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1 /usr/local/bin/python3.8 "/Users/surajvaddi/Desktop/TarPrint Full Journey/Machine Learning Code/Neural-Network-NO-test.py"
2 2020-09-04 00:41:47.172289: I tensorflow/core/platform/cpu_feature_guard.cc:142] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX2 FMA
3 To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.
4 2020-09-04 00:41:47.181743: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x7f9d9f566c40 initialized for platform Host (this does not guarantee that XLA will be used). Devices:
5 2020-09-04 00:41:47.181778: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Host, Default Version
6 Epoch 1/500
7 136/136 [=====] - 0s 571us /step - loss: 1.4685 - accuracy: 0.4412
8 Epoch 2/500
9 136/136 [=====] - 0s 548us /step - loss: 1.0386 - accuracy: 0.6539
10 Epoch 3/500
11 136/136 [=====] - 0s 574us /step - loss: 0.7951 - accuracy: 0.7191
12 Epoch 4/500
13 136/136 [=====] - 0s 540us /step - loss: 0.6714 - accuracy: 0.7691
14 Epoch 5/500
15 136/136 [=====] - 0s 537us /step - loss: 0.6176 - accuracy: 0.7794
16 Epoch 6/500
17 136/136 [=====] - 0s 601us /step - loss: 0.5999 - accuracy: 0.7858
18 Epoch 7/500
19 136/136 [=====] - 0s 567us /step - loss: 0.5826 - accuracy: 0.7858
20 Epoch 8/500
21 136/136 [=====] - 0s 540us /step - loss: 0.5706 - accuracy: 0.7971
22 Epoch 9/500
23 136/136 [=====] - 0s 623us
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23 /step - loss: 0.5675 - accuracy: 0.7946
24 Epoch 10/500
25 136/136 [=====] - 0s 556us
    /step - loss: 0.5524 - accuracy: 0.7971
26 Epoch 11/500
27 136/136 [=====] - 0s 733us
    /step - loss: 0.5523 - accuracy: 0.8020
28 Epoch 12/500
29 136/136 [=====] - 0s 737us
    /step - loss: 0.5509 - accuracy: 0.8010
30 Epoch 13/500
31 136/136 [=====] - 0s 532us
    /step - loss: 0.5419 - accuracy: 0.8039
32 Epoch 14/500
33 136/136 [=====] - 0s 599us
    /step - loss: 0.5340 - accuracy: 0.8093
34 Epoch 15/500
35 136/136 [=====] - 0s 598us
    /step - loss: 0.5285 - accuracy: 0.8108
36 Epoch 16/500
37 136/136 [=====] - 0s 533us
    /step - loss: 0.5098 - accuracy: 0.8142
38 Epoch 17/500
39 136/136 [=====] - 0s 630us
    /step - loss: 0.5121 - accuracy: 0.8157
40 Epoch 18/500
41 136/136 [=====] - 0s 591us
    /step - loss: 0.5076 - accuracy: 0.8127
42 Epoch 19/500
43 136/136 [=====] - 0s 539us
    /step - loss: 0.5032 - accuracy: 0.8186
44 Epoch 20/500
45 136/136 [=====] - 0s 625us
    /step - loss: 0.4988 - accuracy: 0.8162
46 Epoch 21/500
47 136/136 [=====] - 0s 557us
    /step - loss: 0.4901 - accuracy: 0.8206
48 Epoch 22/500
49 136/136 [=====] - 0s 531us
    /step - loss: 0.4801 - accuracy: 0.8225
50 Epoch 23/500
51 136/136 [=====] - 0s 603us
    /step - loss: 0.4818 - accuracy: 0.8260
52 Epoch 24/500
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53 136/136 [=====] - 0s 596us
  /step - loss: 0.4655 - accuracy: 0.8270
54 Epoch 25/500
55 136/136 [=====] - 0s 532us
  /step - loss: 0.4702 - accuracy: 0.8343
56 Epoch 26/500
57 136/136 [=====] - 0s 616us
  /step - loss: 0.4683 - accuracy: 0.8314
58 Epoch 27/500
59 136/136 [=====] - 0s 555us
  /step - loss: 0.4623 - accuracy: 0.8338
60 Epoch 28/500
61 136/136 [=====] - 0s 544us
  /step - loss: 0.4634 - accuracy: 0.8333
62 Epoch 29/500
63 136/136 [=====] - 0s 621us
  /step - loss: 0.4424 - accuracy: 0.8382
64 Epoch 30/500
65 136/136 [=====] - 0s 603us
  /step - loss: 0.4436 - accuracy: 0.8412
66 Epoch 31/500
67 136/136 [=====] - 0s 535us
  /step - loss: 0.4372 - accuracy: 0.8475
68 Epoch 32/500
69 136/136 [=====] - 0s 633us
  /step - loss: 0.4514 - accuracy: 0.8373
70 Epoch 33/500
71 136/136 [=====] - 0s 568us
  /step - loss: 0.4473 - accuracy: 0.8436
72 Epoch 34/500
73 136/136 [=====] - 0s 534us
  /step - loss: 0.4432 - accuracy: 0.8392
74 Epoch 35/500
75 136/136 [=====] - 0s 657us
  /step - loss: 0.4272 - accuracy: 0.8422
76 Epoch 36/500
77 136/136 [=====] - 0s 563us
  /step - loss: 0.4390 - accuracy: 0.8348
78 Epoch 37/500
79 136/136 [=====] - 0s 558us
  /step - loss: 0.4321 - accuracy: 0.8446
80 Epoch 38/500
81 136/136 [=====] - 0s 643us
  /step - loss: 0.4317 - accuracy: 0.8426
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82 Epoch 39/500
83 136/136 [=====] - 0s
    561us/step - loss: 0.4236 - accuracy: 0.8495
84 Epoch 40/500
85 136/136 [=====] - 0s
    526us/step - loss: 0.4234 - accuracy: 0.8451
86 Epoch 41/500
87 136/136 [=====] - 0s
    607us/step - loss: 0.4198 - accuracy: 0.8456
88 Epoch 42/500
89 136/136 [=====] - 0s
    572us/step - loss: 0.4244 - accuracy: 0.8451
90 Epoch 43/500
91 136/136 [=====] - 0s
    564us/step - loss: 0.4158 - accuracy: 0.8431
92 Epoch 44/500
93 136/136 [=====] - 0s
    626us/step - loss: 0.4117 - accuracy: 0.8520
94 Epoch 45/500
95 136/136 [=====] - 0s
    565us/step - loss: 0.4058 - accuracy: 0.8490
96 Epoch 46/500
97 136/136 [=====] - 0s
    534us/step - loss: 0.4076 - accuracy: 0.8480
98 Epoch 47/500
99 136/136 [=====] - 0s
    618us/step - loss: 0.4148 - accuracy: 0.8505
100 Epoch 48/500
101 136/136 [=====] - 0s
    564us/step - loss: 0.4090 - accuracy: 0.8500
102 Epoch 49/500
103 136/136 [=====] - 0s
    561us/step - loss: 0.4016 - accuracy: 0.8471
104 Epoch 50/500
105 136/136 [=====] - 0s
    616us/step - loss: 0.3991 - accuracy: 0.8569
106 Epoch 51/500
107 136/136 [=====] - 0s
    565us/step - loss: 0.3995 - accuracy: 0.8510
108 Epoch 52/500
109 136/136 [=====] - 0s
    543us/step - loss: 0.4057 - accuracy: 0.8539
110 Epoch 53/500
111 136/136 [=====] - 0s
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111 650us/step - loss: 0.4084 - accuracy: 0.8510
112 Epoch 54/500
113 136/136 [=====] - 0s
    561us/step - loss: 0.3922 - accuracy: 0.8549
114 Epoch 55/500
115 136/136 [=====] - 0s
    551us/step - loss: 0.4068 - accuracy: 0.8525
116 Epoch 56/500
117 136/136 [=====] - 0s
    620us/step - loss: 0.3840 - accuracy: 0.8574
118 Epoch 57/500
119 136/136 [=====] - 0s
    559us/step - loss: 0.4047 - accuracy: 0.8534
120 Epoch 58/500
121 136/136 [=====] - 0s
    532us/step - loss: 0.3928 - accuracy: 0.8574
122 Epoch 59/500
123 136/136 [=====] - 0s
    614us/step - loss: 0.3928 - accuracy: 0.8593
124 Epoch 60/500
125 136/136 [=====] - 0s
    563us/step - loss: 0.4024 - accuracy: 0.8510
126 Epoch 61/500
127 136/136 [=====] - 0s
    533us/step - loss: 0.3855 - accuracy: 0.8534
128 Epoch 62/500
129 136/136 [=====] - 0s
    633us/step - loss: 0.4027 - accuracy: 0.8500
130 Epoch 63/500
131 136/136 [=====] - 0s
    572us/step - loss: 0.3869 - accuracy: 0.8588
132 Epoch 64/500
133 136/136 [=====] - 0s
    534us/step - loss: 0.3820 - accuracy: 0.8632
134 Epoch 65/500
135 136/136 [=====] - 0s
    612us/step - loss: 0.3815 - accuracy: 0.8623
136 Epoch 66/500
137 136/136 [=====] - 0s
    560us/step - loss: 0.3852 - accuracy: 0.8583
138 Epoch 67/500
139 136/136 [=====] - 0s
    534us/step - loss: 0.3761 - accuracy: 0.8632
140 Epoch 68/500
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141 136/136 [=====] - 0s
    661us/step - loss: 0.3773 - accuracy: 0.8686
142 Epoch 69/500
143 136/136 [=====] - 0s
    554us/step - loss: 0.3763 - accuracy: 0.8618
144 Epoch 70/500
145 136/136 [=====] - 0s
    556us/step - loss: 0.3687 - accuracy: 0.8642
146 Epoch 71/500
147 136/136 [=====] - 0s
    633us/step - loss: 0.3757 - accuracy: 0.8647
148 Epoch 72/500
149 136/136 [=====] - 0s
    556us/step - loss: 0.3839 - accuracy: 0.8627
150 Epoch 73/500
151 136/136 [=====] - 0s
    534us/step - loss: 0.3826 - accuracy: 0.8564
152 Epoch 74/500
153 136/136 [=====] - 0s
    642us/step - loss: 0.3778 - accuracy: 0.8613
154 Epoch 75/500
155 136/136 [=====] - 0s
    564us/step - loss: 0.3692 - accuracy: 0.8608
156 Epoch 76/500
157 136/136 [=====] - 0s
    524us/step - loss: 0.3699 - accuracy: 0.8681
158 Epoch 77/500
159 136/136 [=====] - 0s
    606us/step - loss: 0.3736 - accuracy: 0.8613
160 Epoch 78/500
161 136/136 [=====] - 0s
    578us/step - loss: 0.3629 - accuracy: 0.8627
162 Epoch 79/500
163 136/136 [=====] - 0s
    531us/step - loss: 0.3720 - accuracy: 0.8676
164 Epoch 80/500
165 136/136 [=====] - 0s
    583us/step - loss: 0.3709 - accuracy: 0.8667
166 Epoch 81/500
167 136/136 [=====] - 0s
    620us/step - loss: 0.3638 - accuracy: 0.8598
168 Epoch 82/500
169 136/136 [=====] - 0s
    548us/step - loss: 0.3630 - accuracy: 0.8706
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170 Epoch 83/500
171 136/136 [=====] - 0s
    615us/step - loss: 0.3729 - accuracy: 0.8578
172 Epoch 84/500
173 136/136 [=====] - 0s
    544us/step - loss: 0.3467 - accuracy: 0.8775
174 Epoch 85/500
175 136/136 [=====] - 0s
    533us/step - loss: 0.3580 - accuracy: 0.8711
176 Epoch 86/500
177 136/136 [=====] - 0s
    651us/step - loss: 0.3661 - accuracy: 0.8652
178 Epoch 87/500
179 136/136 [=====] - 0s
    598us/step - loss: 0.3585 - accuracy: 0.8716
180 Epoch 88/500
181 136/136 [=====] - 0s
    542us/step - loss: 0.3617 - accuracy: 0.8681
182 Epoch 89/500
183 136/136 [=====] - 0s
    619us/step - loss: 0.3681 - accuracy: 0.8583
184 Epoch 90/500
185 136/136 [=====] - 0s
    564us/step - loss: 0.3579 - accuracy: 0.8686
186 Epoch 91/500
187 136/136 [=====] - 0s
    535us/step - loss: 0.3670 - accuracy: 0.8642
188 Epoch 92/500
189 136/136 [=====] - 0s
    621us/step - loss: 0.3576 - accuracy: 0.8696
190 Epoch 93/500
191 136/136 [=====] - 0s
    583us/step - loss: 0.3563 - accuracy: 0.8686
192 Epoch 94/500
193 136/136 [=====] - 0s
    531us/step - loss: 0.3592 - accuracy: 0.8637
194 Epoch 95/500
195 136/136 [=====] - 0s
    618us/step - loss: 0.3549 - accuracy: 0.8662
196 Epoch 96/500
197 136/136 [=====] - 0s
    564us/step - loss: 0.3506 - accuracy: 0.8691
198 Epoch 97/500
199 136/136 [=====] - 0s
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199 536us/step - loss: 0.3462 - accuracy: 0.8691
200 Epoch 98/500
201 136/136 [=====] - 0s
    616us/step - loss: 0.3579 - accuracy: 0.8647
202 Epoch 99/500
203 136/136 [=====] - 0s
    583us/step - loss: 0.3452 - accuracy: 0.8725
204 Epoch 100/500
205 136/136 [=====] - 0s
    542us/step - loss: 0.3546 - accuracy: 0.8637
206 Epoch 101/500
207 136/136 [=====] - 0s
    605us/step - loss: 0.3631 - accuracy: 0.8681
208 Epoch 102/500
209 136/136 [=====] - 0s
    546us/step - loss: 0.3564 - accuracy: 0.8701
210 Epoch 103/500
211 136/136 [=====] - 0s
    550us/step - loss: 0.3471 - accuracy: 0.8711
212 Epoch 104/500
213 136/136 [=====] - 0s
    628us/step - loss: 0.3570 - accuracy: 0.8706
214 Epoch 105/500
215 136/136 [=====] - 0s
    562us/step - loss: 0.3413 - accuracy: 0.8760
216 Epoch 106/500
217 136/136 [=====] - 0s
    557us/step - loss: 0.3500 - accuracy: 0.8760
218 Epoch 107/500
219 136/136 [=====] - 0s
    654us/step - loss: 0.3500 - accuracy: 0.8750
220 Epoch 108/500
221 136/136 [=====] - 0s
    566us/step - loss: 0.3482 - accuracy: 0.8696
222 Epoch 109/500
223 136/136 [=====] - 0s
    534us/step - loss: 0.3485 - accuracy: 0.8735
224 Epoch 110/500
225 136/136 [=====] - 0s
    621us/step - loss: 0.3437 - accuracy: 0.8735
226 Epoch 111/500
227 136/136 [=====] - 0s
    557us/step - loss: 0.3453 - accuracy: 0.8721
228 Epoch 112/500
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229 136/136 [=====] - 0s
    556us/step - loss: 0.3440 - accuracy: 0.8721
230 Epoch 113/500
231 136/136 [=====] - 0s
    616us/step - loss: 0.3614 - accuracy: 0.8672
232 Epoch 114/500
233 136/136 [=====] - 0s
    566us/step - loss: 0.3502 - accuracy: 0.8740
234 Epoch 115/500
235 136/136 [=====] - 0s
    535us/step - loss: 0.3370 - accuracy: 0.8745
236 Epoch 116/500
237 136/136 [=====] - 0s
    627us/step - loss: 0.3424 - accuracy: 0.8735
238 Epoch 117/500
239 136/136 [=====] - 0s
    560us/step - loss: 0.3352 - accuracy: 0.8804
240 Epoch 118/500
241 136/136 [=====] - 0s
    559us/step - loss: 0.3530 - accuracy: 0.8676
242 Epoch 119/500
243 136/136 [=====] - 0s
    667us/step - loss: 0.3387 - accuracy: 0.8740
244 Epoch 120/500
245 136/136 [=====] - 0s
    597us/step - loss: 0.3350 - accuracy: 0.8799
246 Epoch 121/500
247 136/136 [=====] - 0s
    537us/step - loss: 0.3347 - accuracy: 0.8721
248 Epoch 122/500
249 136/136 [=====] - 0s
    623us/step - loss: 0.3390 - accuracy: 0.8721
250 Epoch 123/500
251 136/136 [=====] - 0s
    559us/step - loss: 0.3422 - accuracy: 0.8770
252 Epoch 124/500
253 136/136 [=====] - 0s
    556us/step - loss: 0.3449 - accuracy: 0.8730
254 Epoch 125/500
255 136/136 [=====] - 0s
    664us/step - loss: 0.3344 - accuracy: 0.8735
256 Epoch 126/500
257 136/136 [=====] - 0s
    562us/step - loss: 0.3321 - accuracy: 0.8779
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258 Epoch 127/500
259 136/136 [=====] - 0s
    553us/step - loss: 0.3330 - accuracy: 0.8765
260 Epoch 128/500
261 136/136 [=====] - 0s
    645us/step - loss: 0.3429 - accuracy: 0.8745
262 Epoch 129/500
263 136/136 [=====] - 0s
    565us/step - loss: 0.3337 - accuracy: 0.8794
264 Epoch 130/500
265 136/136 [=====] - 0s
    535us/step - loss: 0.3315 - accuracy: 0.8755
266 Epoch 131/500
267 136/136 [=====] - 0s
    638us/step - loss: 0.3339 - accuracy: 0.8765
268 Epoch 132/500
269 136/136 [=====] - 0s
    567us/step - loss: 0.3400 - accuracy: 0.8706
270 Epoch 133/500
271 136/136 [=====] - 0s
    536us/step - loss: 0.3267 - accuracy: 0.8794
272 Epoch 134/500
273 136/136 [=====] - 0s
    622us/step - loss: 0.3453 - accuracy: 0.8760
274 Epoch 135/500
275 136/136 [=====] - 0s
    563us/step - loss: 0.3410 - accuracy: 0.8730
276 Epoch 136/500
277 136/136 [=====] - 0s
    532us/step - loss: 0.3358 - accuracy: 0.8745
278 Epoch 137/500
279 136/136 [=====] - 0s
    633us/step - loss: 0.3315 - accuracy: 0.8784
280 Epoch 138/500
281 136/136 [=====] - 0s
    570us/step - loss: 0.3242 - accuracy: 0.8824
282 Epoch 139/500
283 136/136 [=====] - 0s
    532us/step - loss: 0.3366 - accuracy: 0.8735
284 Epoch 140/500
285 136/136 [=====] - 0s
    616us/step - loss: 0.3286 - accuracy: 0.8745
286 Epoch 141/500
287 136/136 [=====] - 0s
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287 561us/step - loss: 0.3210 - accuracy: 0.8809
288 Epoch 142/500
289 136/136 [=====] - 0s
    536us/step - loss: 0.3217 - accuracy: 0.8784
290 Epoch 143/500
291 136/136 [=====] - 0s
    636us/step - loss: 0.3344 - accuracy: 0.8784
292 Epoch 144/500
293 136/136 [=====] - 0s
    570us/step - loss: 0.3285 - accuracy: 0.8789
294 Epoch 145/500
295 136/136 [=====] - 0s
    536us/step - loss: 0.3341 - accuracy: 0.8779
296 Epoch 146/500
297 136/136 [=====] - 0s
    619us/step - loss: 0.3102 - accuracy: 0.8814
298 Epoch 147/500
299 136/136 [=====] - 0s
    568us/step - loss: 0.3249 - accuracy: 0.8809
300 Epoch 148/500
301 136/136 [=====] - 0s
    534us/step - loss: 0.3231 - accuracy: 0.8814
302 Epoch 149/500
303 136/136 [=====] - 0s
    634us/step - loss: 0.3237 - accuracy: 0.8799
304 Epoch 150/500
305 136/136 [=====] - 0s
    574us/step - loss: 0.3207 - accuracy: 0.8833
306 Epoch 151/500
307 136/136 [=====] - 0s
    534us/step - loss: 0.3127 - accuracy: 0.8794
308 Epoch 152/500
309 136/136 [=====] - 0s
    650us/step - loss: 0.3146 - accuracy: 0.8789
310 Epoch 153/500
311 136/136 [=====] - 0s
    560us/step - loss: 0.3115 - accuracy: 0.8843
312 Epoch 154/500
313 136/136 [=====] - 0s
    535us/step - loss: 0.3156 - accuracy: 0.8814
314 Epoch 155/500
315 136/136 [=====] - 0s
    645us/step - loss: 0.3209 - accuracy: 0.8833
316 Epoch 156/500
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317 136/136 [=====] - 0s
    594us/step - loss: 0.3282 - accuracy: 0.8730
318 Epoch 157/500
319 136/136 [=====] - 0s
    537us/step - loss: 0.3238 - accuracy: 0.8824
320 Epoch 158/500
321 136/136 [=====] - 0s
    619us/step - loss: 0.3104 - accuracy: 0.8828
322 Epoch 159/500
323 136/136 [=====] - 0s
    549us/step - loss: 0.3158 - accuracy: 0.8775
324 Epoch 160/500
325 136/136 [=====] - 0s
    530us/step - loss: 0.3231 - accuracy: 0.8775
326 Epoch 161/500
327 136/136 [=====] - 0s
    640us/step - loss: 0.3124 - accuracy: 0.8819
328 Epoch 162/500
329 136/136 [=====] - 0s
    593us/step - loss: 0.3136 - accuracy: 0.8848
330 Epoch 163/500
331 136/136 [=====] - 0s
    534us/step - loss: 0.3162 - accuracy: 0.8794
332 Epoch 164/500
333 136/136 [=====] - 0s
    624us/step - loss: 0.3182 - accuracy: 0.8838
334 Epoch 165/500
335 136/136 [=====] - 0s
    559us/step - loss: 0.3228 - accuracy: 0.8760
336 Epoch 166/500
337 136/136 [=====] - 0s
    535us/step - loss: 0.3139 - accuracy: 0.8833
338 Epoch 167/500
339 136/136 [=====] - 0s
    618us/step - loss: 0.3123 - accuracy: 0.8828
340 Epoch 168/500
341 136/136 [=====] - 0s
    588us/step - loss: 0.3090 - accuracy: 0.8838
342 Epoch 169/500
343 136/136 [=====] - 0s
    538us/step - loss: 0.3143 - accuracy: 0.8804
344 Epoch 170/500
345 136/136 [=====] - 0s
    610us/step - loss: 0.3184 - accuracy: 0.8824
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346 Epoch 171/500
347 136/136 [=====] - 0s
    566us/step - loss: 0.3146 - accuracy: 0.8799
348 Epoch 172/500
349 136/136 [=====] - 0s
    542us/step - loss: 0.2994 - accuracy: 0.8892
350 Epoch 173/500
351 136/136 [=====] - 0s
    615us/step - loss: 0.2995 - accuracy: 0.8936
352 Epoch 174/500
353 136/136 [=====] - 0s
    580us/step - loss: 0.3107 - accuracy: 0.8863
354 Epoch 175/500
355 136/136 [=====] - 0s
    539us/step - loss: 0.3119 - accuracy: 0.8833
356 Epoch 176/500
357 136/136 [=====] - 0s
    620us/step - loss: 0.3119 - accuracy: 0.8873
358 Epoch 177/500
359 136/136 [=====] - 0s
    560us/step - loss: 0.3092 - accuracy: 0.8912
360 Epoch 178/500
361 136/136 [=====] - 0s
    530us/step - loss: 0.3084 - accuracy: 0.8858
362 Epoch 179/500
363 136/136 [=====] - 0s
    616us/step - loss: 0.3063 - accuracy: 0.8833
364 Epoch 180/500
365 136/136 [=====] - 0s
    561us/step - loss: 0.3010 - accuracy: 0.8877
366 Epoch 181/500
367 136/136 [=====] - 0s
    555us/step - loss: 0.3052 - accuracy: 0.8858
368 Epoch 182/500
369 136/136 [=====] - 0s
    619us/step - loss: 0.3170 - accuracy: 0.8770
370 Epoch 183/500
371 136/136 [=====] - 0s
    567us/step - loss: 0.3011 - accuracy: 0.8858
372 Epoch 184/500
373 136/136 [=====] - 0s
    524us/step - loss: 0.3040 - accuracy: 0.8877
374 Epoch 185/500
375 136/136 [=====] - 0s
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375 585us/step - loss: 0.2981 - accuracy: 0.8941
376 Epoch 186/500
377 136/136 [=====] - 0s
592us/step - loss: 0.3039 - accuracy: 0.8843
378 Epoch 187/500
379 136/136 [=====] - 0s
560us/step - loss: 0.3017 - accuracy: 0.8843
380 Epoch 188/500
381 136/136 [=====] - 0s
616us/step - loss: 0.3004 - accuracy: 0.8892
382 Epoch 189/500
383 136/136 [=====] - 0s
564us/step - loss: 0.2970 - accuracy: 0.8917
384 Epoch 190/500
385 136/136 [=====] - 0s
532us/step - loss: 0.3053 - accuracy: 0.8858
386 Epoch 191/500
387 136/136 [=====] - 0s
619us/step - loss: 0.3075 - accuracy: 0.8833
388 Epoch 192/500
389 136/136 [=====] - 0s
566us/step - loss: 0.3035 - accuracy: 0.8877
390 Epoch 193/500
391 136/136 [=====] - 0s
549us/step - loss: 0.2980 - accuracy: 0.8882
392 Epoch 194/500
393 136/136 [=====] - 0s
622us/step - loss: 0.2917 - accuracy: 0.8858
394 Epoch 195/500
395 136/136 [=====] - 0s
548us/step - loss: 0.2965 - accuracy: 0.8853
396 Epoch 196/500
397 136/136 [=====] - 0s
520us/step - loss: 0.2923 - accuracy: 0.8907
398 Epoch 197/500
399 136/136 [=====] - 0s
643us/step - loss: 0.2876 - accuracy: 0.8956
400 Epoch 198/500
401 136/136 [=====] - 0s
571us/step - loss: 0.2958 - accuracy: 0.8873
402 Epoch 199/500
403 136/136 [=====] - 0s
530us/step - loss: 0.3010 - accuracy: 0.8873
404 Epoch 200/500
```

```
405 136/136 [=====] - 0s
    661us/step - loss: 0.2945 - accuracy: 0.8897
406 Epoch 201/500
407 136/136 [=====] - 0s
    569us/step - loss: 0.2929 - accuracy: 0.8828
408 Epoch 202/500
409 136/136 [=====] - 0s
    531us/step - loss: 0.2919 - accuracy: 0.8902
410 Epoch 203/500
411 136/136 [=====] - 0s
    623us/step - loss: 0.3024 - accuracy: 0.8912
412 Epoch 204/500
413 136/136 [=====] - 0s
    561us/step - loss: 0.2859 - accuracy: 0.8926
414 Epoch 205/500
415 136/136 [=====] - 0s
    529us/step - loss: 0.2918 - accuracy: 0.8819
416 Epoch 206/500
417 136/136 [=====] - 0s
    650us/step - loss: 0.2866 - accuracy: 0.8931
418 Epoch 207/500
419 136/136 [=====] - 0s
    565us/step - loss: 0.2931 - accuracy: 0.8848
420 Epoch 208/500
421 136/136 [=====] - 0s
    533us/step - loss: 0.2941 - accuracy: 0.8873
422 Epoch 209/500
423 136/136 [=====] - 0s
    621us/step - loss: 0.2904 - accuracy: 0.8902
424 Epoch 210/500
425 136/136 [=====] - 0s
    562us/step - loss: 0.2999 - accuracy: 0.8877
426 Epoch 211/500
427 136/136 [=====] - 0s
    532us/step - loss: 0.2840 - accuracy: 0.8941
428 Epoch 212/500
429 136/136 [=====] - 0s
    650us/step - loss: 0.2895 - accuracy: 0.8922
430 Epoch 213/500
431 136/136 [=====] - 0s
    571us/step - loss: 0.2869 - accuracy: 0.8897
432 Epoch 214/500
433 136/136 [=====] - 0s
    539us/step - loss: 0.2896 - accuracy: 0.8941
```

```
434 Epoch 215/500
435 136/136 [=====] - 0s
    620us/step - loss: 0.2868 - accuracy: 0.8946
436 Epoch 216/500
437 136/136 [=====] - 0s
    558us/step - loss: 0.2800 - accuracy: 0.8951
438 Epoch 217/500
439 136/136 [=====] - 0s
    531us/step - loss: 0.2960 - accuracy: 0.8897
440 Epoch 218/500
441 136/136 [=====] - 0s
    620us/step - loss: 0.2939 - accuracy: 0.8902
442 Epoch 219/500
443 136/136 [=====] - 0s
    585us/step - loss: 0.2870 - accuracy: 0.8941
444 Epoch 220/500
445 136/136 [=====] - 0s
    521us/step - loss: 0.2800 - accuracy: 0.8956
446 Epoch 221/500
447 136/136 [=====] - 0s
    599us/step - loss: 0.2868 - accuracy: 0.8902
448 Epoch 222/500
449 136/136 [=====] - 0s
    563us/step - loss: 0.2842 - accuracy: 0.8931
450 Epoch 223/500
451 136/136 [=====] - 0s
    528us/step - loss: 0.2874 - accuracy: 0.8912
452 Epoch 224/500
453 136/136 [=====] - 0s
    627us/step - loss: 0.2892 - accuracy: 0.8980
454 Epoch 225/500
455 136/136 [=====] - 0s
    569us/step - loss: 0.2864 - accuracy: 0.8931
456 Epoch 226/500
457 136/136 [=====] - 0s
    520us/step - loss: 0.2837 - accuracy: 0.8975
458 Epoch 227/500
459 136/136 [=====] - 0s
    643us/step - loss: 0.2938 - accuracy: 0.8843
460 Epoch 228/500
461 136/136 [=====] - 0s
    562us/step - loss: 0.2845 - accuracy: 0.8877
462 Epoch 229/500
463 136/136 [=====] - 0s
```

```
463 531us/step - loss: 0.2763 - accuracy: 0.8980
464 Epoch 230/500
465 136/136 [=====] - 0s
    613us/step - loss: 0.2832 - accuracy: 0.8902
466 Epoch 231/500
467 136/136 [=====] - 0s
    584us/step - loss: 0.2758 - accuracy: 0.9010
468 Epoch 232/500
469 136/136 [=====] - 0s
    531us/step - loss: 0.2782 - accuracy: 0.8971
470 Epoch 233/500
471 136/136 [=====] - 0s
    623us/step - loss: 0.2793 - accuracy: 0.8941
472 Epoch 234/500
473 136/136 [=====] - 0s
    560us/step - loss: 0.2830 - accuracy: 0.8926
474 Epoch 235/500
475 136/136 [=====] - 0s
    531us/step - loss: 0.2776 - accuracy: 0.8966
476 Epoch 236/500
477 136/136 [=====] - 0s
    590us/step - loss: 0.2778 - accuracy: 0.8936
478 Epoch 237/500
479 136/136 [=====] - 0s
    579us/step - loss: 0.2825 - accuracy: 0.8931
480 Epoch 238/500
481 136/136 [=====] - 0s
    554us/step - loss: 0.2778 - accuracy: 0.8926
482 Epoch 239/500
483 136/136 [=====] - 0s
    619us/step - loss: 0.2802 - accuracy: 0.9029
484 Epoch 240/500
485 136/136 [=====] - 0s
    562us/step - loss: 0.2729 - accuracy: 0.8975
486 Epoch 241/500
487 136/136 [=====] - 0s
    529us/step - loss: 0.2788 - accuracy: 0.8951
488 Epoch 242/500
489 136/136 [=====] - 0s
    674us/step - loss: 0.2740 - accuracy: 0.8961
490 Epoch 243/500
491 136/136 [=====] - 0s
    584us/step - loss: 0.2716 - accuracy: 0.8966
492 Epoch 244/500
```

```
493 136/136 [=====] - 0s
    553us/step - loss: 0.2803 - accuracy: 0.8966
494 Epoch 245/500
495 136/136 [=====] - 0s
    661us/step - loss: 0.2815 - accuracy: 0.8956
496 Epoch 246/500
497 136/136 [=====] - 0s
    553us/step - loss: 0.2801 - accuracy: 0.8956
498 Epoch 247/500
499 136/136 [=====] - 0s
    528us/step - loss: 0.2742 - accuracy: 0.8956
500 Epoch 248/500
501 136/136 [=====] - 0s
    629us/step - loss: 0.2820 - accuracy: 0.8858
502 Epoch 249/500
503 136/136 [=====] - 0s
    555us/step - loss: 0.2945 - accuracy: 0.8863
504 Epoch 250/500
505 136/136 [=====] - 0s
    559us/step - loss: 0.2764 - accuracy: 0.8956
506 Epoch 251/500
507 136/136 [=====] - 0s
    679us/step - loss: 0.2746 - accuracy: 0.8966
508 Epoch 252/500
509 136/136 [=====] - 0s
    590us/step - loss: 0.2703 - accuracy: 0.8917
510 Epoch 253/500
511 136/136 [=====] - 0s
    526us/step - loss: 0.2772 - accuracy: 0.8951
512 Epoch 254/500
513 136/136 [=====] - 0s
    624us/step - loss: 0.2759 - accuracy: 0.8912
514 Epoch 255/500
515 136/136 [=====] - 0s
    557us/step - loss: 0.2765 - accuracy: 0.8961
516 Epoch 256/500
517 136/136 [=====] - 0s
    556us/step - loss: 0.2660 - accuracy: 0.9000
518 Epoch 257/500
519 136/136 [=====] - 0s
    617us/step - loss: 0.2787 - accuracy: 0.8990
520 Epoch 258/500
521 136/136 [=====] - 0s
    559us/step - loss: 0.2676 - accuracy: 0.8951
```

```
522 Epoch 259/500
523 136/136 [=====] - 0s
    527us/step - loss: 0.2718 - accuracy: 0.8975
524 Epoch 260/500
525 136/136 [=====] - 0s
    591us/step - loss: 0.2799 - accuracy: 0.8858
526 Epoch 261/500
527 136/136 [=====] - 0s
    579us/step - loss: 0.2721 - accuracy: 0.8961
528 Epoch 262/500
529 136/136 [=====] - 0s
    533us/step - loss: 0.2635 - accuracy: 0.9015
530 Epoch 263/500
531 136/136 [=====] - 0s
    624us/step - loss: 0.2671 - accuracy: 0.9000
532 Epoch 264/500
533 136/136 [=====] - 0s
    562us/step - loss: 0.2605 - accuracy: 0.9010
534 Epoch 265/500
535 136/136 [=====] - 0s
    531us/step - loss: 0.2708 - accuracy: 0.8985
536 Epoch 266/500
537 136/136 [=====] - 0s
    650us/step - loss: 0.2666 - accuracy: 0.8971
538 Epoch 267/500
539 136/136 [=====] - 0s
    561us/step - loss: 0.2616 - accuracy: 0.9020
540 Epoch 268/500
541 136/136 [=====] - 0s
    529us/step - loss: 0.2637 - accuracy: 0.9005
542 Epoch 269/500
543 136/136 [=====] - 0s
    651us/step - loss: 0.2652 - accuracy: 0.8990
544 Epoch 270/500
545 136/136 [=====] - 0s
    570us/step - loss: 0.2685 - accuracy: 0.8985
546 Epoch 271/500
547 136/136 [=====] - 0s
    531us/step - loss: 0.2592 - accuracy: 0.9054
548 Epoch 272/500
549 136/136 [=====] - 0s
    618us/step - loss: 0.2686 - accuracy: 0.8990
550 Epoch 273/500
551 136/136 [=====] - 0s
```

```
551 554us/step - loss: 0.2721 - accuracy: 0.8931
552 Epoch 274/500
553 136/136 [=====] - 0s
    530us/step - loss: 0.2648 - accuracy: 0.8966
554 Epoch 275/500
555 136/136 [=====] - 0s
    645us/step - loss: 0.2612 - accuracy: 0.9025
556 Epoch 276/500
557 136/136 [=====] - 0s
    567us/step - loss: 0.2623 - accuracy: 0.8985
558 Epoch 277/500
559 136/136 [=====] - 0s
    530us/step - loss: 0.2675 - accuracy: 0.8985
560 Epoch 278/500
561 136/136 [=====] - 0s
    617us/step - loss: 0.2578 - accuracy: 0.9044
562 Epoch 279/500
563 136/136 [=====] - 0s
    559us/step - loss: 0.2605 - accuracy: 0.8961
564 Epoch 280/500
565 136/136 [=====] - 0s
    519us/step - loss: 0.2612 - accuracy: 0.9034
566 Epoch 281/500
567 136/136 [=====] - 0s
    614us/step - loss: 0.2600 - accuracy: 0.9054
568 Epoch 282/500
569 136/136 [=====] - 0s
    599us/step - loss: 0.2539 - accuracy: 0.9074
570 Epoch 283/500
571 136/136 [=====] - 0s
    534us/step - loss: 0.2643 - accuracy: 0.9039
572 Epoch 284/500
573 136/136 [=====] - 0s
    612us/step - loss: 0.2698 - accuracy: 0.8931
574 Epoch 285/500
575 136/136 [=====] - 0s
    559us/step - loss: 0.2596 - accuracy: 0.9029
576 Epoch 286/500
577 136/136 [=====] - 0s
    529us/step - loss: 0.2657 - accuracy: 0.8975
578 Epoch 287/500
579 136/136 [=====] - 0s
    592us/step - loss: 0.2595 - accuracy: 0.9039
580 Epoch 288/500
```

```
581 136/136 [=====] - 0s
    606us/step - loss: 0.2713 - accuracy: 0.8980
582 Epoch 289/500
583 136/136 [=====] - 0s
    531us/step - loss: 0.2577 - accuracy: 0.9025
584 Epoch 290/500
585 136/136 [=====] - 0s
    618us/step - loss: 0.2557 - accuracy: 0.9074
586 Epoch 291/500
587 136/136 [=====] - 0s
    561us/step - loss: 0.2657 - accuracy: 0.9000
588 Epoch 292/500
589 136/136 [=====] - 0s
    532us/step - loss: 0.2548 - accuracy: 0.9054
590 Epoch 293/500
591 136/136 [=====] - 0s
    606us/step - loss: 0.2611 - accuracy: 0.9020
592 Epoch 294/500
593 136/136 [=====] - 0s
    574us/step - loss: 0.2465 - accuracy: 0.9059
594 Epoch 295/500
595 136/136 [=====] - 0s
    519us/step - loss: 0.2579 - accuracy: 0.9000
596 Epoch 296/500
597 136/136 [=====] - 0s
    642us/step - loss: 0.2550 - accuracy: 0.9064
598 Epoch 297/500
599 136/136 [=====] - 0s
    576us/step - loss: 0.2597 - accuracy: 0.9039
600 Epoch 298/500
601 136/136 [=====] - 0s
    538us/step - loss: 0.2720 - accuracy: 0.8985
602 Epoch 299/500
603 136/136 [=====] - 0s
    627us/step - loss: 0.2566 - accuracy: 0.9074
604 Epoch 300/500
605 136/136 [=====] - 0s
    591us/step - loss: 0.2454 - accuracy: 0.9093
606 Epoch 301/500
607 136/136 [=====] - 0s
    532us/step - loss: 0.2680 - accuracy: 0.9015
608 Epoch 302/500
609 136/136 [=====] - 0s
    612us/step - loss: 0.2582 - accuracy: 0.9034
```

```
610 Epoch 303/500
611 136/136 [=====] - 0s
      559us/step - loss: 0.2431 - accuracy: 0.9113
612 Epoch 304/500
613 136/136 [=====] - 0s
      533us/step - loss: 0.2633 - accuracy: 0.9020
614 Epoch 305/500
615 136/136 [=====] - 0s
      598us/step - loss: 0.2579 - accuracy: 0.9020
616 Epoch 306/500
617 136/136 [=====] - 0s
      566us/step - loss: 0.2564 - accuracy: 0.9083
618 Epoch 307/500
619 136/136 [=====] - 0s
      558us/step - loss: 0.2572 - accuracy: 0.9010
620 Epoch 308/500
621 136/136 [=====] - 0s
      607us/step - loss: 0.2448 - accuracy: 0.9064
622 Epoch 309/500
623 136/136 [=====] - 0s
      551us/step - loss: 0.2437 - accuracy: 0.9098
624 Epoch 310/500
625 136/136 [=====] - 0s
      539us/step - loss: 0.2572 - accuracy: 0.8966
626 Epoch 311/500
627 136/136 [=====] - 0s
      625us/step - loss: 0.2444 - accuracy: 0.9088
628 Epoch 312/500
629 136/136 [=====] - 0s
      560us/step - loss: 0.2487 - accuracy: 0.9034
630 Epoch 313/500
631 136/136 [=====] - 0s
      555us/step - loss: 0.2512 - accuracy: 0.9010
632 Epoch 314/500
633 136/136 [=====] - 0s
      611us/step - loss: 0.2525 - accuracy: 0.9044
634 Epoch 315/500
635 136/136 [=====] - 0s
      556us/step - loss: 0.2529 - accuracy: 0.9059
636 Epoch 316/500
637 136/136 [=====] - 0s
      531us/step - loss: 0.2506 - accuracy: 0.9015
638 Epoch 317/500
639 136/136 [=====] - 0s
```

```
639 594us/step - loss: 0.2622 - accuracy: 0.8956
640 Epoch 318/500
641 136/136 [=====] - 0s
    579us/step - loss: 0.2557 - accuracy: 0.9054
642 Epoch 319/500
643 136/136 [=====] - 0s
    560us/step - loss: 0.2415 - accuracy: 0.9113
644 Epoch 320/500
645 136/136 [=====] - 0s
    627us/step - loss: 0.2444 - accuracy: 0.9093
646 Epoch 321/500
647 136/136 [=====] - 0s
    564us/step - loss: 0.2657 - accuracy: 0.8941
648 Epoch 322/500
649 136/136 [=====] - 0s
    531us/step - loss: 0.2425 - accuracy: 0.9093
650 Epoch 323/500
651 136/136 [=====] - 0s
    619us/step - loss: 0.2554 - accuracy: 0.9054
652 Epoch 324/500
653 136/136 [=====] - 0s
    555us/step - loss: 0.2410 - accuracy: 0.9113
654 Epoch 325/500
655 136/136 [=====] - 0s
    516us/step - loss: 0.2419 - accuracy: 0.9132
656 Epoch 326/500
657 136/136 [=====] - 0s
    661us/step - loss: 0.2481 - accuracy: 0.9034
658 Epoch 327/500
659 136/136 [=====] - 0s
    580us/step - loss: 0.2459 - accuracy: 0.9059
660 Epoch 328/500
661 136/136 [=====] - 0s
    543us/step - loss: 0.2449 - accuracy: 0.9059
662 Epoch 329/500
663 136/136 [=====] - 0s
    611us/step - loss: 0.2411 - accuracy: 0.9044
664 Epoch 330/500
665 136/136 [=====] - 0s
    557us/step - loss: 0.2497 - accuracy: 0.9074
666 Epoch 331/500
667 136/136 [=====] - 0s
    516us/step - loss: 0.2400 - accuracy: 0.9147
668 Epoch 332/500
```

```
669 136/136 [=====] - 0s
    659us/step - loss: 0.2386 - accuracy: 0.9078
670 Epoch 333/500
671 136/136 [=====] - 0s
    583us/step - loss: 0.2521 - accuracy: 0.9010
672 Epoch 334/500
673 136/136 [=====] - 0s
    529us/step - loss: 0.2387 - accuracy: 0.9074
674 Epoch 335/500
675 136/136 [=====] - 0s
    600us/step - loss: 0.2486 - accuracy: 0.9039
676 Epoch 336/500
677 136/136 [=====] - 0s
    548us/step - loss: 0.2502 - accuracy: 0.9078
678 Epoch 337/500
679 136/136 [=====] - 0s
    565us/step - loss: 0.2364 - accuracy: 0.9113
680 Epoch 338/500
681 136/136 [=====] - 0s
    663us/step - loss: 0.2481 - accuracy: 0.9044
682 Epoch 339/500
683 136/136 [=====] - 0s
    575us/step - loss: 0.2395 - accuracy: 0.9093
684 Epoch 340/500
685 136/136 [=====] - 0s
    529us/step - loss: 0.2447 - accuracy: 0.9093
686 Epoch 341/500
687 136/136 [=====] - 0s
    618us/step - loss: 0.2496 - accuracy: 0.9059
688 Epoch 342/500
689 136/136 [=====] - 0s
    561us/step - loss: 0.2543 - accuracy: 0.9044
690 Epoch 343/500
691 136/136 [=====] - 0s
    533us/step - loss: 0.2341 - accuracy: 0.9152
692 Epoch 344/500
693 136/136 [=====] - 0s
    621us/step - loss: 0.2371 - accuracy: 0.9078
694 Epoch 345/500
695 136/136 [=====] - 0s
    595us/step - loss: 0.2401 - accuracy: 0.9132
696 Epoch 346/500
697 136/136 [=====] - 0s
    530us/step - loss: 0.2331 - accuracy: 0.9113
```

```
698 Epoch 347/500
699 136/136 [=====] - 0s
    626us/step - loss: 0.2389 - accuracy: 0.9020
700 Epoch 348/500
701 136/136 [=====] - 0s
    560us/step - loss: 0.2382 - accuracy: 0.9118
702 Epoch 349/500
703 136/136 [=====] - 0s
    531us/step - loss: 0.2442 - accuracy: 0.9059
704 Epoch 350/500
705 136/136 [=====] - 0s
    594us/step - loss: 0.2379 - accuracy: 0.9113
706 Epoch 351/500
707 136/136 [=====] - 0s
    622us/step - loss: 0.2385 - accuracy: 0.9098
708 Epoch 352/500
709 136/136 [=====] - 0s
    531us/step - loss: 0.2326 - accuracy: 0.9093
710 Epoch 353/500
711 136/136 [=====] - 0s
    617us/step - loss: 0.2360 - accuracy: 0.9083
712 Epoch 354/500
713 136/136 [=====] - 0s
    559us/step - loss: 0.2376 - accuracy: 0.9157
714 Epoch 355/500
715 136/136 [=====] - 0s
    528us/step - loss: 0.2365 - accuracy: 0.9118
716 Epoch 356/500
717 136/136 [=====] - 0s
    596us/step - loss: 0.2443 - accuracy: 0.9034
718 Epoch 357/500
719 136/136 [=====] - 0s
    602us/step - loss: 0.2497 - accuracy: 0.9054
720 Epoch 358/500
721 136/136 [=====] - 0s
    529us/step - loss: 0.2424 - accuracy: 0.9074
722 Epoch 359/500
723 136/136 [=====] - 0s
    622us/step - loss: 0.2342 - accuracy: 0.9098
724 Epoch 360/500
725 136/136 [=====] - 0s
    559us/step - loss: 0.2284 - accuracy: 0.9162
726 Epoch 361/500
727 136/136 [=====] - 0s
```

```
727 531us/step - loss: 0.2370 - accuracy: 0.9113
728 Epoch 362/500
729 136/136 [=====] - 0s
    615us/step - loss: 0.2510 - accuracy: 0.9005
730 Epoch 363/500
731 136/136 [=====] - 0s
    579us/step - loss: 0.2320 - accuracy: 0.9142
732 Epoch 364/500
733 136/136 [=====] - 0s
    535us/step - loss: 0.2419 - accuracy: 0.9064
734 Epoch 365/500
735 136/136 [=====] - 0s
    612us/step - loss: 0.2299 - accuracy: 0.9147
736 Epoch 366/500
737 136/136 [=====] - 0s
    567us/step - loss: 0.2342 - accuracy: 0.9118
738 Epoch 367/500
739 136/136 [=====] - 0s
    530us/step - loss: 0.2468 - accuracy: 0.9039
740 Epoch 368/500
741 136/136 [=====] - 0s
    614us/step - loss: 0.2435 - accuracy: 0.9083
742 Epoch 369/500
743 136/136 [=====] - 0s
    564us/step - loss: 0.2348 - accuracy: 0.9162
744 Epoch 370/500
745 136/136 [=====] - 0s
    556us/step - loss: 0.2369 - accuracy: 0.9108
746 Epoch 371/500
747 136/136 [=====] - 0s
    663us/step - loss: 0.2338 - accuracy: 0.9123
748 Epoch 372/500
749 136/136 [=====] - 0s
    563us/step - loss: 0.2426 - accuracy: 0.9083
750 Epoch 373/500
751 136/136 [=====] - 0s
    532us/step - loss: 0.2393 - accuracy: 0.9142
752 Epoch 374/500
753 136/136 [=====] - 0s
    621us/step - loss: 0.2381 - accuracy: 0.9147
754 Epoch 375/500
755 136/136 [=====] - 0s
    559us/step - loss: 0.2274 - accuracy: 0.9123
756 Epoch 376/500
```

```
757 136/136 [=====] - 0s
    554us/step - loss: 0.2330 - accuracy: 0.9074
758 Epoch 377/500
759 136/136 [=====] - 0s
    616us/step - loss: 0.2386 - accuracy: 0.9108
760 Epoch 378/500
761 136/136 [=====] - 0s
    566us/step - loss: 0.2254 - accuracy: 0.9216
762 Epoch 379/500
763 136/136 [=====] - 0s
    531us/step - loss: 0.2254 - accuracy: 0.9132
764 Epoch 380/500
765 136/136 [=====] - 0s
    680us/step - loss: 0.2317 - accuracy: 0.9103
766 Epoch 381/500
767 136/136 [=====] - 0s
    583us/step - loss: 0.2452 - accuracy: 0.9088
768 Epoch 382/500
769 136/136 [=====] - 0s
    553us/step - loss: 0.2282 - accuracy: 0.9147
770 Epoch 383/500
771 136/136 [=====] - 0s
    628us/step - loss: 0.2224 - accuracy: 0.9191
772 Epoch 384/500
773 136/136 [=====] - 0s
    547us/step - loss: 0.2270 - accuracy: 0.9108
774 Epoch 385/500
775 136/136 [=====] - 0s
    532us/step - loss: 0.2228 - accuracy: 0.9206
776 Epoch 386/500
777 136/136 [=====] - 0s
    614us/step - loss: 0.2414 - accuracy: 0.9034
778 Epoch 387/500
779 136/136 [=====] - 0s
    563us/step - loss: 0.2218 - accuracy: 0.9167
780 Epoch 388/500
781 136/136 [=====] - 0s
    536us/step - loss: 0.2334 - accuracy: 0.9147
782 Epoch 389/500
783 136/136 [=====] - 0s
    629us/step - loss: 0.2219 - accuracy: 0.9152
784 Epoch 390/500
785 136/136 [=====] - 0s
    561us/step - loss: 0.2303 - accuracy: 0.9172
```

```
786 Epoch 391/500
787 136/136 [=====] - 0s
    532us/step - loss: 0.2237 - accuracy: 0.9137
788 Epoch 392/500
789 136/136 [=====] - 0s
    616us/step - loss: 0.2330 - accuracy: 0.9113
790 Epoch 393/500
791 136/136 [=====] - 0s
    570us/step - loss: 0.2377 - accuracy: 0.9118
792 Epoch 394/500
793 136/136 [=====] - 0s
    532us/step - loss: 0.2294 - accuracy: 0.9093
794 Epoch 395/500
795 136/136 [=====] - 0s
    643us/step - loss: 0.2209 - accuracy: 0.9172
796 Epoch 396/500
797 136/136 [=====] - 0s
    553us/step - loss: 0.2215 - accuracy: 0.9196
798 Epoch 397/500
799 136/136 [=====] - 0s
    523us/step - loss: 0.2275 - accuracy: 0.9132
800 Epoch 398/500
801 136/136 [=====] - 0s
    638us/step - loss: 0.2397 - accuracy: 0.9093
802 Epoch 399/500
803 136/136 [=====] - 0s
    587us/step - loss: 0.2223 - accuracy: 0.9137
804 Epoch 400/500
805 136/136 [=====] - 0s
    553us/step - loss: 0.2247 - accuracy: 0.9147
806 Epoch 401/500
807 136/136 [=====] - 0s
    643us/step - loss: 0.2156 - accuracy: 0.9181
808 Epoch 402/500
809 136/136 [=====] - 0s
    563us/step - loss: 0.2263 - accuracy: 0.9142
810 Epoch 403/500
811 136/136 [=====] - 0s
    534us/step - loss: 0.2225 - accuracy: 0.9206
812 Epoch 404/500
813 136/136 [=====] - 0s
    609us/step - loss: 0.2147 - accuracy: 0.9211
814 Epoch 405/500
815 136/136 [=====] - 0s
```

```
815 566us/step - loss: 0.2230 - accuracy: 0.9157
816 Epoch 406/500
817 136/136 [=====] - 0s
    537us/step - loss: 0.2192 - accuracy: 0.9206
818 Epoch 407/500
819 136/136 [=====] - 0s
    635us/step - loss: 0.2207 - accuracy: 0.9176
820 Epoch 408/500
821 136/136 [=====] - 0s
    572us/step - loss: 0.2185 - accuracy: 0.9167
822 Epoch 409/500
823 136/136 [=====] - 0s
    532us/step - loss: 0.2258 - accuracy: 0.9108
824 Epoch 410/500
825 136/136 [=====] - 0s
    618us/step - loss: 0.2163 - accuracy: 0.9176
826 Epoch 411/500
827 136/136 [=====] - 0s
    561us/step - loss: 0.2260 - accuracy: 0.9167
828 Epoch 412/500
829 136/136 [=====] - 0s
    521us/step - loss: 0.2267 - accuracy: 0.9176
830 Epoch 413/500
831 136/136 [=====] - 0s
    599us/step - loss: 0.2126 - accuracy: 0.9172
832 Epoch 414/500
833 136/136 [=====] - 0s
    606us/step - loss: 0.2085 - accuracy: 0.9260
834 Epoch 415/500
835 136/136 [=====] - 0s
    537us/step - loss: 0.2190 - accuracy: 0.9176
836 Epoch 416/500
837 136/136 [=====] - 0s
    617us/step - loss: 0.2128 - accuracy: 0.9172
838 Epoch 417/500
839 136/136 [=====] - 0s
    567us/step - loss: 0.2228 - accuracy: 0.9113
840 Epoch 418/500
841 136/136 [=====] - 0s
    536us/step - loss: 0.2255 - accuracy: 0.9206
842 Epoch 419/500
843 136/136 [=====] - 0s
    619us/step - loss: 0.2161 - accuracy: 0.9172
844 Epoch 420/500
```

```
845 136/136 [=====] - 0s
    582us/step - loss: 0.2149 - accuracy: 0.9235
846 Epoch 421/500
847 136/136 [=====] - 0s
    535us/step - loss: 0.2187 - accuracy: 0.9216
848 Epoch 422/500
849 136/136 [=====] - 0s
    608us/step - loss: 0.2168 - accuracy: 0.9221
850 Epoch 423/500
851 136/136 [=====] - 0s
    564us/step - loss: 0.2178 - accuracy: 0.9176
852 Epoch 424/500
853 136/136 [=====] - 0s
    535us/step - loss: 0.2137 - accuracy: 0.9167
854 Epoch 425/500
855 136/136 [=====] - 0s
    616us/step - loss: 0.2114 - accuracy: 0.9221
856 Epoch 426/500
857 136/136 [=====] - 0s
    591us/step - loss: 0.2184 - accuracy: 0.9167
858 Epoch 427/500
859 136/136 [=====] - 0s
    535us/step - loss: 0.2213 - accuracy: 0.9191
860 Epoch 428/500
861 136/136 [=====] - 0s
    597us/step - loss: 0.2243 - accuracy: 0.9157
862 Epoch 429/500
863 136/136 [=====] - 0s
    564us/step - loss: 0.2090 - accuracy: 0.9221
864 Epoch 430/500
865 136/136 [=====] - 0s
    551us/step - loss: 0.2167 - accuracy: 0.9162
866 Epoch 431/500
867 136/136 [=====] - 0s
    634us/step - loss: 0.2141 - accuracy: 0.9206
868 Epoch 432/500
869 136/136 [=====] - 0s
    585us/step - loss: 0.2200 - accuracy: 0.9172
870 Epoch 433/500
871 136/136 [=====] - 0s
    554us/step - loss: 0.2187 - accuracy: 0.9157
872 Epoch 434/500
873 136/136 [=====] - 0s
    612us/step - loss: 0.2052 - accuracy: 0.9255
```

```
874 Epoch 435/500
875 136/136 [=====] - 0s
      567us/step - loss: 0.2101 - accuracy: 0.9240
876 Epoch 436/500
877 136/136 [=====] - 0s
      535us/step - loss: 0.2171 - accuracy: 0.9152
878 Epoch 437/500
879 136/136 [=====] - 0s
      602us/step - loss: 0.2129 - accuracy: 0.9216
880 Epoch 438/500
881 136/136 [=====] - 0s
      569us/step - loss: 0.2215 - accuracy: 0.9196
882 Epoch 439/500
883 136/136 [=====] - 0s
      563us/step - loss: 0.2072 - accuracy: 0.9216
884 Epoch 440/500
885 136/136 [=====] - 0s
      623us/step - loss: 0.2160 - accuracy: 0.9201
886 Epoch 441/500
887 136/136 [=====] - 0s
      566us/step - loss: 0.2093 - accuracy: 0.9211
888 Epoch 442/500
889 136/136 [=====] - 0s
      526us/step - loss: 0.2109 - accuracy: 0.9211
890 Epoch 443/500
891 136/136 [=====] - 0s
      610us/step - loss: 0.2108 - accuracy: 0.9206
892 Epoch 444/500
893 136/136 [=====] - 0s
      587us/step - loss: 0.2090 - accuracy: 0.9245
894 Epoch 445/500
895 136/136 [=====] - 0s
      559us/step - loss: 0.2053 - accuracy: 0.9250
896 Epoch 446/500
897 136/136 [=====] - 0s
      621us/step - loss: 0.2133 - accuracy: 0.9211
898 Epoch 447/500
899 136/136 [=====] - 0s
      565us/step - loss: 0.2106 - accuracy: 0.9225
900 Epoch 448/500
901 136/136 [=====] - 0s
      536us/step - loss: 0.2149 - accuracy: 0.9211
902 Epoch 449/500
903 136/136 [=====] - 0s
```

```
903 616us/step - loss: 0.2096 - accuracy: 0.9181
904 Epoch 450/500
905 136/136 [=====] - 0s
567us/step - loss: 0.2045 - accuracy: 0.9240
906 Epoch 451/500
907 136/136 [=====] - 0s
552us/step - loss: 0.2090 - accuracy: 0.9191
908 Epoch 452/500
909 136/136 [=====] - 0s
622us/step - loss: 0.2087 - accuracy: 0.9196
910 Epoch 453/500
911 136/136 [=====] - 0s
579us/step - loss: 0.2003 - accuracy: 0.9309
912 Epoch 454/500
913 136/136 [=====] - 0s
538us/step - loss: 0.2052 - accuracy: 0.9235
914 Epoch 455/500
915 136/136 [=====] - 0s
618us/step - loss: 0.2023 - accuracy: 0.9225
916 Epoch 456/500
917 136/136 [=====] - 0s
564us/step - loss: 0.2090 - accuracy: 0.9225
918 Epoch 457/500
919 136/136 [=====] - 0s
536us/step - loss: 0.2131 - accuracy: 0.9191
920 Epoch 458/500
921 136/136 [=====] - 0s
640us/step - loss: 0.2050 - accuracy: 0.9235
922 Epoch 459/500
923 136/136 [=====] - 0s
570us/step - loss: 0.2046 - accuracy: 0.9230
924 Epoch 460/500
925 136/136 [=====] - 0s
531us/step - loss: 0.2053 - accuracy: 0.9181
926 Epoch 461/500
927 136/136 [=====] - 0s
612us/step - loss: 0.2106 - accuracy: 0.9206
928 Epoch 462/500
929 136/136 [=====] - 0s
565us/step - loss: 0.2073 - accuracy: 0.9196
930 Epoch 463/500
931 136/136 [=====] - 0s
549us/step - loss: 0.1981 - accuracy: 0.9265
932 Epoch 464/500
```

```
933 136/136 [=====] - 0s
    652us/step - loss: 0.1975 - accuracy: 0.9279
934 Epoch 465/500
935 136/136 [=====] - 0s
    570us/step - loss: 0.2068 - accuracy: 0.9191
936 Epoch 466/500
937 136/136 [=====] - 0s
    536us/step - loss: 0.2006 - accuracy: 0.9284
938 Epoch 467/500
939 136/136 [=====] - 0s
    622us/step - loss: 0.1932 - accuracy: 0.9304
940 Epoch 468/500
941 136/136 [=====] - 0s
    562us/step - loss: 0.2008 - accuracy: 0.9284
942 Epoch 469/500
943 136/136 [=====] - 0s
    537us/step - loss: 0.2009 - accuracy: 0.9230
944 Epoch 470/500
945 136/136 [=====] - 0s
    643us/step - loss: 0.2046 - accuracy: 0.9240
946 Epoch 471/500
947 136/136 [=====] - 0s
    585us/step - loss: 0.1952 - accuracy: 0.9338
948 Epoch 472/500
949 136/136 [=====] - 0s
    536us/step - loss: 0.2026 - accuracy: 0.9230
950 Epoch 473/500
951 136/136 [=====] - 0s
    622us/step - loss: 0.2089 - accuracy: 0.9152
952 Epoch 474/500
953 136/136 [=====] - 0s
    564us/step - loss: 0.2071 - accuracy: 0.9172
954 Epoch 475/500
955 136/136 [=====] - 0s
    537us/step - loss: 0.2013 - accuracy: 0.9289
956 Epoch 476/500
957 136/136 [=====] - 0s
    639us/step - loss: 0.1976 - accuracy: 0.9225
958 Epoch 477/500
959 136/136 [=====] - 0s
    590us/step - loss: 0.2039 - accuracy: 0.9181
960 Epoch 478/500
961 136/136 [=====] - 0s
    536us/step - loss: 0.2186 - accuracy: 0.9152
```

```
962 Epoch 479/500
963 136/136 [=====] - 0s
    621us/step - loss: 0.2091 - accuracy: 0.9181
964 Epoch 480/500
965 136/136 [=====] - 0s
    563us/step - loss: 0.1979 - accuracy: 0.9279
966 Epoch 481/500
967 136/136 [=====] - 0s
    527us/step - loss: 0.2052 - accuracy: 0.9181
968 Epoch 482/500
969 136/136 [=====] - 0s
    612us/step - loss: 0.1962 - accuracy: 0.9260
970 Epoch 483/500
971 136/136 [=====] - 0s
    608us/step - loss: 0.1950 - accuracy: 0.9211
972 Epoch 484/500
973 136/136 [=====] - 0s
    539us/step - loss: 0.2004 - accuracy: 0.9245
974 Epoch 485/500
975 136/136 [=====] - 0s
    625us/step - loss: 0.2049 - accuracy: 0.9250
976 Epoch 486/500
977 136/136 [=====] - 0s
    564us/step - loss: 0.2023 - accuracy: 0.9250
978 Epoch 487/500
979 136/136 [=====] - 0s
    537us/step - loss: 0.1963 - accuracy: 0.9279
980 Epoch 488/500
981 136/136 [=====] - 0s
    613us/step - loss: 0.1949 - accuracy: 0.9260
982 Epoch 489/500
983 136/136 [=====] - 0s
    586us/step - loss: 0.2098 - accuracy: 0.9157
984 Epoch 490/500
985 136/136 [=====] - 0s
    541us/step - loss: 0.1976 - accuracy: 0.9240
986 Epoch 491/500
987 136/136 [=====] - 0s
    636us/step - loss: 0.2011 - accuracy: 0.9245
988 Epoch 492/500
989 136/136 [=====] - 0s
    558us/step - loss: 0.1961 - accuracy: 0.9230
990 Epoch 493/500
991 136/136 [=====] - 0s
```

```
991 536us/step - loss: 0.2088 - accuracy: 0.9181
992 Epoch 494/500
993 136/136 [=====] - 0s
    623us/step - loss: 0.2013 - accuracy: 0.9225
994 Epoch 495/500
995 136/136 [=====] - 0s
    603us/step - loss: 0.1952 - accuracy: 0.9289
996 Epoch 496/500
997 136/136 [=====] - 0s
    560us/step - loss: 0.1894 - accuracy: 0.9235
998 Epoch 497/500
999 136/136 [=====] - 0s
    619us/step - loss: 0.1940 - accuracy: 0.9240
1000 Epoch 498/500
1001 136/136 [=====] - 0s
    559us/step - loss: 0.2054 - accuracy: 0.9201
1002 Epoch 499/500
1003 136/136 [=====] - 0s
    536us/step - loss: 0.1882 - accuracy: 0.9309
1004 Epoch 500/500
1005 136/136 [=====] - 0s
    622us/step - loss: 0.1925 - accuracy: 0.9235
1006 WARNING:tensorflow:From /Library/Frameworks/
Python.framework/Versions/3.8/lib/python3.8/site-
packages/tensorflow/python/training/tracking/
tracking.py:111: Model.state_updates (from
tensorflow.python.keras.engine.training) is
deprecated and will be removed in a future
version.
1007 Instructions for updating:
1008 This property should not be used in TensorFlow 2.
0, as updates are applied automatically.
1009 2020-09-04 00:42:27.595089: W tensorflow/python/
util/util.cc:348] Sets are not currently
considered sequences, but this may change in the
future, so consider avoiding using them.
1010 WARNING:tensorflow:From /Library/Frameworks/
Python.framework/Versions/3.8/lib/python3.8/site-
packages/tensorflow/python/training/tracking/
tracking.py:111: Layer.updates (from tensorflow.
python.keras.engine.base_layer) is deprecated and
will be removed in a future version.
1011 Instructions for updating:
1012 This property should not be used in TensorFlow 2.
```

```
1012 0, as updates are applied automatically.  
1013  
1014 Process finished with exit code 0  
1015
```