Image Basics with CNN

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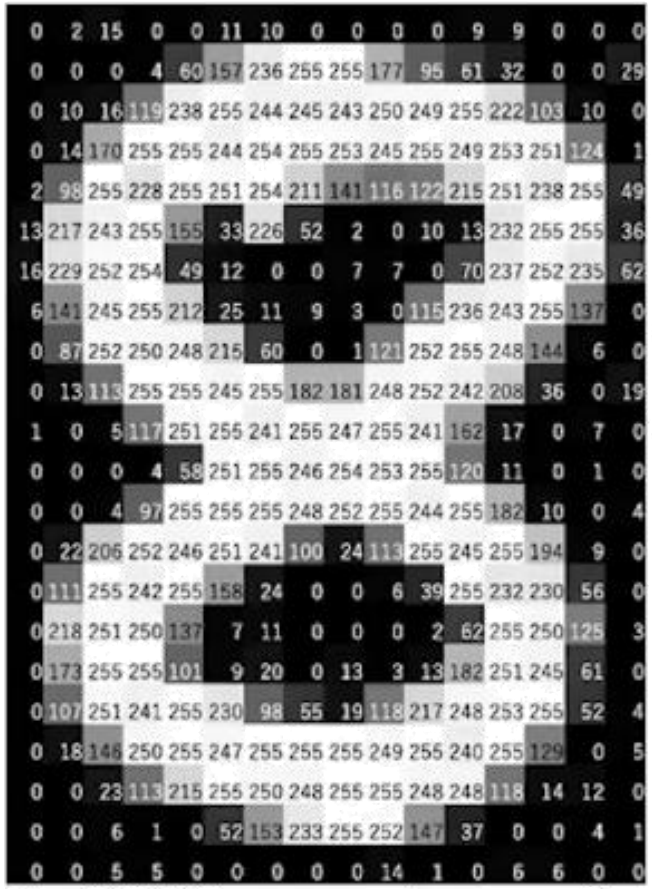
Topics to be covered today

- How is image stored inside a computer?
- Image Processing and reading with OpenCV Library
- Need For image classification
- Convolution Layer
- Max Pooling Layer
- Average Pooling Layer
- Flatten Layer
- Architecture of CNN (Convolutional Neural Network)

How is image stored inside a computer

Coloured Image

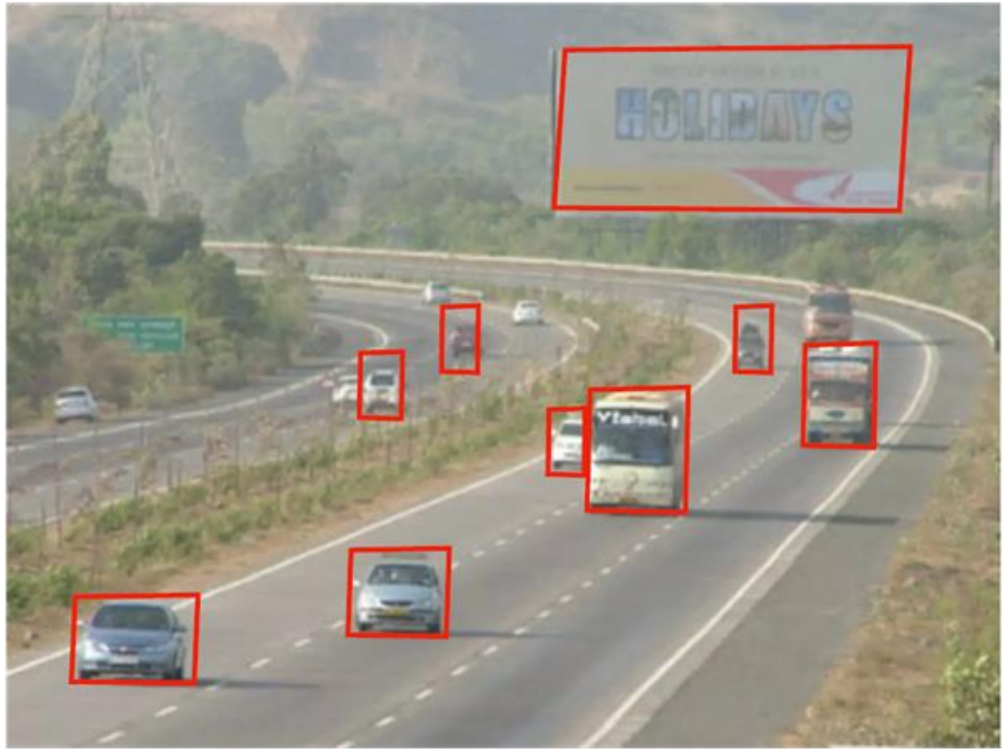
Grayscale Image

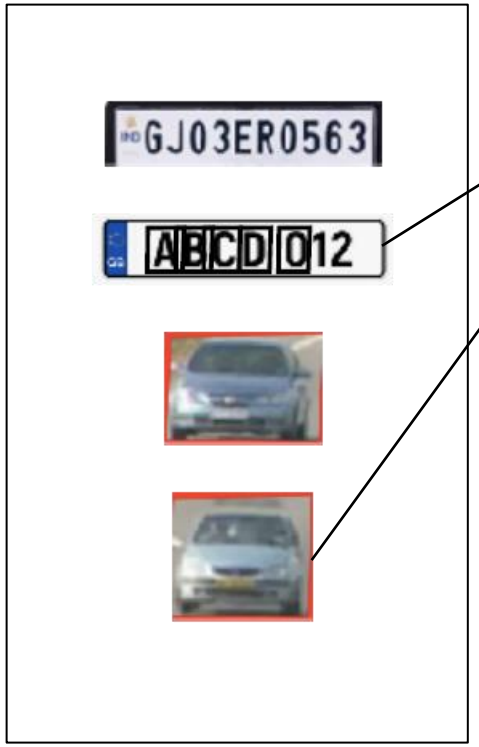


CV2 Library to read images as array

```
import cv2
cv2.imread(image_path)

# Convert BGR to RGB
cv2.cvtColor(arr, cv2.BGR2RGB)

# Showing image inside python
plt.imshow(img_arr)

# Read image as grayscale
plt.imshow(img_arr,cmap='gray')
```

Need of Image Classification





Vehicle Crossed Speed Limit

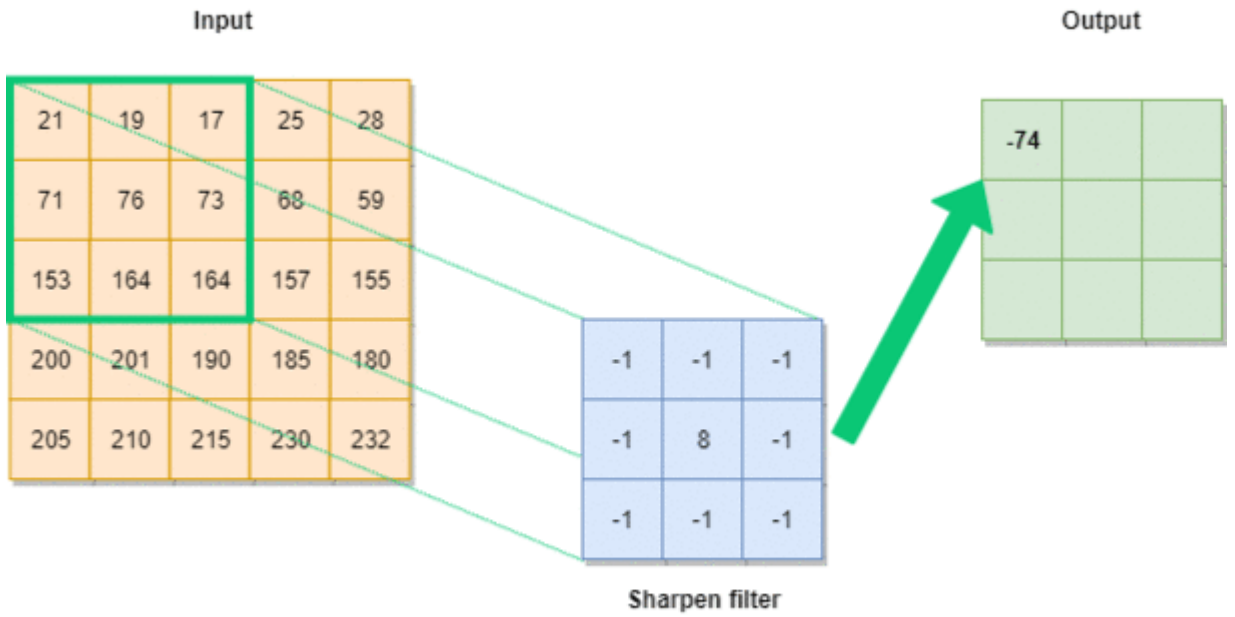
Check Vehicle Number MH 14 AB 1234

Search in RTO Database

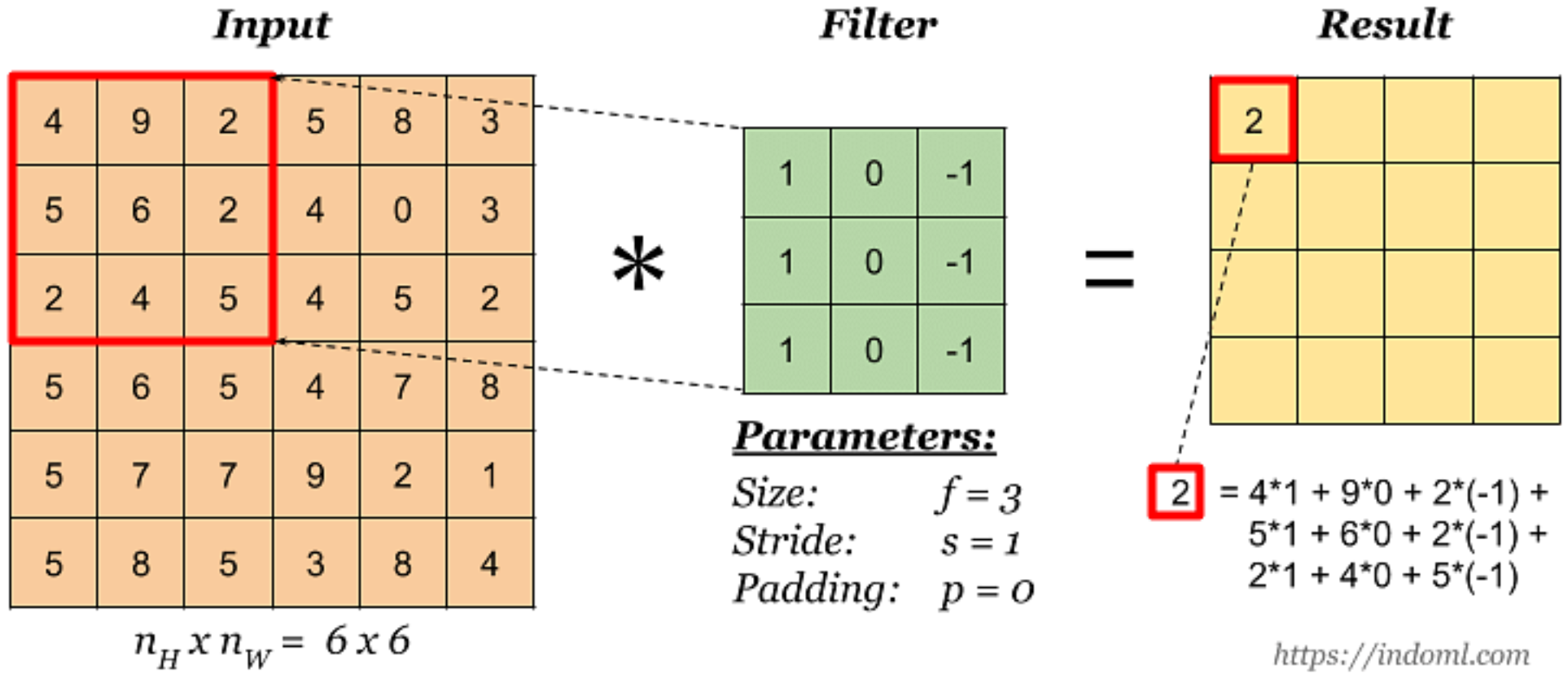
Add Speed Limit Violation And Generate Ticket

Send Message of Fine to Registered User on phone

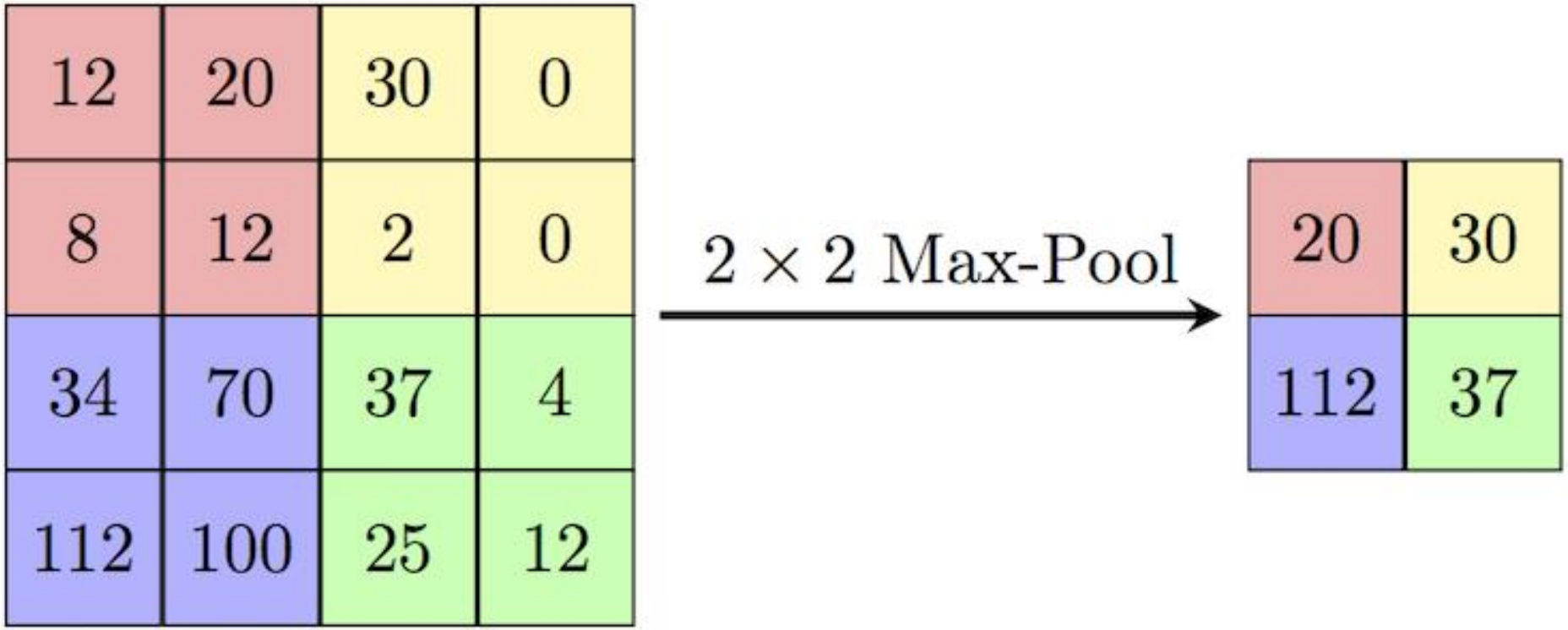
Convolution Layer



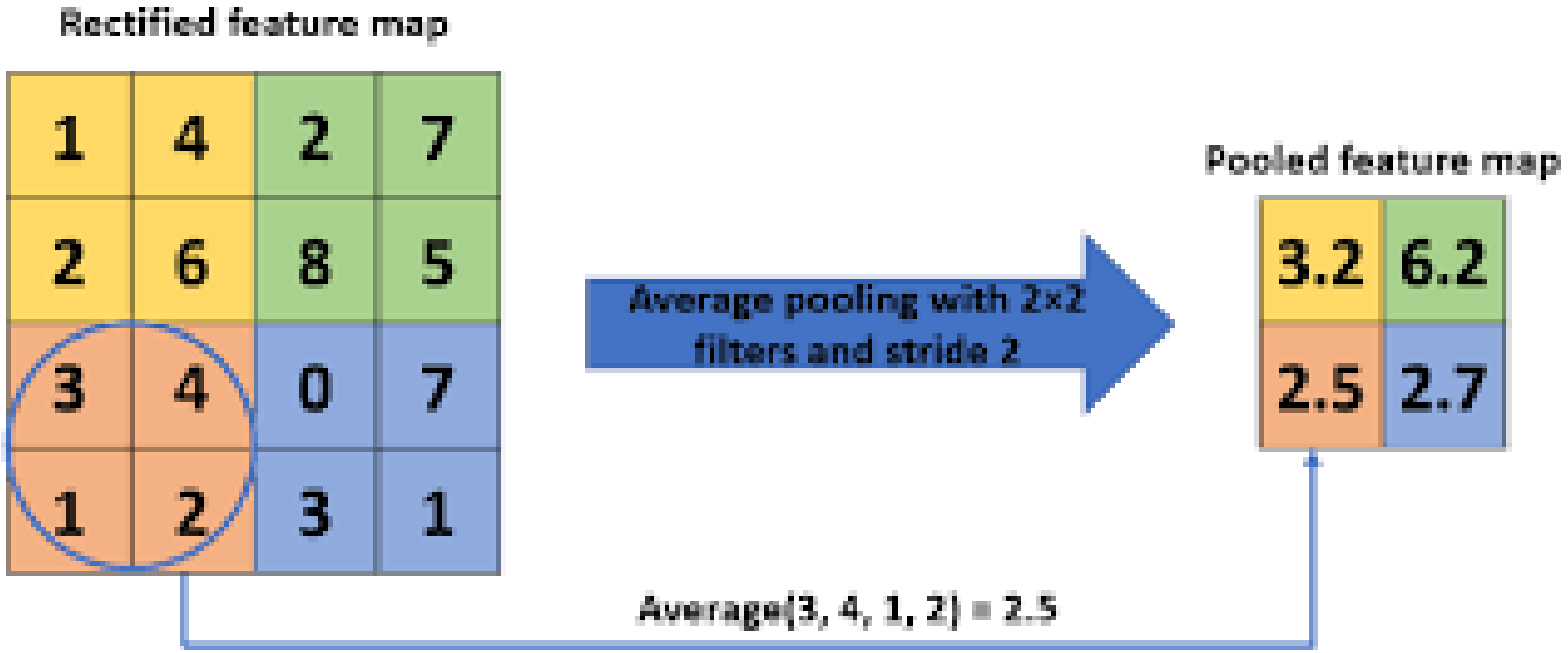
Convolution Layer continued



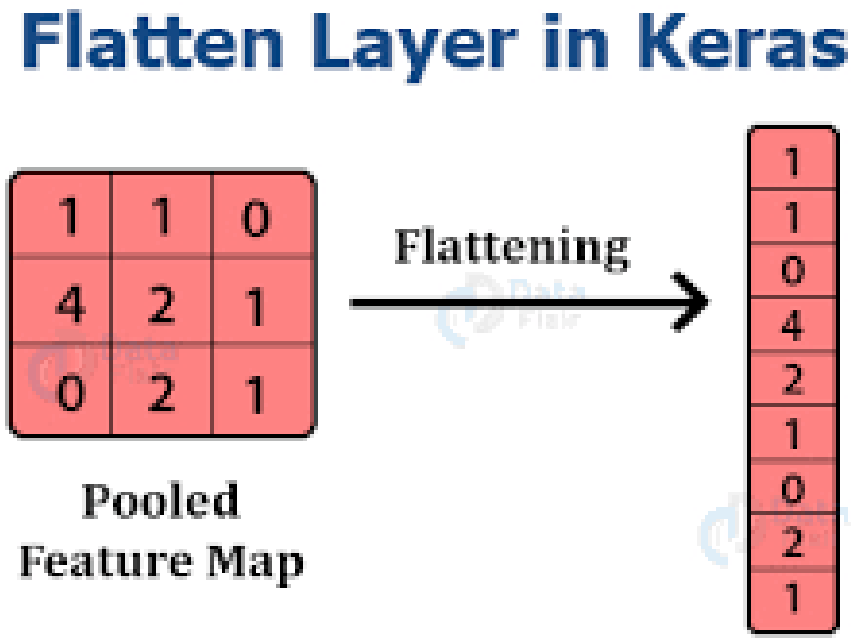
MaxPooling Layer



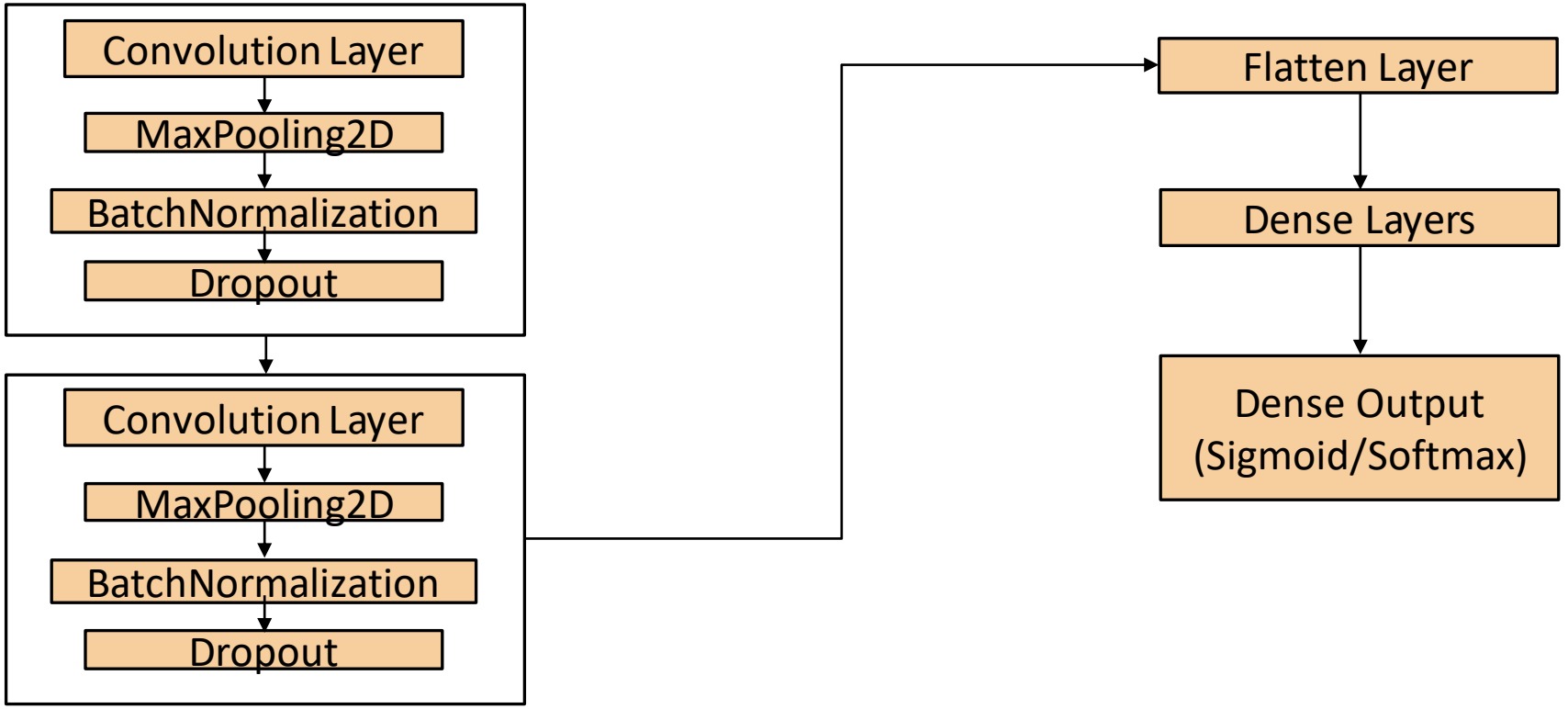
AveragePooling Layer



Flatten Layer in Keras



Architecture of CNN



Thank You

PING ME ON SKYPE GROUP IF YOU HAVE ANY FURTHER QUERIES