```
In [5]: runfile('C:/Users/adity/Downloads/cnn_training.py', wdir='C:/Users/adity/
Downloads')
Found 600 images belonging to 10 classes.
Found 100 images belonging to 10 classes.
Model: "sequential_1"
```

Layer (type)	Output Shape	Param #
conv2d_5 (Conv2D)	(None, 224, 224, 16)	448
max_pooling2d_5 (MaxPooling2D)	(None, 112, 112, 16)	0
conv2d_6 (Conv2D)	(None, 112, 112, 16)	2,320
max_pooling2d_6 (MaxPooling2D)	(None, 56, 56, 16)	0
conv2d_7 (Conv2D)	(None, 56, 56, 32)	4,640
max_pooling2d_7 (MaxPooling2D)	(None, 28, 28, 32)	0
conv2d_8 (Conv2D)	(None, 28, 28, 32)	9,248
max_pooling2d_8 (MaxPooling2D)	(None, 14, 14, 32)	0
conv2d_9 (Conv2D)	(None, 14, 14, 32)	9,248
max_pooling2d_9 (MaxPooling2D)	(None, 7, 7, 32)	0
flatten_1 (Flatten)	(None, 1568)	0
dense_3 (Dense)	(None, 512)	803,328
dropout_1 (Dropout)	(None, 512)	0

IPython Console   History

dropout_1 (Dropout)	(None, 512)	0
dense_4 (Dense)	(None, 256)	131,328
dense_5 (Dense)	(None, 10)	2,570

Total params: 963,130 (3.67 MB)
Trainable params: 963,130 (3.67 MB)
Non-trainable params: 0 (0.00 B)
Epoch 1/30
19/19 ──────────────── 20s 722ms/step - acc: 0.0996 - loss: 2.3358 - val_acc: 0.0900 - val_loss: 2.3015
Epoch 2/30
19/19 ──────────────── 13s 486ms/step - acc: 0.1006 - loss: 2.3038 - val_acc: 0.2500 - val_loss: 2.2895
Epoch 3/30
19/19 ──────────────── 19s 804ms/step - acc: 0.1490 - loss: 2.3202 - val_acc: 0.1600 - val_loss: 2.2285
Epoch 4/30
19/19 ──────────────── 27s 1s/step - acc: 0.1562 - loss: 2.2537 - val_acc: 0.2300 - val_loss: 2.1175
Epoch 5/30
19/19 ──────────────── 12s 458ms/step - acc: 0.2051 - loss: 2.2161 - val_acc: 0.1100 - val_loss: 2.4364
Epoch 6/30
19/19 ──────────────── 12s 467ms/step - acc: 0.1711 - loss: 2.2809 - val_acc: 0.1300 - val_loss: 2.4553
Epoch 7/30
19/19 ──────────────── 12s 470ms/step - acc: 0.2153 - loss: 2.1699 - val_acc: 0.2800 - val_loss: 2.0495
Epoch 8/30
19/19 ──────────────── 12s 467ms/step - acc: 0.2881 - loss: 1.9918 - val_acc:

IPython Console   History

```
Epoch 12/30
19/19 ──────────────── 12s 458ms/step - acc: 0.3135 - loss: 1.8994 - val_acc:
0.3000 - val_loss: 2.6869
Epoch 13/30
19/19 ──────────────── 12s 462ms/step - acc: 0.3249 - loss: 1.9939 - val_acc:
0.4200 - val_loss: 1.7314
Epoch 14/30
19/19 ──────────────── 12s 456ms/step - acc: 0.3627 - loss: 1.8141 - val_acc:
0.3500 - val_loss: 1.6928
Epoch 15/30
19/19 ──────────────── 12s 451ms/step - acc: 0.3608 - loss: 1.7525 - val_acc:
0.4000 - val_loss: 1.6547
Epoch 16/30
19/19 ──────────────── 12s 487ms/step - acc: 0.3840 - loss: 1.6855 - val_acc:
0.4500 - val_loss: 1.5047
Epoch 17/30
19/19 ──────────────── 12s 462ms/step - acc: 0.3930 - loss: 1.7976 - val_acc:
0.3600 - val_loss: 1.6649
Epoch 18/30
19/19 ──────────────── 12s 483ms/step - acc: 0.4265 - loss: 1.6137 - val_acc:
0.5200 - val_loss: 1.3832
Epoch 19/30
19/19 ──────────────── 24s 1s/step - acc: 0.3569 - loss: 1.7428 - val_acc:
0.3800 - val_loss: 1.7096
Epoch 20/30
19/19 ──────────────── 31s 1s/step - acc: 0.4142 - loss: 1.6370 - val_acc:
0.3600 - val_loss: 1.9468
Epoch 21/30
19/19 ──────────────── 12s 453ms/step - acc: 0.4563 - loss: 1.6194 - val_acc:
0.5300 - val_loss: 1.3298
Epoch 22/30
19/19 ──────────────── 12s 486ms/step - acc: 0.5066 - loss: 1.4280 - val_acc:
0.5500 - val_loss: 1.2920
```

Console 1/A ✕

IPython Console | History

0.5300 - val_loss: 1.3298
Epoch 22/30
19/19 ──────────────── 12s 486ms/step - acc: 0.5066 - loss: 1.4280 - val_acc:
0.5500 - val_loss: 1.2920
Epoch 23/30
19/19 ──────────────── 26s 1s/step - acc: 0.5088 - loss: 1.4189 - val_acc:
0.5500 - val_loss: 1.2931
Epoch 24/30
19/19 ──────────────── 33s 1s/step - acc: 0.5113 - loss: 1.4269 - val_acc:
0.4800 - val_loss: 1.4277
Epoch 25/30
19/19 ──────────────── 34s 1s/step - acc: 0.4937 - loss: 1.4361 - val_acc:
0.6300 - val_loss: 1.1593
Epoch 26/30
19/19 ──────────────── 34s 1s/step - acc: 0.4795 - loss: 1.4612 - val_acc:
0.5400 - val_loss: 1.2123
Epoch 27/30
19/19 ──────────────── 25s 729ms/step - acc: 0.5021 - loss: 1.3608 - val_acc:
0.5700 - val_loss: 1.1641
Epoch 28/30
19/19 ──────────────── 19s 825ms/step - acc: 0.5145 - loss: 1.4141 - val_acc:
0.5300 - val_loss: 1.2988
Epoch 29/30
19/19 ──────────────── 15s 497ms/step - acc: 0.5191 - loss: 1.2380 - val_acc:
0.5800 - val_loss: 1.2148
Epoch 30/30
19/19 ──────────────── 13s 492ms/step - acc: 0.5975 - loss: 1.1901 - val_acc:
0.6100 - val_loss: 1.1254
WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or
`keras.saving.save_model(model)`. This file format is considered legacy. We
recommend using instead the native Keras format, e.g.
`model.save('my_model.keras')` or `keras.saving.save_model(model,
'my_model.keras')`.

IPython Console | History

```
Epoch 1/30
19/19 ————————————— 10s 344ms/step - acc: 0.0926 - loss: 2.3190 - val_acc: 0.1100 - val_loss: 2.3018
Epoch 2/30
19/19 ————————————— 9s 339ms/step - acc: 0.1176 - loss: 2.2990 - val_acc: 0.1300 - val_loss: 2.3013
Epoch 3/30
19/19 ————————————— 9s 334ms/step - acc: 0.1520 - loss: 2.2860 - val_acc: 0.1700 - val_loss: 2.3071
Epoch 4/30
19/19 ————————————— 9s 335ms/step - acc: 0.1611 - loss: 2.2495 - val_acc: 0.2600 - val_loss: 2.0632
Epoch 5/30
19/19 ————————————— 9s 335ms/step - acc: 0.1832 - loss: 2.1621 - val_acc: 0.2400 - val_loss: 2.0201
Epoch 6/30
19/19 ————————————— 9s 336ms/step - acc: 0.2214 - loss: 2.1309 - val_acc: 0.2300 - val_loss: 2.2057
Epoch 7/30
19/19 ————————————— 9s 337ms/step - acc: 0.2487 - loss: 2.0621 - val_acc: 0.3400 - val_loss: 1.8354
Epoch 8/30
19/19 ————————————— 9s 344ms/step - acc: 0.2596 - loss: 2.0221 - val_acc: 0.3800 - val_loss: 1.7625
Epoch 9/30
19/19 ————————————— 9s 337ms/step - acc: 0.3042 - loss: 1.8683 - val_acc: 0.3600 - val_loss: 1.7706
Epoch 10/30
19/19 ————————————— 9s 337ms/step - acc: 0.3276 - loss: 1.8897 - val_acc: 0.3500 - val_loss: 1.7787
Epoch 11/30
19/19 ————————————— 9s 342ms/step - acc: 0.3684 - loss: 1.8364 - val_acc: 0.4300 - val_loss: 1.5656
Epoch 12/30
19/19 ————————————— 8s 337ms/step - acc: 0.3451 - loss: 1.8025 - val_acc: 0.3500 - val_loss: 1.7256
Epoch 13/30
19/19 ————————————— 9s 333ms/step - acc: 0.3545 - loss: 1.8391 - val_acc: 0.4200 - val_loss: 1.6319
Epoch 14/30
19/19 ————————————— 9s 335ms/step - acc: 0.3897 - loss: 1.6878 - val_acc: 0.4700 - val_loss: 1.4786
Epoch 15/30
19/19 ————————————— 9s 333ms/step - acc: 0.4069 - loss: 1.6732 - val_acc: 0.4500 - val_loss: 1.4620
Epoch 16/30
19/19 ————————————— 9s 340ms/step - acc: 0.3992 - loss: 1.6010 - val_acc: 0.5000 - val_loss: 1.3603
Epoch 17/30
19/19 ————————————— 9s 334ms/step - acc: 0.4197 - loss: 1.6645 - val_acc: 0.4300 - val_loss: 1.6529
Epoch 18/30
19/19 ————————————— 9s 337ms/step - acc: 0.3872 - loss: 1.6103 - val_acc: 0.4900 - val_loss: 1.4498
Epoch 19/30
```

IPython Console   History