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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 00:38:54.192949: 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 00:38:54.204062: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x7f8327285560 initialized for platform Host (this does not guarantee that XLA will be used). Devices:
5 2020-09-04 00:38:54.204097: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Host, Default Version
6 Epoch 1/450
7 136/136 [=====] - 0s 567us /step - loss: 1.4894 - accuracy: 0.3902
8 Epoch 2/450
9 136/136 [=====] - 0s 569us /step - loss: 1.0999 - accuracy: 0.6294
10 Epoch 3/450
11 136/136 [=====] - 0s 568us /step - loss: 0.7863 - accuracy: 0.7279
12 Epoch 4/450
13 136/136 [=====] - 0s 536us /step - loss: 0.6573 - accuracy: 0.7681
14 Epoch 5/450
15 136/136 [=====] - 0s 538us /step - loss: 0.6346 - accuracy: 0.7686
16 Epoch 6/450
17 136/136 [=====] - 0s 572us /step - loss: 0.5968 - accuracy: 0.7833
18 Epoch 7/450
19 136/136 [=====] - 0s 585us /step - loss: 0.5886 - accuracy: 0.7814
20 Epoch 8/450
21 136/136 [=====] - 0s 520us /step - loss: 0.5693 - accuracy: 0.7873
22 Epoch 9/450
23 136/136 [=====] - 0s 687us
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23 /step - loss: 0.5572 - accuracy: 0.7975
24 Epoch 10/450
25 136/136 [=====] - 0s 569us
    /step - loss: 0.5566 - accuracy: 0.7941
26 Epoch 11/450
27 136/136 [=====] - 0s 523us
    /step - loss: 0.5527 - accuracy: 0.8015
28 Epoch 12/450
29 136/136 [=====] - 0s 631us
    /step - loss: 0.5407 - accuracy: 0.8039
30 Epoch 13/450
31 136/136 [=====] - 0s 599us
    /step - loss: 0.5314 - accuracy: 0.8044
32 Epoch 14/450
33 136/136 [=====] - 0s 533us
    /step - loss: 0.5280 - accuracy: 0.8074
34 Epoch 15/450
35 136/136 [=====] - 0s 660us
    /step - loss: 0.5225 - accuracy: 0.8074
36 Epoch 16/450
37 136/136 [=====] - 0s 557us
    /step - loss: 0.5149 - accuracy: 0.8172
38 Epoch 17/450
39 136/136 [=====] - 0s 520us
    /step - loss: 0.5062 - accuracy: 0.8118
40 Epoch 18/450
41 136/136 [=====] - 0s 611us
    /step - loss: 0.5101 - accuracy: 0.8167
42 Epoch 19/450
43 136/136 [=====] - 0s 581us
    /step - loss: 0.5080 - accuracy: 0.8201
44 Epoch 20/450
45 136/136 [=====] - 0s 522us
    /step - loss: 0.5012 - accuracy: 0.8230
46 Epoch 21/450
47 136/136 [=====] - 0s 644us
    /step - loss: 0.4937 - accuracy: 0.8201
48 Epoch 22/450
49 136/136 [=====] - 0s 574us
    /step - loss: 0.4836 - accuracy: 0.8265
50 Epoch 23/450
51 136/136 [=====] - 0s 527us
    /step - loss: 0.4898 - accuracy: 0.8260
52 Epoch 24/450
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53 136/136 [=====] - 0s 619us
  /step - loss: 0.4761 - accuracy: 0.8196
54 Epoch 25/450
55 136/136 [=====] - 0s 579us
  /step - loss: 0.4695 - accuracy: 0.8255
56 Epoch 26/450
57 136/136 [=====] - 0s 524us
  /step - loss: 0.4702 - accuracy: 0.8245
58 Epoch 27/450
59 136/136 [=====] - 0s 611us
  /step - loss: 0.4642 - accuracy: 0.8377
60 Epoch 28/450
61 136/136 [=====] - 0s 645us
  /step - loss: 0.4621 - accuracy: 0.8324
62 Epoch 29/450
63 136/136 [=====] - 0s 774us
  /step - loss: 0.4564 - accuracy: 0.8343
64 Epoch 30/450
65 136/136 [=====] - 0s 557us
  /step - loss: 0.4522 - accuracy: 0.8348
66 Epoch 31/450
67 136/136 [=====] - 0s 558us
  /step - loss: 0.4512 - accuracy: 0.8324
68 Epoch 32/450
69 136/136 [=====] - 0s 588us
  /step - loss: 0.4457 - accuracy: 0.8407
70 Epoch 33/450
71 136/136 [=====] - 0s 591us
  /step - loss: 0.4549 - accuracy: 0.8387
72 Epoch 34/450
73 136/136 [=====] - 0s 526us
  /step - loss: 0.4472 - accuracy: 0.8343
74 Epoch 35/450
75 136/136 [=====] - 0s 580us
  /step - loss: 0.4299 - accuracy: 0.8412
76 Epoch 36/450
77 136/136 [=====] - 0s 570us
  /step - loss: 0.4331 - accuracy: 0.8397
78 Epoch 37/450
79 136/136 [=====] - 0s 523us
  /step - loss: 0.4346 - accuracy: 0.8382
80 Epoch 38/450
81 136/136 [=====] - 0s 621us
  /step - loss: 0.4269 - accuracy: 0.8475
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82 Epoch 39/450
83 136/136 [=====] - 0s
    557us/step - loss: 0.4253 - accuracy: 0.8446
84 Epoch 40/450
85 136/136 [=====] - 0s
    521us/step - loss: 0.4194 - accuracy: 0.8471
86 Epoch 41/450
87 136/136 [=====] - 0s
    588us/step - loss: 0.4234 - accuracy: 0.8436
88 Epoch 42/450
89 136/136 [=====] - 0s
    566us/step - loss: 0.4174 - accuracy: 0.8500
90 Epoch 43/450
91 136/136 [=====] - 0s
    516us/step - loss: 0.4237 - accuracy: 0.8525
92 Epoch 44/450
93 136/136 [=====] - 0s
    605us/step - loss: 0.4135 - accuracy: 0.8471
94 Epoch 45/450
95 136/136 [=====] - 0s
    591us/step - loss: 0.4069 - accuracy: 0.8534
96 Epoch 46/450
97 136/136 [=====] - 0s
    534us/step - loss: 0.4235 - accuracy: 0.8466
98 Epoch 47/450
99 136/136 [=====] - 0s
    640us/step - loss: 0.4104 - accuracy: 0.8490
100 Epoch 48/450
101 136/136 [=====] - 0s
    554us/step - loss: 0.4041 - accuracy: 0.8466
102 Epoch 49/450
103 136/136 [=====] - 0s
    523us/step - loss: 0.3991 - accuracy: 0.8549
104 Epoch 50/450
105 136/136 [=====] - 0s
    706us/step - loss: 0.4082 - accuracy: 0.8515
106 Epoch 51/450
107 136/136 [=====] - 0s
    566us/step - loss: 0.4184 - accuracy: 0.8515
108 Epoch 52/450
109 136/136 [=====] - 0s
    525us/step - loss: 0.4128 - accuracy: 0.8520
110 Epoch 53/450
111 136/136 [=====] - 0s
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111 606us/step - loss: 0.4011 - accuracy: 0.8554
112 Epoch 54/450
113 136/136 [=====] - 0s
    549us/step - loss: 0.4096 - accuracy: 0.8505
114 Epoch 55/450
115 136/136 [=====] - 0s
    520us/step - loss: 0.4017 - accuracy: 0.8583
116 Epoch 56/450
117 136/136 [=====] - 0s
    570us/step - loss: 0.3991 - accuracy: 0.8485
118 Epoch 57/450
119 136/136 [=====] - 0s
    610us/step - loss: 0.4014 - accuracy: 0.8471
120 Epoch 58/450
121 136/136 [=====] - 0s
    526us/step - loss: 0.4044 - accuracy: 0.8515
122 Epoch 59/450
123 136/136 [=====] - 0s
    645us/step - loss: 0.3992 - accuracy: 0.8495
124 Epoch 60/450
125 136/136 [=====] - 0s
    544us/step - loss: 0.3897 - accuracy: 0.8603
126 Epoch 61/450
127 136/136 [=====] - 0s
    512us/step - loss: 0.3979 - accuracy: 0.8544
128 Epoch 62/450
129 136/136 [=====] - 0s
    622us/step - loss: 0.3937 - accuracy: 0.8544
130 Epoch 63/450
131 136/136 [=====] - 0s
    598us/step - loss: 0.3975 - accuracy: 0.8559
132 Epoch 64/450
133 136/136 [=====] - 0s
    521us/step - loss: 0.3839 - accuracy: 0.8534
134 Epoch 65/450
135 136/136 [=====] - 0s
    602us/step - loss: 0.3892 - accuracy: 0.8544
136 Epoch 66/450
137 136/136 [=====] - 0s
    552us/step - loss: 0.3802 - accuracy: 0.8627
138 Epoch 67/450
139 136/136 [=====] - 0s
    527us/step - loss: 0.3742 - accuracy: 0.8657
140 Epoch 68/450
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141 136/136 [=====] - 0s
    604us/step - loss: 0.3784 - accuracy: 0.8613
142 Epoch 69/450
143 136/136 [=====] - 0s
    575us/step - loss: 0.3874 - accuracy: 0.8505
144 Epoch 70/450
145 136/136 [=====] - 0s
    529us/step - loss: 0.4035 - accuracy: 0.8495
146 Epoch 71/450
147 136/136 [=====] - 0s
    634us/step - loss: 0.3828 - accuracy: 0.8569
148 Epoch 72/450
149 136/136 [=====] - 0s
    555us/step - loss: 0.3833 - accuracy: 0.8574
150 Epoch 73/450
151 136/136 [=====] - 0s
    522us/step - loss: 0.3777 - accuracy: 0.8652
152 Epoch 74/450
153 136/136 [=====] - 0s
    603us/step - loss: 0.3758 - accuracy: 0.8632
154 Epoch 75/450
155 136/136 [=====] - 0s
    554us/step - loss: 0.3782 - accuracy: 0.8623
156 Epoch 76/450
157 136/136 [=====] - 0s
    549us/step - loss: 0.3908 - accuracy: 0.8554
158 Epoch 77/450
159 136/136 [=====] - 0s
    606us/step - loss: 0.3768 - accuracy: 0.8583
160 Epoch 78/450
161 136/136 [=====] - 0s
    550us/step - loss: 0.3819 - accuracy: 0.8564
162 Epoch 79/450
163 136/136 [=====] - 0s
    524us/step - loss: 0.3851 - accuracy: 0.8583
164 Epoch 80/450
165 136/136 [=====] - 0s
    584us/step - loss: 0.3741 - accuracy: 0.8574
166 Epoch 81/450
167 136/136 [=====] - 0s
    571us/step - loss: 0.3774 - accuracy: 0.8559
168 Epoch 82/450
169 136/136 [=====] - 0s
    544us/step - loss: 0.3715 - accuracy: 0.8618
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170 Epoch 83/450
171 136/136 [=====] - 0s
    602us/step - loss: 0.3647 - accuracy: 0.8647
172 Epoch 84/450
173 136/136 [=====] - 0s
    554us/step - loss: 0.3713 - accuracy: 0.8632
174 Epoch 85/450
175 136/136 [=====] - 0s
    521us/step - loss: 0.3697 - accuracy: 0.8657
176 Epoch 86/450
177 136/136 [=====] - 0s
    591us/step - loss: 0.3630 - accuracy: 0.8667
178 Epoch 87/450
179 136/136 [=====] - 0s
    562us/step - loss: 0.3619 - accuracy: 0.8632
180 Epoch 88/450
181 136/136 [=====] - 0s
    527us/step - loss: 0.3789 - accuracy: 0.8647
182 Epoch 89/450
183 136/136 [=====] - 0s
    611us/step - loss: 0.3591 - accuracy: 0.8618
184 Epoch 90/450
185 136/136 [=====] - 0s
    549us/step - loss: 0.3593 - accuracy: 0.8618
186 Epoch 91/450
187 136/136 [=====] - 0s
    547us/step - loss: 0.3675 - accuracy: 0.8647
188 Epoch 92/450
189 136/136 [=====] - 0s
    615us/step - loss: 0.3769 - accuracy: 0.8608
190 Epoch 93/450
191 136/136 [=====] - 0s
    557us/step - loss: 0.3645 - accuracy: 0.8721
192 Epoch 94/450
193 136/136 [=====] - 0s
    527us/step - loss: 0.3637 - accuracy: 0.8667
194 Epoch 95/450
195 136/136 [=====] - 0s
    622us/step - loss: 0.3599 - accuracy: 0.8676
196 Epoch 96/450
197 136/136 [=====] - 0s
    561us/step - loss: 0.3569 - accuracy: 0.8730
198 Epoch 97/450
199 136/136 [=====] - 0s
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199 524us/step - loss: 0.3594 - accuracy: 0.8701
200 Epoch 98/450
201 136/136 [=====] - 0s
    608us/step - loss: 0.3617 - accuracy: 0.8623
202 Epoch 99/450
203 136/136 [=====] - 0s
    556us/step - loss: 0.3570 - accuracy: 0.8613
204 Epoch 100/450
205 136/136 [=====] - 0s
    523us/step - loss: 0.3585 - accuracy: 0.8652
206 Epoch 101/450
207 136/136 [=====] - 0s
    620us/step - loss: 0.3583 - accuracy: 0.8642
208 Epoch 102/450
209 136/136 [=====] - 0s
    568us/step - loss: 0.3496 - accuracy: 0.8672
210 Epoch 103/450
211 136/136 [=====] - 0s
    526us/step - loss: 0.3641 - accuracy: 0.8735
212 Epoch 104/450
213 136/136 [=====] - 0s
    602us/step - loss: 0.3526 - accuracy: 0.8657
214 Epoch 105/450
215 136/136 [=====] - 0s
    554us/step - loss: 0.3674 - accuracy: 0.8623
216 Epoch 106/450
217 136/136 [=====] - 0s
    522us/step - loss: 0.3641 - accuracy: 0.8613
218 Epoch 107/450
219 136/136 [=====] - 0s
    588us/step - loss: 0.3535 - accuracy: 0.8721
220 Epoch 108/450
221 136/136 [=====] - 0s
    601us/step - loss: 0.3626 - accuracy: 0.8652
222 Epoch 109/450
223 136/136 [=====] - 0s
    525us/step - loss: 0.3579 - accuracy: 0.8711
224 Epoch 110/450
225 136/136 [=====] - 0s
    604us/step - loss: 0.3631 - accuracy: 0.8642
226 Epoch 111/450
227 136/136 [=====] - 0s
    559us/step - loss: 0.3615 - accuracy: 0.8637
228 Epoch 112/450
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229 136/136 [=====] - 0s
    521us/step - loss: 0.3523 - accuracy: 0.8721
230 Epoch 113/450
231 136/136 [=====] - 0s
    591us/step - loss: 0.3523 - accuracy: 0.8706
232 Epoch 114/450
233 136/136 [=====] - 0s
    587us/step - loss: 0.3401 - accuracy: 0.8750
234 Epoch 115/450
235 136/136 [=====] - 0s
    521us/step - loss: 0.3489 - accuracy: 0.8711
236 Epoch 116/450
237 136/136 [=====] - 0s
    612us/step - loss: 0.3560 - accuracy: 0.8657
238 Epoch 117/450
239 136/136 [=====] - 0s
    559us/step - loss: 0.3470 - accuracy: 0.8716
240 Epoch 118/450
241 136/136 [=====] - 0s
    525us/step - loss: 0.3473 - accuracy: 0.8686
242 Epoch 119/450
243 136/136 [=====] - 0s
    589us/step - loss: 0.3435 - accuracy: 0.8725
244 Epoch 120/450
245 136/136 [=====] - 0s
    575us/step - loss: 0.3534 - accuracy: 0.8672
246 Epoch 121/450
247 136/136 [=====] - 0s
    549us/step - loss: 0.3573 - accuracy: 0.8681
248 Epoch 122/450
249 136/136 [=====] - 0s
    604us/step - loss: 0.3445 - accuracy: 0.8706
250 Epoch 123/450
251 136/136 [=====] - 0s
    553us/step - loss: 0.3487 - accuracy: 0.8662
252 Epoch 124/450
253 136/136 [=====] - 0s
    524us/step - loss: 0.3496 - accuracy: 0.8740
254 Epoch 125/450
255 136/136 [=====] - 0s
    584us/step - loss: 0.3421 - accuracy: 0.8735
256 Epoch 126/450
257 136/136 [=====] - 0s
    574us/step - loss: 0.3368 - accuracy: 0.8686
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258 Epoch 127/450
259 136/136 [=====] - 0s
      548us/step - loss: 0.3366 - accuracy: 0.8735
260 Epoch 128/450
261 136/136 [=====] - 0s
      610us/step - loss: 0.3509 - accuracy: 0.8662
262 Epoch 129/450
263 136/136 [=====] - 0s
      555us/step - loss: 0.3502 - accuracy: 0.8755
264 Epoch 130/450
265 136/136 [=====] - 0s
      523us/step - loss: 0.3397 - accuracy: 0.8681
266 Epoch 131/450
267 136/136 [=====] - 0s
      587us/step - loss: 0.3591 - accuracy: 0.8637
268 Epoch 132/450
269 136/136 [=====] - 0s
      578us/step - loss: 0.3487 - accuracy: 0.8711
270 Epoch 133/450
271 136/136 [=====] - 0s
      528us/step - loss: 0.3458 - accuracy: 0.8706
272 Epoch 134/450
273 136/136 [=====] - 0s
      619us/step - loss: 0.3369 - accuracy: 0.8721
274 Epoch 135/450
275 136/136 [=====] - 0s
      552us/step - loss: 0.3430 - accuracy: 0.8750
276 Epoch 136/450
277 136/136 [=====] - 0s
      521us/step - loss: 0.3420 - accuracy: 0.8755
278 Epoch 137/450
279 136/136 [=====] - 0s
      589us/step - loss: 0.3339 - accuracy: 0.8770
280 Epoch 138/450
281 136/136 [=====] - 0s
      566us/step - loss: 0.3316 - accuracy: 0.8809
282 Epoch 139/450
283 136/136 [=====] - 0s
      527us/step - loss: 0.3372 - accuracy: 0.8750
284 Epoch 140/450
285 136/136 [=====] - 0s
      644us/step - loss: 0.3422 - accuracy: 0.8711
286 Epoch 141/450
287 136/136 [=====] - 0s
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287 561us/step - loss: 0.3302 - accuracy: 0.8828
288 Epoch 142/450
289 136/136 [=====] - 0s
    522us/step - loss: 0.3322 - accuracy: 0.8745
290 Epoch 143/450
291 136/136 [=====] - 0s
    610us/step - loss: 0.3445 - accuracy: 0.8681
292 Epoch 144/450
293 136/136 [=====] - 0s
    553us/step - loss: 0.3370 - accuracy: 0.8676
294 Epoch 145/450
295 136/136 [=====] - 0s
    527us/step - loss: 0.3294 - accuracy: 0.8770
296 Epoch 146/450
297 136/136 [=====] - 0s
    633us/step - loss: 0.3313 - accuracy: 0.8828
298 Epoch 147/450
299 136/136 [=====] - 0s
    569us/step - loss: 0.3339 - accuracy: 0.8691
300 Epoch 148/450
301 136/136 [=====] - 0s
    522us/step - loss: 0.3385 - accuracy: 0.8706
302 Epoch 149/450
303 136/136 [=====] - 0s
    607us/step - loss: 0.3295 - accuracy: 0.8750
304 Epoch 150/450
305 136/136 [=====] - 0s
    555us/step - loss: 0.3311 - accuracy: 0.8760
306 Epoch 151/450
307 136/136 [=====] - 0s
    524us/step - loss: 0.3324 - accuracy: 0.8765
308 Epoch 152/450
309 136/136 [=====] - 0s
    590us/step - loss: 0.3301 - accuracy: 0.8784
310 Epoch 153/450
311 136/136 [=====] - 0s
    600us/step - loss: 0.3245 - accuracy: 0.8765
312 Epoch 154/450
313 136/136 [=====] - 0s
    525us/step - loss: 0.3236 - accuracy: 0.8789
314 Epoch 155/450
315 136/136 [=====] - 0s
    607us/step - loss: 0.3307 - accuracy: 0.8730
316 Epoch 156/450
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317 136/136 [=====] - 0s
    550us/step - loss: 0.3222 - accuracy: 0.8809
318 Epoch 157/450
319 136/136 [=====] - 0s
    523us/step - loss: 0.3375 - accuracy: 0.8721
320 Epoch 158/450
321 136/136 [=====] - 0s
    586us/step - loss: 0.3190 - accuracy: 0.8750
322 Epoch 159/450
323 136/136 [=====] - 0s
    593us/step - loss: 0.3228 - accuracy: 0.8809
324 Epoch 160/450
325 136/136 [=====] - 0s
    514us/step - loss: 0.3228 - accuracy: 0.8799
326 Epoch 161/450
327 136/136 [=====] - 0s
    597us/step - loss: 0.3241 - accuracy: 0.8735
328 Epoch 162/450
329 136/136 [=====] - 0s
    573us/step - loss: 0.3374 - accuracy: 0.8770
330 Epoch 163/450
331 136/136 [=====] - 0s
    522us/step - loss: 0.3294 - accuracy: 0.8765
332 Epoch 164/450
333 136/136 [=====] - 0s
    586us/step - loss: 0.3234 - accuracy: 0.8809
334 Epoch 165/450
335 136/136 [=====] - 0s
    588us/step - loss: 0.3187 - accuracy: 0.8853
336 Epoch 166/450
337 136/136 [=====] - 0s
    531us/step - loss: 0.3222 - accuracy: 0.8740
338 Epoch 167/450
339 136/136 [=====] - 0s
    606us/step - loss: 0.3141 - accuracy: 0.8828
340 Epoch 168/450
341 136/136 [=====] - 0s
    556us/step - loss: 0.3235 - accuracy: 0.8843
342 Epoch 169/450
343 136/136 [=====] - 0s
    521us/step - loss: 0.3276 - accuracy: 0.8716
344 Epoch 170/450
345 136/136 [=====] - 0s
    590us/step - loss: 0.3198 - accuracy: 0.8814
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346 Epoch 171/450
347 136/136 [=====] - 0s
      564us/step - loss: 0.3303 - accuracy: 0.8784
348 Epoch 172/450
349 136/136 [=====] - 0s
      547us/step - loss: 0.3134 - accuracy: 0.8848
350 Epoch 173/450
351 136/136 [=====] - 0s
      602us/step - loss: 0.3239 - accuracy: 0.8760
352 Epoch 174/450
353 136/136 [=====] - 0s
      557us/step - loss: 0.3307 - accuracy: 0.8711
354 Epoch 175/450
355 136/136 [=====] - 0s
      522us/step - loss: 0.3213 - accuracy: 0.8843
356 Epoch 176/450
357 136/136 [=====] - 0s
      668us/step - loss: 0.3154 - accuracy: 0.8775
358 Epoch 177/450
359 136/136 [=====] - 0s
      602us/step - loss: 0.3198 - accuracy: 0.8794
360 Epoch 178/450
361 136/136 [=====] - 0s
      563us/step - loss: 0.3276 - accuracy: 0.8750
362 Epoch 179/450
363 136/136 [=====] - 0s
      599us/step - loss: 0.3153 - accuracy: 0.8770
364 Epoch 180/450
365 136/136 [=====] - 0s
      551us/step - loss: 0.3157 - accuracy: 0.8740
366 Epoch 181/450
367 136/136 [=====] - 0s
      555us/step - loss: 0.3229 - accuracy: 0.8779
368 Epoch 182/450
369 136/136 [=====] - 0s
      584us/step - loss: 0.3137 - accuracy: 0.8843
370 Epoch 183/450
371 136/136 [=====] - 0s
      521us/step - loss: 0.3193 - accuracy: 0.8828
372 Epoch 184/450
373 136/136 [=====] - 0s
      613us/step - loss: 0.3176 - accuracy: 0.8828
374 Epoch 185/450
375 136/136 [=====] - 0s
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375 582us/step - loss: 0.3232 - accuracy: 0.8824
376 Epoch 186/450
377 136/136 [=====] - 0s
    522us/step - loss: 0.3192 - accuracy: 0.8775
378 Epoch 187/450
379 136/136 [=====] - 0s
    605us/step - loss: 0.3176 - accuracy: 0.8735
380 Epoch 188/450
381 136/136 [=====] - 0s
    553us/step - loss: 0.3227 - accuracy: 0.8740
382 Epoch 189/450
383 136/136 [=====] - 0s
    521us/step - loss: 0.3153 - accuracy: 0.8784
384 Epoch 190/450
385 136/136 [=====] - 0s
    580us/step - loss: 0.3101 - accuracy: 0.8789
386 Epoch 191/450
387 136/136 [=====] - 0s
    590us/step - loss: 0.3134 - accuracy: 0.8804
388 Epoch 192/450
389 136/136 [=====] - 0s
    510us/step - loss: 0.3169 - accuracy: 0.8730
390 Epoch 193/450
391 136/136 [=====] - 0s
    595us/step - loss: 0.3059 - accuracy: 0.8799
392 Epoch 194/450
393 136/136 [=====] - 0s
    573us/step - loss: 0.3147 - accuracy: 0.8770
394 Epoch 195/450
395 136/136 [=====] - 0s
    521us/step - loss: 0.3128 - accuracy: 0.8838
396 Epoch 196/450
397 136/136 [=====] - 0s
    607us/step - loss: 0.3144 - accuracy: 0.8799
398 Epoch 197/450
399 136/136 [=====] - 0s
    585us/step - loss: 0.3153 - accuracy: 0.8789
400 Epoch 198/450
401 136/136 [=====] - 0s
    510us/step - loss: 0.3049 - accuracy: 0.8858
402 Epoch 199/450
403 136/136 [=====] - 0s
    577us/step - loss: 0.3290 - accuracy: 0.8789
404 Epoch 200/450
```

```
405 136/136 [=====] - 0s
    583us/step - loss: 0.3166 - accuracy: 0.8745
406 Epoch 201/450
407 136/136 [=====] - 0s
    524us/step - loss: 0.3048 - accuracy: 0.8892
408 Epoch 202/450
409 136/136 [=====] - 0s
    587us/step - loss: 0.3052 - accuracy: 0.8907
410 Epoch 203/450
411 136/136 [=====] - 0s
    568us/step - loss: 0.3107 - accuracy: 0.8814
412 Epoch 204/450
413 136/136 [=====] - 0s
    543us/step - loss: 0.3005 - accuracy: 0.8838
414 Epoch 205/450
415 136/136 [=====] - 0s
    607us/step - loss: 0.3054 - accuracy: 0.8877
416 Epoch 206/450
417 136/136 [=====] - 0s
    556us/step - loss: 0.3139 - accuracy: 0.8799
418 Epoch 207/450
419 136/136 [=====] - 0s
    520us/step - loss: 0.3149 - accuracy: 0.8824
420 Epoch 208/450
421 136/136 [=====] - 0s
    576us/step - loss: 0.3061 - accuracy: 0.8843
422 Epoch 209/450
423 136/136 [=====] - 0s
    567us/step - loss: 0.3096 - accuracy: 0.8873
424 Epoch 210/450
425 136/136 [=====] - 0s
    544us/step - loss: 0.2945 - accuracy: 0.8897
426 Epoch 211/450
427 136/136 [=====] - 0s
    588us/step - loss: 0.3142 - accuracy: 0.8799
428 Epoch 212/450
429 136/136 [=====] - 0s
    562us/step - loss: 0.3116 - accuracy: 0.8838
430 Epoch 213/450
431 136/136 [=====] - 0s
    520us/step - loss: 0.2997 - accuracy: 0.8917
432 Epoch 214/450
433 136/136 [=====] - 0s
    582us/step - loss: 0.3010 - accuracy: 0.8838
```

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434 Epoch 215/450
435 136/136 [=====] - 0s
    572us/step - loss: 0.3006 - accuracy: 0.8873
436 Epoch 216/450
437 136/136 [=====] - 0s
    526us/step - loss: 0.3118 - accuracy: 0.8775
438 Epoch 217/450
439 136/136 [=====] - 0s
    620us/step - loss: 0.2973 - accuracy: 0.8863
440 Epoch 218/450
441 136/136 [=====] - 0s
    557us/step - loss: 0.2985 - accuracy: 0.8838
442 Epoch 219/450
443 136/136 [=====] - 0s
    520us/step - loss: 0.3021 - accuracy: 0.8907
444 Epoch 220/450
445 136/136 [=====] - 0s
    582us/step - loss: 0.3138 - accuracy: 0.8804
446 Epoch 221/450
447 136/136 [=====] - 0s
    569us/step - loss: 0.3062 - accuracy: 0.8882
448 Epoch 222/450
449 136/136 [=====] - 0s
    523us/step - loss: 0.2977 - accuracy: 0.8828
450 Epoch 223/450
451 136/136 [=====] - 0s
    634us/step - loss: 0.3039 - accuracy: 0.8833
452 Epoch 224/450
453 136/136 [=====] - 0s
    566us/step - loss: 0.2986 - accuracy: 0.8868
454 Epoch 225/450
455 136/136 [=====] - 0s
    522us/step - loss: 0.3093 - accuracy: 0.8824
456 Epoch 226/450
457 136/136 [=====] - 0s
    601us/step - loss: 0.2924 - accuracy: 0.8897
458 Epoch 227/450
459 136/136 [=====] - 0s
    538us/step - loss: 0.3029 - accuracy: 0.8828
460 Epoch 228/450
461 136/136 [=====] - 0s
    521us/step - loss: 0.2975 - accuracy: 0.8892
462 Epoch 229/450
463 136/136 [=====] - 0s
```

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463 609us/step - loss: 0.2976 - accuracy: 0.8833
464 Epoch 230/450
465 136/136 [=====] - 0s
    585us/step - loss: 0.3123 - accuracy: 0.8838
466 Epoch 231/450
467 136/136 [=====] - 0s
    517us/step - loss: 0.2898 - accuracy: 0.8907
468 Epoch 232/450
469 136/136 [=====] - 0s
    598us/step - loss: 0.2986 - accuracy: 0.8902
470 Epoch 233/450
471 136/136 [=====] - 0s
    554us/step - loss: 0.2919 - accuracy: 0.8892
472 Epoch 234/450
473 136/136 [=====] - 0s
    528us/step - loss: 0.2919 - accuracy: 0.8922
474 Epoch 235/450
475 136/136 [=====] - 0s
    586us/step - loss: 0.2988 - accuracy: 0.8936
476 Epoch 236/450
477 136/136 [=====] - 0s
    589us/step - loss: 0.2969 - accuracy: 0.8897
478 Epoch 237/450
479 136/136 [=====] - 0s
    525us/step - loss: 0.2897 - accuracy: 0.8902
480 Epoch 238/450
481 136/136 [=====] - 0s
    706us/step - loss: 0.2851 - accuracy: 0.8887
482 Epoch 239/450
483 136/136 [=====] - 0s
    583us/step - loss: 0.3004 - accuracy: 0.8828
484 Epoch 240/450
485 136/136 [=====] - 0s
    534us/step - loss: 0.2993 - accuracy: 0.8868
486 Epoch 241/450
487 136/136 [=====] - 0s
    752us/step - loss: 0.3080 - accuracy: 0.8858
488 Epoch 242/450
489 136/136 [=====] - 0s
    589us/step - loss: 0.3056 - accuracy: 0.8804
490 Epoch 243/450
491 136/136 [=====] - 0s
    546us/step - loss: 0.2925 - accuracy: 0.8877
492 Epoch 244/450
```

```
493 136/136 [=====] - 0s
    576us/step - loss: 0.2866 - accuracy: 0.8912
494 Epoch 245/450
495 136/136 [=====] - 0s
    514us/step - loss: 0.2941 - accuracy: 0.8931
496 Epoch 246/450
497 136/136 [=====] - 0s
    533us/step - loss: 0.2840 - accuracy: 0.9010
498 Epoch 247/450
499 136/136 [=====] - 0s
    617us/step - loss: 0.2847 - accuracy: 0.8912
500 Epoch 248/450
501 136/136 [=====] - 0s
    552us/step - loss: 0.3003 - accuracy: 0.8868
502 Epoch 249/450
503 136/136 [=====] - 0s
    601us/step - loss: 0.2970 - accuracy: 0.8848
504 Epoch 250/450
505 136/136 [=====] - 0s
    552us/step - loss: 0.2919 - accuracy: 0.8897
506 Epoch 251/450
507 136/136 [=====] - 0s
    521us/step - loss: 0.2932 - accuracy: 0.8897
508 Epoch 252/450
509 136/136 [=====] - 0s
    586us/step - loss: 0.2910 - accuracy: 0.8917
510 Epoch 253/450
511 136/136 [=====] - 0s
    579us/step - loss: 0.2879 - accuracy: 0.8922
512 Epoch 254/450
513 136/136 [=====] - 0s
    530us/step - loss: 0.2734 - accuracy: 0.9000
514 Epoch 255/450
515 136/136 [=====] - 0s
    649us/step - loss: 0.2841 - accuracy: 0.8946
516 Epoch 256/450
517 136/136 [=====] - 0s
    555us/step - loss: 0.2915 - accuracy: 0.8980
518 Epoch 257/450
519 136/136 [=====] - 0s
    522us/step - loss: 0.2830 - accuracy: 0.8941
520 Epoch 258/450
521 136/136 [=====] - 0s
    601us/step - loss: 0.2781 - accuracy: 0.8902
```

```
522 Epoch 259/450
523 136/136 [=====] - 0s
    549us/step - loss: 0.2944 - accuracy: 0.8833
524 Epoch 260/450
525 136/136 [=====] - 0s
    517us/step - loss: 0.2975 - accuracy: 0.8892
526 Epoch 261/450
527 136/136 [=====] - 0s
    707us/step - loss: 0.2811 - accuracy: 0.8946
528 Epoch 262/450
529 136/136 [=====] - 0s
    575us/step - loss: 0.2885 - accuracy: 0.8853
530 Epoch 263/450
531 136/136 [=====] - 0s
    515us/step - loss: 0.2865 - accuracy: 0.8922
532 Epoch 264/450
533 136/136 [=====] - 0s
    606us/step - loss: 0.2836 - accuracy: 0.8902
534 Epoch 265/450
535 136/136 [=====] - 0s
    545us/step - loss: 0.2793 - accuracy: 0.8946
536 Epoch 266/450
537 136/136 [=====] - 0s
    509us/step - loss: 0.2942 - accuracy: 0.8853
538 Epoch 267/450
539 136/136 [=====] - 0s
    583us/step - loss: 0.2788 - accuracy: 0.8966
540 Epoch 268/450
541 136/136 [=====] - 0s
    607us/step - loss: 0.2797 - accuracy: 0.8912
542 Epoch 269/450
543 136/136 [=====] - 0s
    531us/step - loss: 0.2825 - accuracy: 0.8926
544 Epoch 270/450
545 136/136 [=====] - 0s
    602us/step - loss: 0.2815 - accuracy: 0.8946
546 Epoch 271/450
547 136/136 [=====] - 0s
    555us/step - loss: 0.2816 - accuracy: 0.8990
548 Epoch 272/450
549 136/136 [=====] - 0s
    518us/step - loss: 0.2778 - accuracy: 0.8926
550 Epoch 273/450
551 136/136 [=====] - 0s
```

```
551 577us/step - loss: 0.2857 - accuracy: 0.8912
552 Epoch 274/450
553 136/136 [=====] - 0s
    597us/step - loss: 0.2893 - accuracy: 0.8868
554 Epoch 275/450
555 136/136 [=====] - 0s
    519us/step - loss: 0.2785 - accuracy: 0.8892
556 Epoch 276/450
557 136/136 [=====] - 0s
    602us/step - loss: 0.2788 - accuracy: 0.8946
558 Epoch 277/450
559 136/136 [=====] - 0s
    556us/step - loss: 0.2766 - accuracy: 0.9005
560 Epoch 278/450
561 136/136 [=====] - 0s
    519us/step - loss: 0.2820 - accuracy: 0.8971
562 Epoch 279/450
563 136/136 [=====] - 0s
    577us/step - loss: 0.2765 - accuracy: 0.8980
564 Epoch 280/450
565 136/136 [=====] - 0s
    604us/step - loss: 0.2680 - accuracy: 0.8951
566 Epoch 281/450
567 136/136 [=====] - 0s
    520us/step - loss: 0.2791 - accuracy: 0.8941
568 Epoch 282/450
569 136/136 [=====] - 0s
    591us/step - loss: 0.2830 - accuracy: 0.8956
570 Epoch 283/450
571 136/136 [=====] - 0s
    554us/step - loss: 0.2693 - accuracy: 0.8966
572 Epoch 284/450
573 136/136 [=====] - 0s
    523us/step - loss: 0.2771 - accuracy: 0.8975
574 Epoch 285/450
575 136/136 [=====] - 0s
    580us/step - loss: 0.2826 - accuracy: 0.8971
576 Epoch 286/450
577 136/136 [=====] - 0s
    575us/step - loss: 0.2719 - accuracy: 0.8951
578 Epoch 287/450
579 136/136 [=====] - 0s
    543us/step - loss: 0.2733 - accuracy: 0.8917
580 Epoch 288/450
```

```
581 136/136 [=====] - 0s
    578us/step - loss: 0.2727 - accuracy: 0.8931
582 Epoch 289/450
583 136/136 [=====] - 0s
    572us/step - loss: 0.2730 - accuracy: 0.8980
584 Epoch 290/450
585 136/136 [=====] - 0s
    520us/step - loss: 0.2735 - accuracy: 0.8985
586 Epoch 291/450
587 136/136 [=====] - 0s
    577us/step - loss: 0.2691 - accuracy: 0.9015
588 Epoch 292/450
589 136/136 [=====] - 0s
    577us/step - loss: 0.2893 - accuracy: 0.8892
590 Epoch 293/450
591 136/136 [=====] - 0s
    540us/step - loss: 0.2803 - accuracy: 0.8897
592 Epoch 294/450
593 136/136 [=====] - 0s
    588us/step - loss: 0.2724 - accuracy: 0.8956
594 Epoch 295/450
595 136/136 [=====] - 0s
    569us/step - loss: 0.2838 - accuracy: 0.8946
596 Epoch 296/450
597 136/136 [=====] - 0s
    519us/step - loss: 0.2662 - accuracy: 0.9005
598 Epoch 297/450
599 136/136 [=====] - 0s
    578us/step - loss: 0.2723 - accuracy: 0.9020
600 Epoch 298/450
601 136/136 [=====] - 0s
    578us/step - loss: 0.2682 - accuracy: 0.8961
602 Epoch 299/450
603 136/136 [=====] - 0s
    520us/step - loss: 0.2594 - accuracy: 0.9044
604 Epoch 300/450
605 136/136 [=====] - 0s
    604us/step - loss: 0.2797 - accuracy: 0.8887
606 Epoch 301/450
607 136/136 [=====] - 0s
    564us/step - loss: 0.2708 - accuracy: 0.8956
608 Epoch 302/450
609 136/136 [=====] - 0s
    520us/step - loss: 0.2752 - accuracy: 0.8971
```

```
610 Epoch 303/450
611 136/136 [=====] - 0s
    590us/step - loss: 0.2690 - accuracy: 0.8951
612 Epoch 304/450
613 136/136 [=====] - 0s
    544us/step - loss: 0.2808 - accuracy: 0.8917
614 Epoch 305/450
615 136/136 [=====] - 0s
    522us/step - loss: 0.2742 - accuracy: 0.9000
616 Epoch 306/450
617 136/136 [=====] - 0s
    622us/step - loss: 0.2757 - accuracy: 0.8917
618 Epoch 307/450
619 136/136 [=====] - 0s
    574us/step - loss: 0.2745 - accuracy: 0.8922
620 Epoch 308/450
621 136/136 [=====] - 0s
    533us/step - loss: 0.2784 - accuracy: 0.8931
622 Epoch 309/450
623 136/136 [=====] - 0s
    604us/step - loss: 0.2669 - accuracy: 0.8985
624 Epoch 310/450
625 136/136 [=====] - 0s
    544us/step - loss: 0.2662 - accuracy: 0.8966
626 Epoch 311/450
627 136/136 [=====] - 0s
    521us/step - loss: 0.2606 - accuracy: 0.9000
628 Epoch 312/450
629 136/136 [=====] - 0s
    619us/step - loss: 0.2716 - accuracy: 0.8975
630 Epoch 313/450
631 136/136 [=====] - 0s
    595us/step - loss: 0.2679 - accuracy: 0.8946
632 Epoch 314/450
633 136/136 [=====] - 0s
    512us/step - loss: 0.2697 - accuracy: 0.8902
634 Epoch 315/450
635 136/136 [=====] - 0s
    588us/step - loss: 0.2608 - accuracy: 0.9029
636 Epoch 316/450
637 136/136 [=====] - 0s
    565us/step - loss: 0.2625 - accuracy: 0.9015
638 Epoch 317/450
639 136/136 [=====] - 0s
```

```
639 536us/step - loss: 0.2581 - accuracy: 0.9049
640 Epoch 318/450
641 136/136 [=====] - 0s
  577us/step - loss: 0.2682 - accuracy: 0.8966
642 Epoch 319/450
643 136/136 [=====] - 0s
  602us/step - loss: 0.2759 - accuracy: 0.8956
644 Epoch 320/450
645 136/136 [=====] - 0s
  520us/step - loss: 0.2623 - accuracy: 0.9005
646 Epoch 321/450
647 136/136 [=====] - 0s
  605us/step - loss: 0.2579 - accuracy: 0.8975
648 Epoch 322/450
649 136/136 [=====] - 0s
  556us/step - loss: 0.2726 - accuracy: 0.8941
650 Epoch 323/450
651 136/136 [=====] - 0s
  520us/step - loss: 0.2599 - accuracy: 0.9034
652 Epoch 324/450
653 136/136 [=====] - 0s
  601us/step - loss: 0.2597 - accuracy: 0.9069
654 Epoch 325/450
655 136/136 [=====] - 0s
  579us/step - loss: 0.2739 - accuracy: 0.8892
656 Epoch 326/450
657 136/136 [=====] - 0s
  519us/step - loss: 0.2720 - accuracy: 0.8966
658 Epoch 327/450
659 136/136 [=====] - 0s
  597us/step - loss: 0.2625 - accuracy: 0.9015
660 Epoch 328/450
661 136/136 [=====] - 0s
  556us/step - loss: 0.2627 - accuracy: 0.8990
662 Epoch 329/450
663 136/136 [=====] - 0s
  519us/step - loss: 0.2711 - accuracy: 0.8931
664 Epoch 330/450
665 136/136 [=====] - 0s
  578us/step - loss: 0.2723 - accuracy: 0.8971
666 Epoch 331/450
667 136/136 [=====] - 0s
  572us/step - loss: 0.2572 - accuracy: 0.8956
668 Epoch 332/450
```

```
669 136/136 [=====] - 0s
    534us/step - loss: 0.2649 - accuracy: 0.8985
670 Epoch 333/450
671 136/136 [=====] - 0s
    567us/step - loss: 0.2653 - accuracy: 0.9020
672 Epoch 334/450
673 136/136 [=====] - 0s
    563us/step - loss: 0.2562 - accuracy: 0.9025
674 Epoch 335/450
675 136/136 [=====] - 0s
    500us/step - loss: 0.2579 - accuracy: 0.8975
676 Epoch 336/450
677 136/136 [=====] - 0s
    562us/step - loss: 0.2682 - accuracy: 0.8980
678 Epoch 337/450
679 136/136 [=====] - 0s
    583us/step - loss: 0.2658 - accuracy: 0.9020
680 Epoch 338/450
681 136/136 [=====] - 0s
    551us/step - loss: 0.2662 - accuracy: 0.9005
682 Epoch 339/450
683 136/136 [=====] - 0s
    587us/step - loss: 0.2548 - accuracy: 0.9069
684 Epoch 340/450
685 136/136 [=====] - 0s
    567us/step - loss: 0.2552 - accuracy: 0.9034
686 Epoch 341/450
687 136/136 [=====] - 0s
    518us/step - loss: 0.2536 - accuracy: 0.9039
688 Epoch 342/450
689 136/136 [=====] - 0s
    581us/step - loss: 0.2548 - accuracy: 0.9020
690 Epoch 343/450
691 136/136 [=====] - 0s
    577us/step - loss: 0.2545 - accuracy: 0.9039
692 Epoch 344/450
693 136/136 [=====] - 0s
    518us/step - loss: 0.2527 - accuracy: 0.9034
694 Epoch 345/450
695 136/136 [=====] - 0s
    616us/step - loss: 0.2542 - accuracy: 0.9054
696 Epoch 346/450
697 136/136 [=====] - 0s
    557us/step - loss: 0.2565 - accuracy: 0.9083
```

```
698 Epoch 347/450
699 136/136 [=====] - 0s
    509us/step - loss: 0.2590 - accuracy: 0.9069
700 Epoch 348/450
701 136/136 [=====] - 0s
    578us/step - loss: 0.2503 - accuracy: 0.9108
702 Epoch 349/450
703 136/136 [=====] - 0s
    574us/step - loss: 0.2602 - accuracy: 0.8961
704 Epoch 350/450
705 136/136 [=====] - 0s
    521us/step - loss: 0.2492 - accuracy: 0.9074
706 Epoch 351/450
707 136/136 [=====] - 0s
    608us/step - loss: 0.2700 - accuracy: 0.8936
708 Epoch 352/450
709 136/136 [=====] - 0s
    574us/step - loss: 0.2570 - accuracy: 0.9064
710 Epoch 353/450
711 136/136 [=====] - 0s
    510us/step - loss: 0.2534 - accuracy: 0.9025
712 Epoch 354/450
713 136/136 [=====] - 0s
    561us/step - loss: 0.2496 - accuracy: 0.9078
714 Epoch 355/450
715 136/136 [=====] - 0s
    594us/step - loss: 0.2528 - accuracy: 0.9083
716 Epoch 356/450
717 136/136 [=====] - 0s
    533us/step - loss: 0.2475 - accuracy: 0.9039
718 Epoch 357/450
719 136/136 [=====] - 0s
    597us/step - loss: 0.2516 - accuracy: 0.9020
720 Epoch 358/450
721 136/136 [=====] - 0s
    590us/step - loss: 0.2426 - accuracy: 0.9074
722 Epoch 359/450
723 136/136 [=====] - 0s
    522us/step - loss: 0.2519 - accuracy: 0.9015
724 Epoch 360/450
725 136/136 [=====] - 0s
    588us/step - loss: 0.2475 - accuracy: 0.9078
726 Epoch 361/450
727 136/136 [=====] - 0s
```

```
727 555us/step - loss: 0.2539 - accuracy: 0.9064
728 Epoch 362/450
729 136/136 [=====] - 0s
    518us/step - loss: 0.2562 - accuracy: 0.9029
730 Epoch 363/450
731 136/136 [=====] - 0s
    576us/step - loss: 0.2548 - accuracy: 0.9034
732 Epoch 364/450
733 136/136 [=====] - 0s
    599us/step - loss: 0.2583 - accuracy: 0.9039
734 Epoch 365/450
735 136/136 [=====] - 0s
    520us/step - loss: 0.2433 - accuracy: 0.9054
736 Epoch 366/450
737 136/136 [=====] - 0s
    576us/step - loss: 0.2500 - accuracy: 0.9039
738 Epoch 367/450
739 136/136 [=====] - 0s
    567us/step - loss: 0.2396 - accuracy: 0.9069
740 Epoch 368/450
741 136/136 [=====] - 0s
    505us/step - loss: 0.2585 - accuracy: 0.9010
742 Epoch 369/450
743 136/136 [=====] - 0s
    578us/step - loss: 0.2468 - accuracy: 0.9083
744 Epoch 370/450
745 136/136 [=====] - 0s
    600us/step - loss: 0.2497 - accuracy: 0.9074
746 Epoch 371/450
747 136/136 [=====] - 0s
    541us/step - loss: 0.2489 - accuracy: 0.9025
748 Epoch 372/450
749 136/136 [=====] - 0s
    605us/step - loss: 0.2437 - accuracy: 0.9054
750 Epoch 373/450
751 136/136 [=====] - 0s
    559us/step - loss: 0.2424 - accuracy: 0.9083
752 Epoch 374/450
753 136/136 [=====] - 0s
    521us/step - loss: 0.2482 - accuracy: 0.9113
754 Epoch 375/450
755 136/136 [=====] - 0s
    578us/step - loss: 0.2545 - accuracy: 0.9000
756 Epoch 376/450
```

```
757 136/136 [=====] - 0s
    570us/step - loss: 0.2532 - accuracy: 0.9044
758 Epoch 377/450
759 136/136 [=====] - 0s
    541us/step - loss: 0.2432 - accuracy: 0.9098
760 Epoch 378/450
761 136/136 [=====] - 0s
    581us/step - loss: 0.2469 - accuracy: 0.9005
762 Epoch 379/450
763 136/136 [=====] - 0s
    572us/step - loss: 0.2564 - accuracy: 0.8995
764 Epoch 380/450
765 136/136 [=====] - 0s
    519us/step - loss: 0.2537 - accuracy: 0.9059
766 Epoch 381/450
767 136/136 [=====] - 0s
    594us/step - loss: 0.2396 - accuracy: 0.9098
768 Epoch 382/450
769 136/136 [=====] - 0s
    551us/step - loss: 0.2441 - accuracy: 0.9113
770 Epoch 383/450
771 136/136 [=====] - 0s
    524us/step - loss: 0.2533 - accuracy: 0.9054
772 Epoch 384/450
773 136/136 [=====] - 0s
    588us/step - loss: 0.2447 - accuracy: 0.9049
774 Epoch 385/450
775 136/136 [=====] - 0s
    566us/step - loss: 0.2425 - accuracy: 0.9113
776 Epoch 386/450
777 136/136 [=====] - 0s
    536us/step - loss: 0.2515 - accuracy: 0.9069
778 Epoch 387/450
779 136/136 [=====] - 0s
    588us/step - loss: 0.2367 - accuracy: 0.9103
780 Epoch 388/450
781 136/136 [=====] - 0s
    560us/step - loss: 0.2513 - accuracy: 0.9015
782 Epoch 389/450
783 136/136 [=====] - 0s
    503us/step - loss: 0.2614 - accuracy: 0.9025
784 Epoch 390/450
785 136/136 [=====] - 0s
    630us/step - loss: 0.2442 - accuracy: 0.9113
```

```
786 Epoch 391/450
787 136/136 [=====] - 0s
    585us/step - loss: 0.2406 - accuracy: 0.9093
788 Epoch 392/450
789 136/136 [=====] - 0s
    517us/step - loss: 0.2571 - accuracy: 0.9015
790 Epoch 393/450
791 136/136 [=====] - 0s
    599us/step - loss: 0.2390 - accuracy: 0.9108
792 Epoch 394/450
793 136/136 [=====] - 0s
    553us/step - loss: 0.2471 - accuracy: 0.9029
794 Epoch 395/450
795 136/136 [=====] - 0s
    519us/step - loss: 0.2326 - accuracy: 0.9142
796 Epoch 396/450
797 136/136 [=====] - 0s
    670us/step - loss: 0.2568 - accuracy: 0.9108
798 Epoch 397/450
799 136/136 [=====] - 0s
    580us/step - loss: 0.2546 - accuracy: 0.9020
800 Epoch 398/450
801 136/136 [=====] - 0s
    509us/step - loss: 0.2444 - accuracy: 0.9064
802 Epoch 399/450
803 136/136 [=====] - 0s
    593us/step - loss: 0.2325 - accuracy: 0.9118
804 Epoch 400/450
805 136/136 [=====] - 0s
    570us/step - loss: 0.2447 - accuracy: 0.9088
806 Epoch 401/450
807 136/136 [=====] - 0s
    533us/step - loss: 0.2448 - accuracy: 0.9108
808 Epoch 402/450
809 136/136 [=====] - 0s
    578us/step - loss: 0.2384 - accuracy: 0.9083
810 Epoch 403/450
811 136/136 [=====] - 0s
    606us/step - loss: 0.2361 - accuracy: 0.9132
812 Epoch 404/450
813 136/136 [=====] - 0s
    522us/step - loss: 0.2295 - accuracy: 0.9142
814 Epoch 405/450
815 136/136 [=====] - 0s
```

```
815 592us/step - loss: 0.2339 - accuracy: 0.9088
816 Epoch 406/450
817 136/136 [=====] - 0s
    556us/step - loss: 0.2314 - accuracy: 0.9137
818 Epoch 407/450
819 136/136 [=====] - 0s
    518us/step - loss: 0.2452 - accuracy: 0.9098
820 Epoch 408/450
821 136/136 [=====] - 0s
    576us/step - loss: 0.2412 - accuracy: 0.9157
822 Epoch 409/450
823 136/136 [=====] - 0s
    610us/step - loss: 0.2381 - accuracy: 0.9064
824 Epoch 410/450
825 136/136 [=====] - 0s
    520us/step - loss: 0.2349 - accuracy: 0.9123
826 Epoch 411/450
827 136/136 [=====] - 0s
    586us/step - loss: 0.2432 - accuracy: 0.9088
828 Epoch 412/450
829 136/136 [=====] - 0s
    560us/step - loss: 0.2297 - accuracy: 0.9123
830 Epoch 413/450
831 136/136 [=====] - 0s
    521us/step - loss: 0.2452 - accuracy: 0.9000
832 Epoch 414/450
833 136/136 [=====] - 0s
    576us/step - loss: 0.2469 - accuracy: 0.9083
834 Epoch 415/450
835 136/136 [=====] - 0s
    667us/step - loss: 0.2359 - accuracy: 0.9142
836 Epoch 416/450
837 136/136 [=====] - 0s
    525us/step - loss: 0.2288 - accuracy: 0.9196
838 Epoch 417/450
839 136/136 [=====] - 0s
    602us/step - loss: 0.2487 - accuracy: 0.9064
840 Epoch 418/450
841 136/136 [=====] - 0s
    547us/step - loss: 0.2307 - accuracy: 0.9191
842 Epoch 419/450
843 136/136 [=====] - 0s
    519us/step - loss: 0.2290 - accuracy: 0.9127
844 Epoch 420/450
```

```
845 136/136 [=====] - 0s
  585us/step - loss: 0.2347 - accuracy: 0.9157
846 Epoch 421/450
847 136/136 [=====] - 0s
  561us/step - loss: 0.2321 - accuracy: 0.9093
848 Epoch 422/450
849 136/136 [=====] - 0s
  540us/step - loss: 0.2394 - accuracy: 0.9078
850 Epoch 423/450
851 136/136 [=====] - 0s
  647us/step - loss: 0.2317 - accuracy: 0.9176
852 Epoch 424/450
853 136/136 [=====] - 0s
  560us/step - loss: 0.2378 - accuracy: 0.9113
854 Epoch 425/450
855 136/136 [=====] - 0s
  512us/step - loss: 0.2315 - accuracy: 0.9147
856 Epoch 426/450
857 136/136 [=====] - 0s
  588us/step - loss: 0.2228 - accuracy: 0.9225
858 Epoch 427/450
859 136/136 [=====] - 0s
  557us/step - loss: 0.2377 - accuracy: 0.9142
860 Epoch 428/450
861 136/136 [=====] - 0s
  541us/step - loss: 0.2437 - accuracy: 0.9054
862 Epoch 429/450
863 136/136 [=====] - 0s
  581us/step - loss: 0.2405 - accuracy: 0.9074
864 Epoch 430/450
865 136/136 [=====] - 0s
  572us/step - loss: 0.2370 - accuracy: 0.9127
866 Epoch 431/450
867 136/136 [=====] - 0s
  523us/step - loss: 0.2346 - accuracy: 0.9152
868 Epoch 432/450
869 136/136 [=====] - 0s
  577us/step - loss: 0.2299 - accuracy: 0.9162
870 Epoch 433/450
871 136/136 [=====] - 0s
  577us/step - loss: 0.2281 - accuracy: 0.9181
872 Epoch 434/450
873 136/136 [=====] - 0s
  525us/step - loss: 0.2273 - accuracy: 0.9162
```

```
874 Epoch 435/450
875 136/136 [=====] - 0s
    607us/step - loss: 0.2260 - accuracy: 0.9127
876 Epoch 436/450
877 136/136 [=====] - 0s
    566us/step - loss: 0.2405 - accuracy: 0.9123
878 Epoch 437/450
879 136/136 [=====] - 0s
    525us/step - loss: 0.2277 - accuracy: 0.9152
880 Epoch 438/450
881 136/136 [=====] - 0s
    607us/step - loss: 0.2299 - accuracy: 0.9172
882 Epoch 439/450
883 136/136 [=====] - 0s
    555us/step - loss: 0.2377 - accuracy: 0.9142
884 Epoch 440/450
885 136/136 [=====] - 0s
    521us/step - loss: 0.2331 - accuracy: 0.9132
886 Epoch 441/450
887 136/136 [=====] - 0s
    658us/step - loss: 0.2201 - accuracy: 0.9206
888 Epoch 442/450
889 136/136 [=====] - 0s
    556us/step - loss: 0.2229 - accuracy: 0.9186
890 Epoch 443/450
891 136/136 [=====] - 0s
    506us/step - loss: 0.2221 - accuracy: 0.9235
892 Epoch 444/450
893 136/136 [=====] - 0s
    587us/step - loss: 0.2331 - accuracy: 0.9142
894 Epoch 445/450
895 136/136 [=====] - 0s
    590us/step - loss: 0.2270 - accuracy: 0.9142
896 Epoch 446/450
897 136/136 [=====] - 0s
    531us/step - loss: 0.2241 - accuracy: 0.9235
898 Epoch 447/450
899 136/136 [=====] - 0s
    608us/step - loss: 0.2272 - accuracy: 0.9137
900 Epoch 448/450
901 136/136 [=====] - 0s
    586us/step - loss: 0.2370 - accuracy: 0.9123
902 Epoch 449/450
903 136/136 [=====] - 0s
```

```
903 520us/step - loss: 0.2276 - accuracy: 0.9152
904 Epoch 450/450
905 136/136 [=====] - 0s
      603us/step - loss: 0.2327 - accuracy: 0.9083
906 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
            .
907 Instructions for updating:
908 This property should not be used in TensorFlow 2.0
            , as updates are applied automatically.
909 2020-09-04 00:39:29.977218: 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.
910 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.
911 Instructions for updating:
912 This property should not be used in TensorFlow 2.0
            , as updates are applied automatically.
913
914 Process finished with exit code 0
915
```