

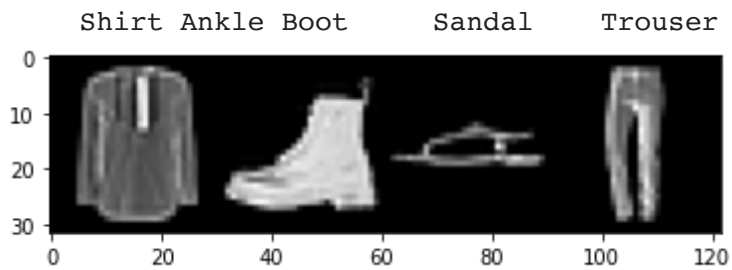
## ▼ Part 1

### ▶ FashionMNIST Classification

↳ 7 cells hidden

## ▼ Report

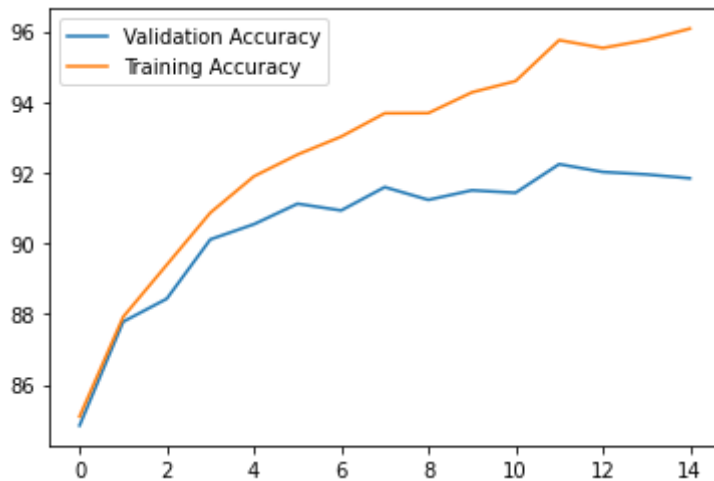
### Image preview



### Test Accuracy and graphs



Test Accuracy 91.35



### Accuracy by class

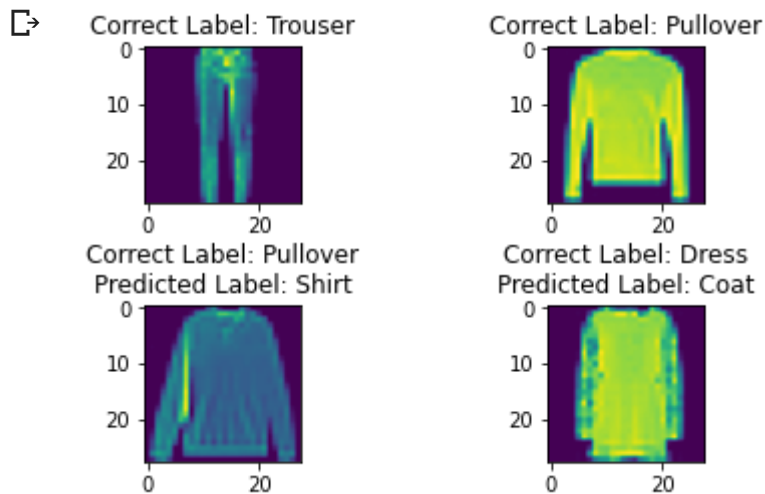


```

Class:    T-Shirt Val: 0.864 Test: 0.851
Class:    Trouser Val: 0.990 Test: 0.980
Class:    Pullover Val: 0.863 Test: 0.874
Class:    Dress Val: 0.932 Test: 0.909
Class:    Coat Val: 0.927 Test: 0.941
Class:    Sandal Val: 0.962 Test: 0.970
Class:    Shirt Val: 0.707 Test: 0.687
Class:    Sneaker Val: 0.983 Test: 0.983
Class:    Bag Val: 0.983 Test: 0.984
Class:    Ankle Boot Val: 0.972 Test: 0.956

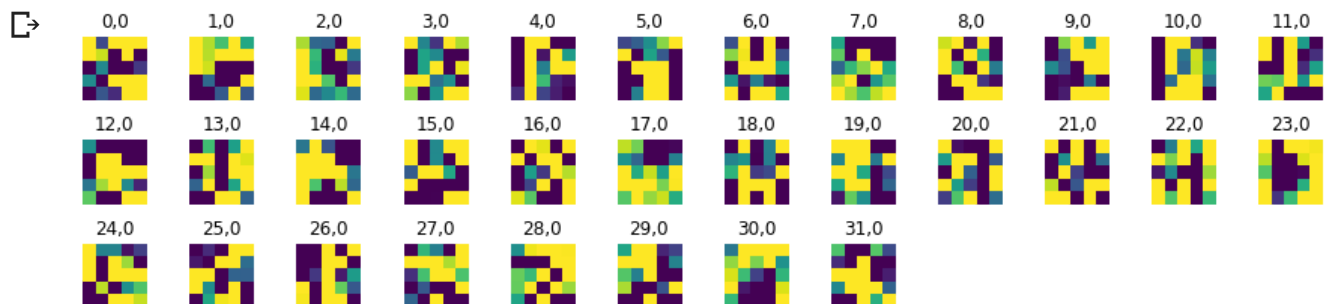
```

## Two correctly classified images and two misclassified



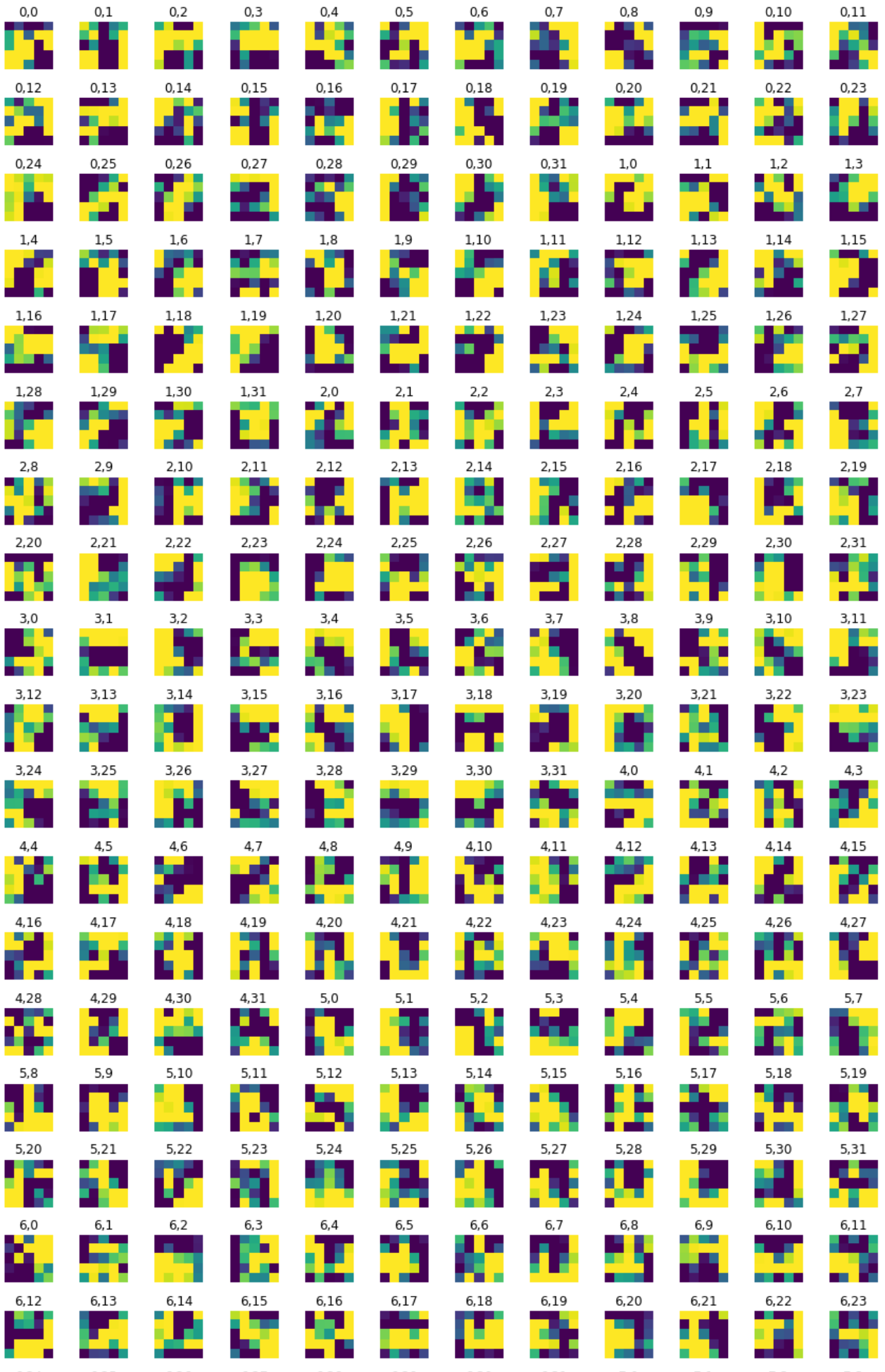
## Plot conv filters

### First conv layer filters



### Second conv layer filters





## ▼ Part2

### ▶ Semantic Segmentation on the MiniFacade dataset.

Load the dataset, define and train a model.

↳ 6 cells hidden

## ▼ Report

### Architecture Overview

```
☞ -----  
      Layer (type)                Output Shape                Param #  
=====
```

Conv2d-1	[-1, 64, 256, 256]	4,864
ReLU-2	[-1, 64, 256, 256]	0
BatchNorm2d-3	[-1, 64, 256, 256]	128
MaxPool2d-4	[-1, 64, 128, 128]	0
Conv2d-5	[-1, 128, 128, 128]	204,928
ReLU-6	[-1, 128, 128, 128]	0
MaxPool2d-7	[-1, 128, 64, 64]	0
Conv2d-8	[-1, 256, 64, 64]	819,456
ReLU-9	[-1, 256, 64, 64]	0
BatchNorm2d-10	[-1, 256, 64, 64]	512
Conv2d-11	[-1, 256, 64, 64]	1,638,656
ReLU-12	[-1, 256, 64, 64]	0
BatchNorm2d-13	[-1, 256, 64, 64]	512
ConvTranspose2d-14	[-1, 128, 128, 128]	295,040
ReLU-15	[-1, 128, 128, 128]	0
ConvTranspose2d-16	[-1, 128, 256, 256]	147,584
ReLU-17	[-1, 128, 256, 256]	0
BatchNorm2d-18	[-1, 128, 256, 256]	256
Conv2d-19	[-1, 5, 256, 256]	5,765
ReLU-20	[-1, 5, 256, 256]	0

```
=====
```

Total params: 3,117,701  
Trainable params: 3,117,701  
Non-trainable params: 0

```
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```

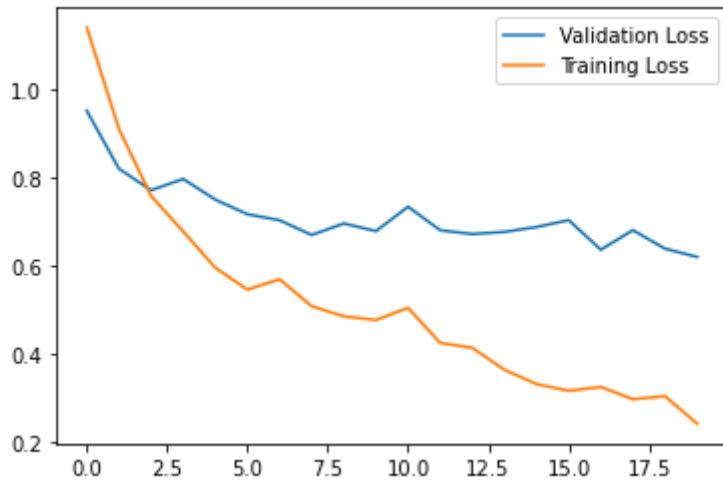
Input size (MB): 0.75  
Forward/backward pass size (MB): 417.00  
Params size (MB): 11.89  
Estimated Total Size (MB): 429.64

```
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```

# Training/Validation loss. Trained model with standart parameters on 20 epochs



Finished Training, Testing on test set



## Get AP scores



```
100% |██████████| 114/114 [00:11<00:00, 9.78it/s]
Average AP :
100% |██████████| 114/114 [00:01<00:00, 60.82it/s]
AP = 0.71233 Class = others
AP = 0.77422 Class = facade
AP = 0.22539 Class = pillar
AP = 0.85750 Class = window
AP = 0.53378 Class = balcony
0.6206457567325127
```

## Custom facade picture with the model output

