Note about Layers

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1 Sequential

- allows for creating layers in the order they are added
- a simple way to build models in *tf.keras*
- for building models where layers are applied one after the other in a linear manner

2 Concatenate

- concatenates a list of tensors along a specified axis
- for combining outputs from different layers, features from earlier layers are combined with features from later layers

3 Conv2D

- 2D convolutional layer, used for processing image data
- applies convolutional filters that move across input data to extract features
- for feature extraction from images, such as edges, textures, etc.

4 Conv2DTranspose

- inverse 2D convolutional layer, used for generating higher resolution images from lower resolution ones
- for increasing the resolution of images
- for reversing convolution operations

5 ZeroPadding2D

- adds zero padding around the edges of input data
- allows for controlling the size of the output image after applying a convolutional layer
- for maintaining spatial size of input data after convolution

6 LeakyReLU

- a variant of the ReLU activation function that allows for a small gradient when the unit is not activated (negative value)
- for preventing the "vanishing gradients" problem

7 InstanceNormalization / BatchNormalization

- normalizes input data for each sample independently
- allows for stabilizing the training process and rapid convergence
- for normalizing input features in neural networks, especially in generative models and image stylization

8 ResizeLayer

- resizes input data to a specified dimension
- for resizing images in neural networks (for standardizing input or output image sizes)