```
import tensorflow as tf
print("TensorFlow version:", tf.__version__)

mnist = tf.keras.datasets.mnist

(x_train, y_train), (x_test, y_test) = mnist.load_data()
x_train, x_test = x_train / 255.0, x_test / 255.0

model = tf.keras.models.Sequential([
    tf.keras.layers.Flatten(input_shape=(28, 28)),
    tf.keras.layers.Dense(128, activation='relu'),
    tf.keras.layers.Dropout(0,2),
    tf.keras.layers.Dense(10)
])

predictions = model(x_train[:1]).numpy()
predictions

tf.nn.softmax(predictions).numpy()

loss_fn = tf.keras.losses.SparseCategoricalCrossentropy(from_logits=True)

loss_fn(y_train[:1], predictions).numpy()

model.compile(optimizer='adam',
              loss=loss_fn,
              metrics=['accuracy'])

model.fit(x_train, y_train, epochs=5)

model.evaluate(x_test,  y_test, verbose=2)

probability_model = tf.keras.Sequential([
  model,
  tf.keras.layers.Softmax()
])

probability_model(x_test[:5])
```

```
TensorFlow version: 2.17.1
Downloading data from https://storage.googleapis.com/tensorflow/tf-keras-datasets/mnist.npz
11490434/11490434 ━━━━━━━━━━━━━━━━━━━━ 0s 0us/step
/usr/local/lib/python3.11/dist-packages/keras/src/layers/reshaping/flatten.py:37: UserWarning: Do not pass an `input_shape`/`input_dim`
  super().__init__(**kwargs)
Epoch 1/5
1875/1875 ━━━━━━━━━━━━━━━━━━━━ 11s 5ms/step - accuracy: 0.8810 - loss: 0.4240
Epoch 2/5
1875/1875 ━━━━━━━━━━━━━━━━━━━━ 11s 6ms/step - accuracy: 0.9622 - loss: 0.1263
Epoch 3/5
1875/1875 ━━━━━━━━━━━━━━━━━━━━ 18s 5ms/step - accuracy: 0.9757 - loss: 0.0800
Epoch 4/5
1875/1875 ━━━━━━━━━━━━━━━━━━━━ 11s 5ms/step - accuracy: 0.9833 - loss: 0.0556
Epoch 5/5
1875/1875 ━━━━━━━━━━━━━━━━━━━━ 8s 4ms/step - accuracy: 0.9862 - loss: 0.0455
313/313 - 1s - 3ms/step - accuracy: 0.9755 - loss: 0.0801
<tf.Tensor: shape=(5, 10), dtype=float32, numpy=
array([[3.7639873e-07, 4.8015352e-09, 4.0532435e-05, 1.4139226e-03,
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        3.2869166e-06, 1.9203195e-04],
       [2.7449252e-07, 3.7384371e-04, 9.9937493e-01, 1.4042007e-04,
        1.9511907e-12, 4.0860863e-07, 5.6854208e-07, 2.3567736e-13,
        1.0964979e-04, 1.1325856e-10],
       [1.1664201e-06, 9.9958736e-01, 1.0797319e-04, 1.3949667e-06,
        6.5989218e-05, 1.5361106e-06, 5.7207048e-06, 8.1029990e-05,
        1.3912255e-04, 8.5896054e-06],
       [9.9973708e-01, 2.7096565e-09, 2.0889000e-07, 1.2047426e-08,
        9.7494395e-09, 1.5956481e-07, 8.4348343e-08, 3.6682255e-07,
        1.0084689e-10, 2.6207414e-04],
       [1.5675956e-05, 1.0527260e-07, 1.4067250e-06, 1.3638689e-09,
        9.6637082e-01, 3.5281211e-08, 1.5384600e-06, 1.0707195e-05,
        2.4484025e-06, 3.3597291e-02]], dtype=float32)>
```