```
Epoch 1/200
35/35 [==============================] - 11s 237ms/step - loss: 0.7004 - acc
uracy: 0.5064 - val_loss: 0.6912 - val_accuracy: 0.5000
Epoch 2/200
35/35 [==============================] - 8s 233ms/step - loss: 0.6863 - accu
racy: 0.5468 - val_loss: 0.6765 - val_accuracy: 0.5127
Epoch 3/200
35/35 [==============================] - 9s 245ms/step - loss: 0.6614 - accu
racy: 0.6303 - val_loss: 0.6341 - val_accuracy: 0.7455
Epoch 4/200
35/35 [==============================] - 8s 228ms/step - loss: 0.6152 - accu
racy: 0.6807 - val_loss: 0.5658 - val_accuracy: 0.7927
Epoch 5/200
35/35 [==============================] - 9s 248ms/step - loss: 0.5881 - accu
racy: 0.6921 - val_loss: 0.5578 - val_accuracy: 0.7491
Epoch 6/200
35/35 [==============================] - 8s 225ms/step - loss: 0.5737 - accu
racy: 0.7148 - val_loss: 0.5682 - val_accuracy: 0.7018
Epoch 7/200
35/35 [==============================] - 9s 248ms/step - loss: 0.5556 - accu
racy: 0.7284 - val_loss: 0.5129 - val_accuracy: 0.7891
Epoch 8/200
35/35 [==============================] - 8s 240ms/step - loss: 0.5288 - accu
racy: 0.7530 - val_loss: 0.4968 - val_accuracy: 0.8018
Epoch 9/200
35/35 [==============================] - 8s 226ms/step - loss: 0.5245 - accu
racy: 0.7579 - val_loss: 0.4721 - val_accuracy: 0.7982
Epoch 10/200
35/35 [==============================] - 8s 223ms/step - loss: 0.5046 - accu
racy: 0.7707 - val_loss: 0.4590 - val_accuracy: 0.8127
Epoch 11/200
35/35 [==============================] - 8s 220ms/step - loss: 0.4796 - accu
racy: 0.7729 - val_loss: 0.4279 - val_accuracy: 0.8255
Epoch 12/200
35/35 [==============================] - 8s 223ms/step - loss: 0.4634 - accu
racy: 0.8011 - val_loss: 0.4077 - val_accuracy: 0.8455
Epoch 13/200
35/35 [==============================] - 8s 231ms/step - loss: 0.4569 - accu
racy: 0.8025 - val_loss: 0.4079 - val_accuracy: 0.8491
Epoch 14/200
35/35 [==============================] - 9s 254ms/step - loss: 0.4354 - accu
racy: 0.8134 - val_loss: 0.3740 - val_accuracy: 0.8545
Epoch 15/200
35/35 [==============================] - 9s 264ms/step - loss: 0.4319 - accu
racy: 0.8143 - val_loss: 0.3741 - val_accuracy: 0.8691
Epoch 16/200
35/35 [==============================] - 8s 227ms/step - loss: 0.4357 - accu
racy: 0.8211 - val_loss: 0.3484 - val_accuracy: 0.8655
Epoch 17/200
35/35 [==============================] - 8s 232ms/step - loss: 0.4070 - accu
racy: 0.8211 - val_loss: 0.3836 - val_accuracy: 0.8273
Epoch 18/200
35/35 [==============================] - 8s 222ms/step - loss: 0.4077 - accu
racy: 0.8315 - val_loss: 0.3515 - val_accuracy: 0.8818
Epoch 19/200
35/35 [==============================] - 8s 230ms/step - loss: 0.3972 - accu
racy: 0.8302 - val_loss: 0.3426 - val_accuracy: 0.8873
Epoch 20/200
35/35 [==============================] - 8s 230ms/step - loss: 0.3983 - accu
racy: 0.8333 - val_loss: 0.3194 - val_accuracy: 0.8709
```

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Epoch 21/200
35/35 [==============================] - 8s 227ms/step - loss: 0.3932 - accu
racy: 0.8338 - val_loss: 0.3282 - val_accuracy: 0.8818
Epoch 22/200
35/35 [==============================] - 8s 237ms/step - loss: 0.3969 - accu
racy: 0.8356 - val_loss: 0.3337 - val_accuracy: 0.8891
Epoch 23/200
35/35 [==============================] - 8s 221ms/step - loss: 0.3812 - accu
racy: 0.8420 - val_loss: 0.3295 - val_accuracy: 0.8618
Epoch 24/200
35/35 [==============================] - 8s 224ms/step - loss: 0.3785 - accu
racy: 0.8474 - val_loss: 0.3145 - val_accuracy: 0.8927
Epoch 25/200
35/35 [==============================] - 8s 239ms/step - loss: 0.3716 - accu
racy: 0.8529 - val_loss: 0.3301 - val_accuracy: 0.8636
Epoch 26/200
35/35 [==============================] - 9s 261ms/step - loss: 0.3672 - accu
racy: 0.8415 - val_loss: 0.3211 - val_accuracy: 0.8891
Epoch 27/200
35/35 [==============================] - 8s 235ms/step - loss: 0.3626 - accu
racy: 0.8510 - val_loss: 0.3023 - val_accuracy: 0.8782
Epoch 28/200
35/35 [==============================] - 8s 240ms/step - loss: 0.3634 - accu
racy: 0.8560 - val_loss: 0.3124 - val_accuracy: 0.8618
Epoch 29/200
35/35 [==============================] - 8s 240ms/step - loss: 0.3580 - accu
racy: 0.8533 - val_loss: 0.3301 - val_accuracy: 0.8600
Epoch 30/200
35/35 [==============================] - 8s 232ms/step - loss: 0.3622 - accu
racy: 0.8610 - val_loss: 0.3010 - val_accuracy: 0.8745
Epoch 31/200
35/35 [==============================] - 8s 236ms/step - loss: 0.3459 - accu
racy: 0.8615 - val_loss: 0.3368 - val_accuracy: 0.8509
Epoch 32/200
35/35 [==============================] - 8s 233ms/step - loss: 0.3544 - accu
racy: 0.8592 - val_loss: 0.3099 - val_accuracy: 0.8727
Epoch 33/200
35/35 [==============================] - 9s 245ms/step - loss: 0.3385 - accu
racy: 0.8724 - val_loss: 0.3072 - val_accuracy: 0.8764
Epoch 34/200
35/35 [==============================] - 8s 239ms/step - loss: 0.3371 - accu
racy: 0.8665 - val_loss: 0.2860 - val_accuracy: 0.8891
Epoch 35/200
35/35 [==============================] - 9s 254ms/step - loss: 0.3348 - accu
racy: 0.8701 - val_loss: 0.3023 - val_accuracy: 0.8709
Epoch 36/200
35/35 [==============================] - 9s 244ms/step - loss: 0.3319 - accu
racy: 0.8747 - val_loss: 0.3058 - val_accuracy: 0.8673
Epoch 37/200
35/35 [==============================] - 8s 241ms/step - loss: 0.3365 - accu
racy: 0.8706 - val_loss: 0.2932 - val_accuracy: 0.8745
Epoch 38/200
35/35 [==============================] - 9s 246ms/step - loss: 0.3394 - accu
racy: 0.8633 - val_loss: 0.2981 - val_accuracy: 0.8727
Epoch 39/200
35/35 [==============================] - 8s 233ms/step - loss: 0.3343 - accu
racy: 0.8728 - val_loss: 0.2874 - val_accuracy: 0.8855
Epoch 40/200
35/35 [==============================] - 8s 227ms/step - loss: 0.3197 - accu
racy: 0.8751 - val_loss: 0.2992 - val_accuracy: 0.8727
Epoch 41/200
```

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35/35 [==============================] - 8s 217ms/step - loss: 0.3236 - accu
racy: 0.8778 - val_loss: 0.2978 - val_accuracy: 0.8691
Epoch 42/200
35/35 [==============================] - 8s 217ms/step - loss: 0.3236 - accu
racy: 0.8792 - val_loss: 0.3066 - val_accuracy: 0.8655
Epoch 43/200
35/35 [==============================] - 7s 217ms/step - loss: 0.3188 - accu
racy: 0.8769 - val_loss: 0.3069 - val_accuracy: 0.8655
Epoch 44/200
35/35 [==============================] - 8s 215ms/step - loss: 0.3229 - accu
racy: 0.8738 - val_loss: 0.2774 - val_accuracy: 0.8745
Epoch 45/200
35/35 [==============================] - 7s 214ms/step - loss: 0.3203 - accu
racy: 0.8747 - val_loss: 0.2920 - val_accuracy: 0.8655
Epoch 46/200
35/35 [==============================] - 8s 217ms/step - loss: 0.3056 - accu
racy: 0.8810 - val_loss: 0.2921 - val_accuracy: 0.8636
Epoch 47/200
35/35 [==============================] - 8s 225ms/step - loss: 0.3119 - accu
racy: 0.8792 - val_loss: 0.2794 - val_accuracy: 0.8964
Epoch 48/200
35/35 [==============================] - 8s 215ms/step - loss: 0.3094 - accu
racy: 0.8810 - val_loss: 0.2811 - val_accuracy: 0.8745
Epoch 49/200
35/35 [==============================] - 8s 231ms/step - loss: 0.3120 - accu
racy: 0.8787 - val_loss: 0.2665 - val_accuracy: 0.9036
Epoch 50/200
35/35 [==============================] - 8s 222ms/step - loss: 0.3060 - accu
racy: 0.8797 - val_loss: 0.3673 - val_accuracy: 0.8418
Epoch 51/200
35/35 [==============================] - 8s 228ms/step - loss: 0.3102 - accu
racy: 0.8837 - val_loss: 0.2745 - val_accuracy: 0.8655
Epoch 52/200
35/35 [==============================] - 8s 217ms/step - loss: 0.3036 - accu
racy: 0.8842 - val_loss: 0.2885 - val_accuracy: 0.8709
Epoch 53/200
35/35 [==============================] - 8s 217ms/step - loss: 0.2901 - accu
racy: 0.8892 - val_loss: 0.3183 - val_accuracy: 0.8509
Epoch 54/200
35/35 [==============================] - 9s 247ms/step - loss: 0.2937 - accu
racy: 0.8851 - val_loss: 0.2860 - val_accuracy: 0.8618
Epoch 55/200
35/35 [==============================] - 8s 242ms/step - loss: 0.2888 - accu
racy: 0.8887 - val_loss: 0.2802 - val_accuracy: 0.8727
Epoch 56/200
35/35 [==============================] - 8s 228ms/step - loss: 0.2889 - accu
racy: 0.8946 - val_loss: 0.2698 - val_accuracy: 0.8764
Epoch 57/200
35/35 [==============================] - 8s 232ms/step - loss: 0.2827 - accu
racy: 0.8928 - val_loss: 0.2579 - val_accuracy: 0.9000
```

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Epoch 58/200
35/35 [==============================] - 8s 228ms/step - loss: 0.2922 - accu
racy: 0.8833 - val_loss: 0.2787 - val_accuracy: 0.8818
Epoch 59/200
35/35 [==============================] - 8s 221ms/step - loss: 0.2817 - accu
racy: 0.8833 - val_loss: 0.2899 - val_accuracy: 0.8709
Epoch 60/200
35/35 [==============================] - 8s 221ms/step - loss: 0.2755 - accu
racy: 0.8901 - val_loss: 0.3193 - val_accuracy: 0.8545
Epoch 61/200
35/35 [==============================] - 8s 222ms/step - loss: 0.2871 - accu
racy: 0.8896 - val_loss: 0.2626 - val_accuracy: 0.8855
Epoch 62/200
35/35 [==============================] - 8s 219ms/step - loss: 0.2715 - accu
racy: 0.8996 - val_loss: 0.2660 - val_accuracy: 0.8909
Epoch 63/200
35/35 [==============================] - 8s 223ms/step - loss: 0.2687 - accu
racy: 0.8919 - val_loss: 0.3058 - val_accuracy: 0.8564
Epoch 64/200
35/35 [==============================] - 8s 217ms/step - loss: 0.2712 - accu
racy: 0.8978 - val_loss: 0.3198 - val_accuracy: 0.8491
Epoch 65/200
35/35 [==============================] - 8s 225ms/step - loss: 0.2673 - accu
racy: 0.8978 - val_loss: 0.2889 - val_accuracy: 0.8655
Epoch 66/200
35/35 [==============================] - 8s 223ms/step - loss: 0.2789 - accu
racy: 0.8901 - val_loss: 0.2687 - val_accuracy: 0.8800
Epoch 67/200
35/35 [==============================] - 9s 249ms/step - loss: 0.2733 - accu
racy: 0.8919 - val_loss: 0.2955 - val_accuracy: 0.8600
Epoch 68/200
35/35 [==============================] - 8s 220ms/step - loss: 0.2474 - accu
racy: 0.9110 - val_loss: 0.2832 - val_accuracy: 0.8655
Epoch 69/200
35/35 [==============================] - 8s 220ms/step - loss: 0.2469 - accu
racy: 0.9078 - val_loss: 0.2819 - val_accuracy: 0.8636
Epoch 70/200
35/35 [==============================] - 8s 235ms/step - loss: 0.2462 - accu
racy: 0.9005 - val_loss: 0.2831 - val_accuracy: 0.8636
Epoch 71/200
35/35 [==============================] - 8s 226ms/step - loss: 0.2465 - accu
racy: 0.9051 - val_loss: 0.2795 - val_accuracy: 0.8655
Epoch 72/200
35/35 [==============================] - 8s 241ms/step - loss: 0.2477 - accu
racy: 0.9001 - val_loss: 0.2928 - val_accuracy: 0.8673
Epoch 73/200
35/35 [==============================] - 9s 245ms/step - loss: 0.2530 - accu
racy: 0.9005 - val_loss: 0.2821 - val_accuracy: 0.8655
Epoch 74/200
35/35 [==============================] - 8s 240ms/step - loss: 0.2565 - accu
racy: 0.9028 - val_loss: 0.2846 - val_accuracy: 0.8655
Epoch 75/200
35/35 [==============================] - 8s 239ms/step - loss: 0.2439 - accu
racy: 0.9137 - val_loss: 0.2781 - val_accuracy: 0.8636
Epoch 76/200
35/35 [==============================] - 9s 250ms/step - loss: 0.2441 - accu
racy: 0.9064 - val_loss: 0.2862 - val_accuracy: 0.8655
Epoch 77/200
35/35 [==============================] - 9s 246ms/step - loss: 0.2559 - accu
racy: 0.8992 - val_loss: 0.2809 - val_accuracy: 0.8655
Epoch 78/200
```

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35/35 [==============================] - 8s 242ms/step - loss: 0.2558 - accu
racy: 0.9024 - val_loss: 0.2841 - val_accuracy: 0.8636
Epoch 79/200
35/35 [==============================] - 9s 261ms/step - loss: 0.2484 - accu
racy: 0.9055 - val_loss: 0.2850 - val_accuracy: 0.8636
Epoch 80/200
35/35 [==============================] - 8s 239ms/step - loss: 0.2560 - accu
racy: 0.9033 - val_loss: 0.2862 - val_accuracy: 0.8636
Epoch 81/200
35/35 [==============================] - 8s 229ms/step - loss: 0.2539 - accu
racy: 0.9046 - val_loss: 0.2864 - val_accuracy: 0.8655
Epoch 82/200
35/35 [==============================] - 8s 223ms/step - loss: 0.2440 - accu
racy: 0.9101 - val_loss: 0.2855 - val_accuracy: 0.8636
```