Classification and Class Activation Map

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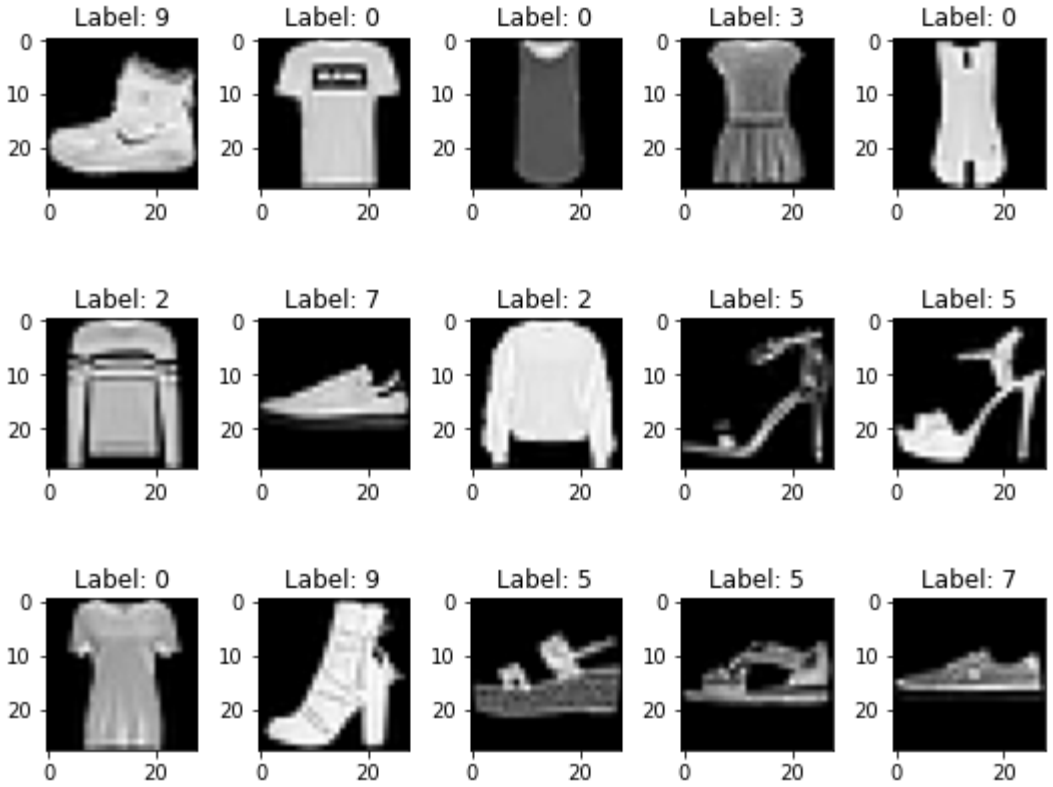
Source: Coursera course

Classification and class activation map



Input images : Fashion MNIST

Label	Description
0	T-shirt/top
1	Trouser
2	Pullover
3	Dress
4	Coat
5	Sandal
6	Shirt
7	Sneaker
8	Bag
9	Ankle boot

- Dimension of the image is 28 by 28.
- There are 60000 training images and 10000 testing images.

Classification and class activation map

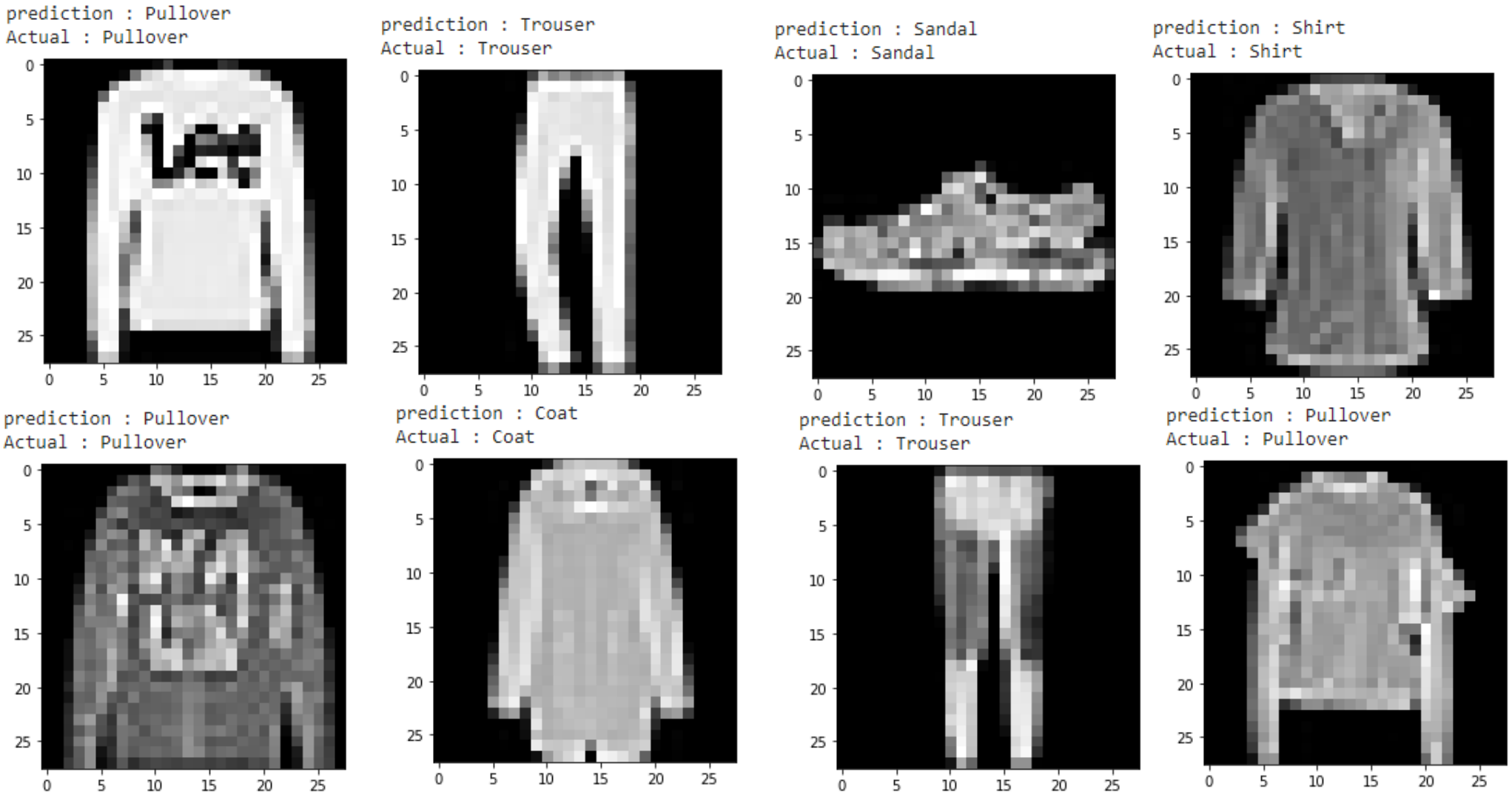
Classification : CNN

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 28, 28, 16)        160

 max_pooling2d (MaxPooling2D  (None, 14, 14, 16)       0
 )

 conv2d_1 (Conv2D)           (None, 14, 14, 32)        4640

 max_pooling2d_1 (MaxPooling  (None, 7, 7, 32)         0
 2D)

 conv2d_2 (Conv2D)           (None, 7, 7, 64)          18496

 max_pooling2d_2 (MaxPooling  (None, 3, 3, 64)         0
 2D)

 conv2d_3 (Conv2D)           (None, 3, 3, 128)         73856

 global_average_pooling2d (G  (None, 128)              0
 lobalAveragePooling2D)

 dense (Dense)               (None, 10)                1290

=================================================================
Total params: 98,442
Trainable params: 98,442
Non-trainable params: 0
_________________________________________________________________
```

- There are 4 convolution layers followed by pooling layers.
- The final Dense layer will output the probabilities for each class.

Classification and class activation map

Classification result after 50 epochs



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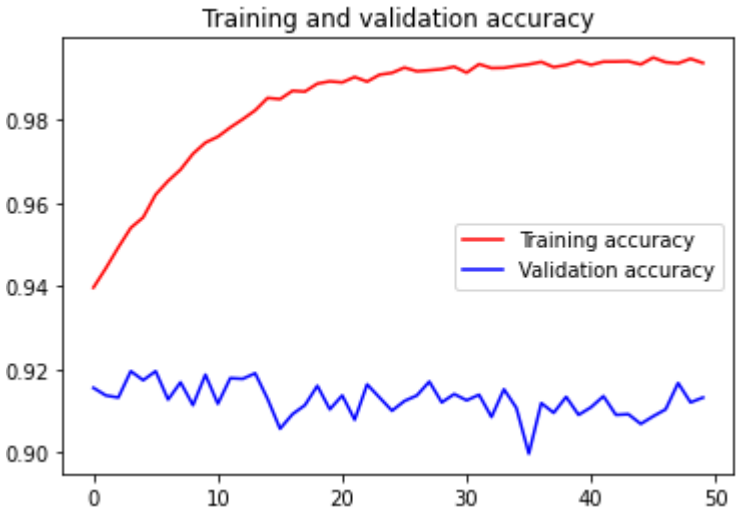
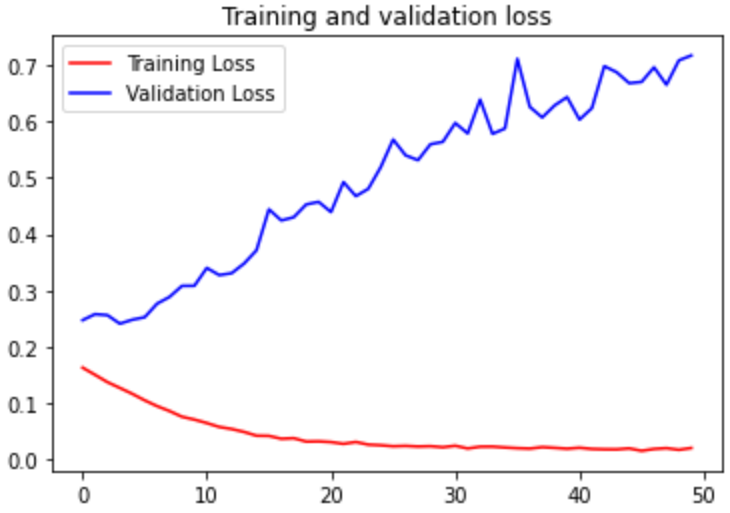
Classification result after 50 epochs

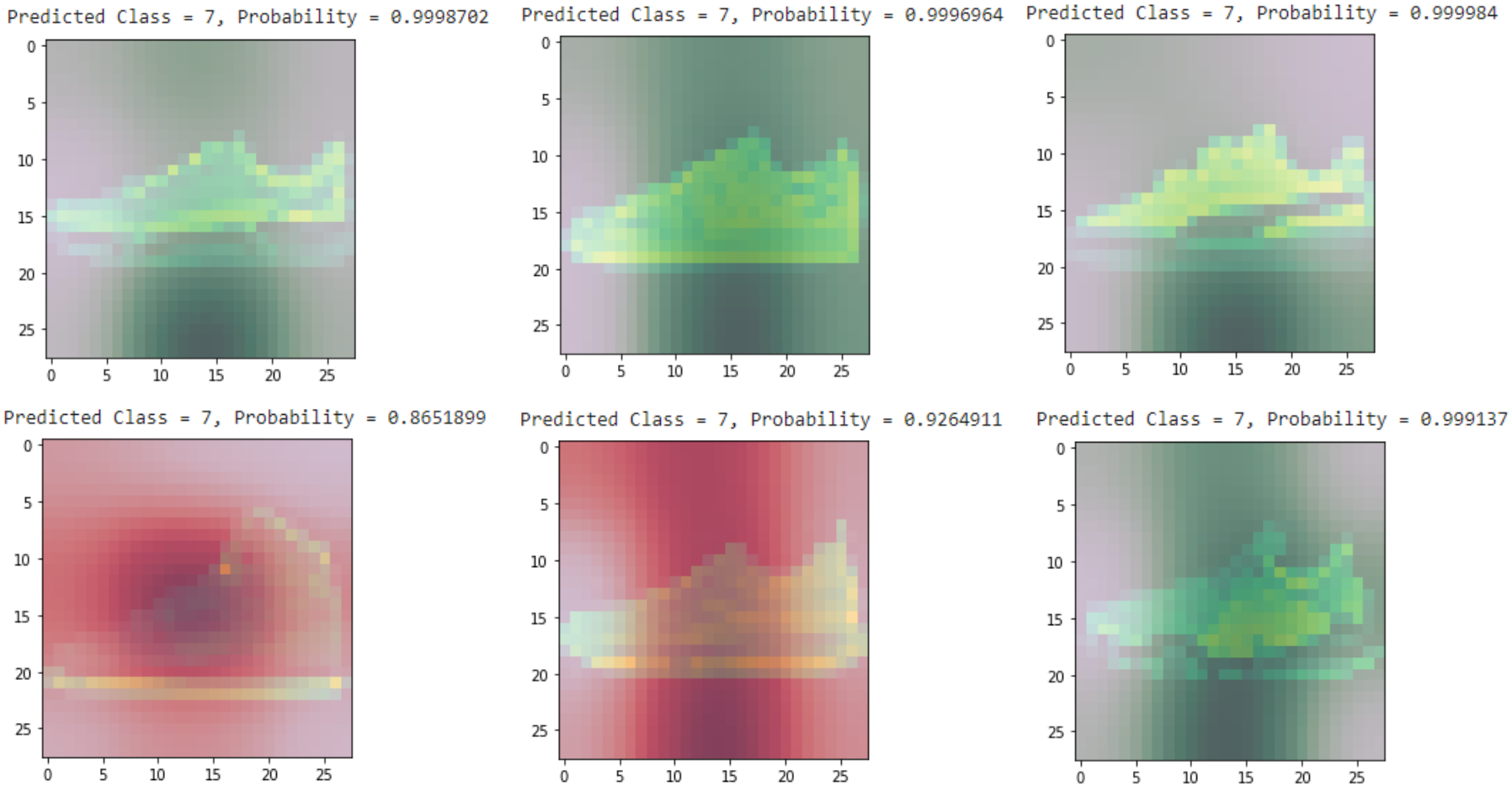




- Validation data shows the model overfit to the training data.

Classification and class activation map

Class activation map



- Dart spots were given less importance when categorizing the image