```
from numpy import unique, argmax
from tensorflow.keras.datasets.mnist import load_data
from tensorflow.keras import Sequential
from tensorflow.keras.layers import Conv2D, MaxPool2D, Dense, Flatten, Dropout
from tensorflow.keras.utils import plot_model
from matplotlib import pyplot
import matplotlib.pyplot as plt
import numpy as np
```

✓ 13.1s

```
(x_train, y_train), (x_test, y_test) = load_data()
x_train = x_train.reshape((x_train.shape[0], x_train.shape[1], x_train.shape[2], 1))
X_test = x_test.reshape((x_test.shape[0], x_test.shape[1], x_test.shape[2], 1))
```

✓ 0.3s

```
x_train = x_train.astype('float32') / 255.0
X_test = x_test.astype('float32') / 255.0
```

✓ 0.2s

```
img_shape = x_train.shape[1:]
print(img_shape)
```

✓ 0.3s

```
(28, 28, 1)
```

```
model = Sequential()
model.add(Conv2D(32, (3,3), activation='relu', input_shape=img_shape))
model.add(Conv2D(64, (3,3), activation='relu'))
model.add(MaxPool2D((2, 2)))
model.add(Flatten())
model.add(Dense(128, activation='relu'))
model.add(Dense(10, activation='softmax'))
```

✓ 0.1s

```
model.summary()
```

✓ 0.7s

```
Model: "sequential_1"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 26, 26, 32)        320

 conv2d_1 (Conv2D)           (None, 24, 24, 64)        18496

 max_pooling2d (MaxPooling2D  (None, 12, 12, 64)       0
 )

 flatten (Flatten)           (None, 9216)              0

 dense (Dense)               (None, 128)               1179776

 dense_1 (Dense)             (None, 10)                1290

=================================================================
Total params: 1,199,882
Trainable params: 1,199,882
Non-trainable params: 0
_________________________________________________________________
```