```
In [ ]: import tensorflow.keras as keras
        from tensorflow.keras import layers
        from tensorflow.keras import models
        from tensorflow.keras.datasets import mnist
        import tensorflow.keras.utils as np_utils
        from keras.optimizers import SGD
In [ ]: model = models.Sequential()
        model.add(layers.Conv2D(96, 11, strides=4, input_shape = (227, 227, 3)))
        model.add(layers.Activation("relu"))
        model.add(layers.MaxPool2D(pool size=(3, 3), strides=2))
        model.add(layers.Conv2D(256, 5, padding='same'))
        model.add(layers.Activation("relu"))
        model.add(layers.MaxPool2D(pool_size=(3, 3), strides=2))
        model.add(layers.Conv2D(384, 3, padding='same'))
        model.add(layers.Activation("relu"))
        model.add(layers.Conv2D(384, 3, padding='same'))
        model.add(layers.Activation("relu"))
        model.add(layers.Conv2D(256, 3, padding='same'))
        model.add(layers.Activation("relu"))
        model.add(layers.MaxPool2D(pool size=(3, 3), strides=2))
        model.add(layers.Flatten())
        model.add(layers.Dense(9216, activation='relu'))
        model.add(layers.Dense(4096, activation='relu'))
        model.add(layers.Dense(4096, activation='relu'))
        model.add(layers.Dense(1000, activation='softmax'))
In [ ]: model.summary()
        Model: "sequential"
        Layer (type)
                                     Output Shape
                                                                Param #
         _____
        conv2d (Conv2D)
                                      (None, 55, 55, 96)
                                                                34944
                                      (None, 55, 55, 96)
        activation (Activation)
        max pooling2d (MaxPooling2D) (None, 27, 27, 96)
        conv2d_1 (Conv2D)
                                      (None, 27, 27, 256)
                                                                614656
        activation_1 (Activation)
                                      (None, 27, 27, 256)
        max_pooling2d_1 (MaxPooling2 (None, 13, 13, 256)
                                                                0
        conv2d_2 (Conv2D)
                                      (None, 13, 13, 384)
                                                                885120
        activation_2 (Activation)
                                      (None, 13, 13, 384)
        conv2d_3 (Conv2D)
                                      (None, 13, 13, 384)
                                                               1327488
        activation_3 (Activation)
                                      (None, 13, 13, 384)
        conv2d_4 (Conv2D)
                                      (None, 13, 13, 256)
                                                                884992
        activation_4 (Activation)
                                      (None, 13, 13, 256)
                                                                0
        max_pooling2d_2 (MaxPooling2 (None, 6, 6, 256)
        flatten (Flatten)
                                      (None, 9216)
                                      (None, 9216)
        dense (Dense)
                                                                84943872
        dense_1 (Dense)
                                      (None, 4096)
                                                                37752832
        dense_2 (Dense)
                                                                16781312
                                      (None, 4096)
        dense_3 (Dense)
                                      (None, 1000)
                                                                4097000
        Total params: 147,322,216
        Trainable params: 147,322,216
        Non-trainable params: 0
In [ ]: keras.utils.plot_model(model, "AlexNet.png", rankdir="TB", show_shapes=True)
Out[ ]:
                                                  [(?, 227, 227, 3)]
                                         input:
              conv2d_input: InputLayer
                                                  [(?, 227, 227, 3)]
                                         output:
                                               (?, 227, 227, 3)
                                      input:
                  conv2d: Conv2D
                                               (?, 55, 55, 96)
                                     output:
                                                 (?, 55, 55, 96)
                                        input:
                 activation: Activation
                                                 (?, 55, 55, 96)
                                        output:
                                                      (?, 55, 55, 96)
                                              input:
            max_pooling2d: MaxPooling2D
                                                      (?, 27, 27, 96)
                                             output:
                                                (?, 27, 27, 96)
                                       input:
                 conv2d_1: Conv2D
                                                (?, 27, 27, 256)
                                       output:
                                                  (?, 27, 27, 256)
                                         input:
                activation_1: Activation
                                                  (?, 27, 27, 256)
                                        output:
                                                       (?, 27, 27, 256)
                                              input:
          max_pooling2d_1: MaxPooling2D
                                                       (?, 13, 13, 256)
                                              output:
                                                (?, 13, 13, 256)
                                       input:
                 conv2d_2: Conv2D
                                                (?, 13, 13, 384)
                                       output:
                                                 (?, 13, 13, 384)
                                         input:
                activation_2: Activation
                                                  (?, 13, 13, 384)
                                        output:
                                                (?, 13, 13, 384)
                                       input:
                 conv2d_3: Conv2D
                                                (?, 13, 13, 384)
                                       output:
                                                  (?, 13, 13, 384)
                                         input:
                activation_3: Activation
                                                  (?, 13, 13, 384)
                                        output:
                                                (?, 13, 13, 384)
                                       input:
                 conv2d_4: Conv2D
                                                (?, 13, 13, 256)
                                       output:
                                                  (?, 13, 13, 256)
                                         input:
                activation_4: Activation
                                                  (?, 13, 13, 256)
                                        output:
                                                       (?, 13, 13, 256)
                                              input:
          max_pooling2d_2: MaxPooling2D
                                                        (?, 6, 6, 256)
                                              output:
                                              (?, 6, 6, 256)
                                     input:
                     flatten: Flatten
                                                (?, 9216)
                                     output:
                                               (?, 9216)
                                       input:
                        dense: Dense
                                                (?, 9216)
                                      output:
                                                 (?, 9216)
                                        input:
                      dense_1: Dense
                                                 (?, 4096)
                                        output:
                                                 (?, 4096)
                                        input:
                      dense_2: Dense
                                                 (?, 4096)
                                        output:
                                                 (?, 4096)
                                        input:
                      dense_3: Dense
                                                 (?, 1000)
                                        output:
```

In []: