 4), stride=2),
    torch.nn.ReLU(),
    torch.nn.MaxPool2d((2, 2)),
    torch.nn.Conv2d(64, 64, (3, 3), stride=1, padding=0),
    torch.nn.ReLU(),
    torch.nn.Flatten(),
    torch.nn.Linear(576, 10)
)
```

Execise 2

Train an **MLP** network that **receives** a **one-hot** encoded **class** from the **MNIST** dataset as **input** and **generates** a **28x28 grayscale** image corresponding to that **digit**.



Exercise 3

Train a **ResNet**

- The **ResNet**, when **provided** with an **input MNIST image**, is expected to produce an **output** image of the **same shape**
- This **output** image should **depict** the **successive number** with respect to the **input**