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1 C:\Users\Lenovo\AppData\Local\Programs\Python\Python39\python.exe D:/2022-Automated-test/FaceRecognition/faceRecognition/train_model.py
2 2022-11-30 22:52:21.383433: I tensorflow/core/platform/cpu_feature_guard.cc:193] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX AVX2
3 To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.
4 Model: "sequential"
5 -----
6 Layer (type)          Output Shape
7 Param #
=====
=====
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Layer (type)	Output Shape
conv2d (Conv2D)	(None, 1, 128, 32)
)	102432
activation (Activation)	(None, 1, 128, 32)
)	0
max_pooling2d (MaxPooling2D)	(None, 1, 64, 32)
)	0
dropout (Dropout)	(None, 1, 64, 32)
)	0
conv2d_1 (Conv2D)	(None, 1, 64, 64)
)	51264
activation_1 (Activation)	(None, 1, 64, 64)

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19 )          0
20

21 max_pooling2d_1 (MaxPooling  (None, 1, 32, 64
)          0
22 2D
)

23

24 dropout_1 (Dropout)      (None, 1, 32, 64
)          0
25

26 flatten (Flatten)       (None, 2048
)          0
27

28 dense (Dense)          (None, 512
)          1049088
29

30 activation_2 (Activation) (None, 512
)          0
31

32 dropout_2 (Dropout)      (None, 512
)          0
33

34 dense_1 (Dense)         (None, 105
)          53865
35

36 activation_3 (Activation) (None, 105
)          0
37

38 =====
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39 Total params: 1,256,649
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40 Trainable params: 1,256,649
41 Non-trainable params: 0
42 -----
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43 Epoch 1/1000
44 2/2 [=====] - 21s 5s/step -
  loss: 4.6593 - accuracy: 0.0096
45 Epoch 2/1000
46 2/2 [=====] - 17s 5s/step -
  loss: 4.6343 - accuracy: 0.0130
47 Epoch 3/1000
48 2/2 [=====] - 18s 6s/step -
  loss: 4.6205 - accuracy: 0.0156
49 Epoch 4/1000
50 2/2 [=====] - 17s 5s/step -
  loss: 4.6048 - accuracy: 0.0200
51 Epoch 5/1000
52 2/2 [=====] - 17s 5s/step -
  loss: 4.5867 - accuracy: 0.0232
53 Epoch 6/1000
54 2/2 [=====] - 17s 5s/step -
  loss: 4.5594 - accuracy: 0.0248
55 Epoch 7/1000
56 2/2 [=====] - 18s 5s/step -
  loss: 4.5252 - accuracy: 0.0303
57 Epoch 8/1000
58 2/2 [=====] - 17s 5s/step -
  loss: 4.4944 - accuracy: 0.0308
59 Epoch 9/1000
60 2/2 [=====] - 18s 5s/step -
  loss: 4.4587 - accuracy: 0.0369
61 Epoch 10/1000
62 2/2 [=====] - 17s 5s/step -
  loss: 4.4143 - accuracy: 0.0392
63 Epoch 11/1000
64 2/2 [=====] - 17s 5s/step -
  loss: 4.3692 - accuracy: 0.0425
65 Epoch 12/1000
66 2/2 [=====] - 17s 5s/step -
  loss: 4.3345 - accuracy: 0.0461
67 Epoch 13/1000
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68 2/2 [=====] - 17s 5s/step
  - loss: 4.3027 - accuracy: 0.0501
69 Epoch 14/1000
70 2/2 [=====] - 18s 5s/step
  - loss: 4.2785 - accuracy: 0.0531
71 Epoch 15/1000
72 2/2 [=====] - 17s 5s/step
  - loss: 4.2432 - accuracy: 0.0596
73 Epoch 16/1000
74 2/2 [=====] - 17s 5s/step
  - loss: 4.2196 - accuracy: 0.0596
75 Epoch 17/1000
76 2/2 [=====] - 18s 5s/step
  - loss: 4.2054 - accuracy: 0.0618
77 Epoch 18/1000
78 2/2 [=====] - 19s 6s/step
  - loss: 4.1701 - accuracy: 0.0634
79 Epoch 19/1000
80 2/2 [=====] - 17s 5s/step
  - loss: 4.1505 - accuracy: 0.0689
81 Epoch 20/1000
82 2/2 [=====] - 17s 5s/step
  - loss: 4.1244 - accuracy: 0.0728
83 Epoch 21/1000
84 2/2 [=====] - 18s 5s/step
  - loss: 4.1062 - accuracy: 0.0737
85 Epoch 22/1000
86 2/2 [=====] - 17s 5s/step
  - loss: 4.0840 - accuracy: 0.0746
87 Epoch 23/1000
88 2/2 [=====] - 18s 5s/step
  - loss: 4.0591 - accuracy: 0.0803
89 Epoch 24/1000
90 2/2 [=====] - 17s 5s/step
  - loss: 4.0373 - accuracy: 0.0862
91 Epoch 25/1000
92 2/2 [=====] - 18s 5s/step
  - loss: 4.0136 - accuracy: 0.0891
93 Epoch 26/1000
94 2/2 [=====] - 18s 5s/step
  - loss: 3.9977 - accuracy: 0.0886
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95 Epoch 27/1000
96 2/2 [=====] - 18s 5s/step
  - loss: 3.9716 - accuracy: 0.0935
97 Epoch 28/1000
98 2/2 [=====] - 18s 5s/step
  - loss: 3.9669 - accuracy: 0.0931
99 Epoch 29/1000
100 2/2 [=====] - 18s 5s/step
  - loss: 3.9337 - accuracy: 0.0977
101 Epoch 30/1000
102 2/2 [=====] - 17s 5s/step
  - loss: 3.9199 - accuracy: 0.1022
103 Epoch 31/1000
104 2/2 [=====] - 17s 5s/step
  - loss: 3.9015 - accuracy: 0.1059
105 Epoch 32/1000
106 2/2 [=====] - 17s 5s/step
  - loss: 3.8724 - accuracy: 0.1080
107 Epoch 33/1000
108 2/2 [=====] - 17s 5s/step
  - loss: 3.8779 - accuracy: 0.1057
109 Epoch 34/1000
110 2/2 [=====] - 17s 5s/step
  - loss: 3.8476 - accuracy: 0.1090
111 Epoch 35/1000
112 2/2 [=====] - 18s 5s/step
  - loss: 3.8309 - accuracy: 0.1174
113 Epoch 36/1000
114 2/2 [=====] - 17s 5s/step
  - loss: 3.8187 - accuracy: 0.1172
115 Epoch 37/1000
116 2/2 [=====] - 18s 5s/step
  - loss: 3.8113 - accuracy: 0.1186
117 Epoch 38/1000
118 2/2 [=====] - 21s 6s/step
  - loss: 3.7862 - accuracy: 0.1231
119 Epoch 39/1000
120 2/2 [=====] - 22s 6s/step
  - loss: 3.7663 - accuracy: 0.1208
121 Epoch 40/1000
122 2/2 [=====] - 20s 5s/step
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122 - loss: 3.7555 - accuracy: 0.1248
123 Epoch 41/1000
124 2/2 [=====] - 17s 5s/step
    - loss: 3.7350 - accuracy: 0.1309
125 Epoch 42/1000
126 2/2 [=====] - 18s 5s/step
    - loss: 3.7219 - accuracy: 0.1354
127 Epoch 43/1000
128 2/2 [=====] - 18s 5s/step
    - loss: 3.7303 - accuracy: 0.1303
129 Epoch 44/1000
130 2/2 [=====] - 17s 5s/step
    - loss: 3.6968 - accuracy: 0.1392
131 Epoch 45/1000
132 2/2 [=====] - 18s 5s/step
    - loss: 3.6881 - accuracy: 0.1390
133 Epoch 46/1000
134 2/2 [=====] - 17s 5s/step
    - loss: 3.6808 - accuracy: 0.1377
135 Epoch 47/1000
136 2/2 [=====] - 17s 5s/step
    - loss: 3.6521 - accuracy: 0.1402
137 Epoch 48/1000
138 2/2 [=====] - 20s 6s/step
    - loss: 3.6385 - accuracy: 0.1457
139 Epoch 49/1000
140 2/2 [=====] - 18s 5s/step
    - loss: 3.6158 - accuracy: 0.1474
141 Epoch 50/1000
142 2/2 [=====] - 20s 7s/step
    - loss: 3.5960 - accuracy: 0.1549
143 Epoch 51/1000
144 2/2 [=====] - 22s 6s/step
    - loss: 3.5890 - accuracy: 0.1528
145 Epoch 52/1000
146 2/2 [=====] - 20s 5s/step
    - loss: 3.5765 - accuracy: 0.1573
147 Epoch 53/1000
148 2/2 [=====] - 19s 5s/step
    - loss: 3.5632 - accuracy: 0.1577
149 Epoch 54/1000
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150 2/2 [=====] - 19s 6s/step
  - loss: 3.5517 - accuracy: 0.1635
151 Epoch 55/1000
152 2/2 [=====] - 19s 5s/step
  - loss: 3.5366 - accuracy: 0.1615
153 Epoch 56/1000
154 2/2 [=====] - 20s 6s/step
  - loss: 3.5346 - accuracy: 0.1593
155 Epoch 57/1000
156 2/2 [=====] - 17s 5s/step
  - loss: 3.5135 - accuracy: 0.1656
157 Epoch 58/1000
158 2/2 [=====] - 18s 6s/step
  - loss: 3.4969 - accuracy: 0.1653
159 Epoch 59/1000
160 2/2 [=====] - 18s 5s/step
  - loss: 3.4859 - accuracy: 0.1725
161 Epoch 60/1000
162 2/2 [=====] - 17s 5s/step
  - loss: 3.4613 - accuracy: 0.1747
163 Epoch 61/1000
164 2/2 [=====] - 17s 5s/step
  - loss: 3.4697 - accuracy: 0.1741
165 Epoch 62/1000
166 2/2 [=====] - 18s 5s/step
  - loss: 3.4472 - accuracy: 0.1749
167 Epoch 63/1000
168 2/2 [=====] - 17s 5s/step
  - loss: 3.4483 - accuracy: 0.1767
169 Epoch 64/1000
170 2/2 [=====] - 17s 5s/step
  - loss: 3.4238 - accuracy: 0.1891
171 Epoch 65/1000
172 2/2 [=====] - 17s 5s/step
  - loss: 3.4094 - accuracy: 0.1831
173 Epoch 66/1000
174 2/2 [=====] - 17s 5s/step
  - loss: 3.3936 - accuracy: 0.1866
175 Epoch 67/1000
176 2/2 [=====] - 18s 5s/step
  - loss: 3.3884 - accuracy: 0.1875
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177 Epoch 68/1000
178 2/2 [=====] - 17s 5s/step
    - loss: 3.3723 - accuracy: 0.1945
179 Epoch 69/1000
180 2/2 [=====] - 17s 5s/step
    - loss: 3.3622 - accuracy: 0.1960
181 Epoch 70/1000
182 2/2 [=====] - 17s 5s/step
    - loss: 3.3407 - accuracy: 0.2003
183 Epoch 71/1000
184 2/2 [=====] - 17s 5s/step
    - loss: 3.3309 - accuracy: 0.1952
185 Epoch 72/1000
186 2/2 [=====] - 17s 5s/step
    - loss: 3.3075 - accuracy: 0.2015
187 Epoch 73/1000
188 2/2 [=====] - 18s 5s/step
    - loss: 3.3011 - accuracy: 0.2013
189 Epoch 74/1000
190 2/2 [=====] - 17s 5s/step
    - loss: 3.2911 - accuracy: 0.2035
191 Epoch 75/1000
192 2/2 [=====] - 17s 5s/step
    - loss: 3.2756 - accuracy: 0.2093
193 Epoch 76/1000
194 2/2 [=====] - 18s 5s/step
    - loss: 3.2690 - accuracy: 0.2086
195 Epoch 77/1000
196 2/2 [=====] - 17s 5s/step
    - loss: 3.2416 - accuracy: 0.2089
197 Epoch 78/1000
198 2/2 [=====] - 17s 5s/step
    - loss: 3.2325 - accuracy: 0.2142
199 Epoch 79/1000
200 2/2 [=====] - 17s 5s/step
    - loss: 3.2194 - accuracy: 0.2172
201 Epoch 80/1000
202 2/2 [=====] - 18s 5s/step
    - loss: 3.1949 - accuracy: 0.2254
203 Epoch 81/1000
204 2/2 [=====] - 17s 5s/step
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204 - loss: 3.1938 - accuracy: 0.2267
205 Epoch 82/1000
206 2/2 [=====] - 17s 5s/step
    - loss: 3.1793 - accuracy: 0.2254
207 Epoch 83/1000
208 2/2 [=====] - 17s 5s/step
    - loss: 3.1743 - accuracy: 0.2267
209 Epoch 84/1000
210 2/2 [=====] - 18s 5s/step
    - loss: 3.1512 - accuracy: 0.2300
211 Epoch 85/1000
212 2/2 [=====] - 17s 5s/step
    - loss: 3.1500 - accuracy: 0.2274
213 Epoch 86/1000
214 2/2 [=====] - 17s 5s/step
    - loss: 3.1446 - accuracy: 0.2300
215 Epoch 87/1000
216 2/2 [=====] - 17s 5s/step
    - loss: 3.1198 - accuracy: 0.2359
217 Epoch 88/1000
218 2/2 [=====] - 17s 5s/step
    - loss: 3.1091 - accuracy: 0.2371
219 Epoch 89/1000
220 2/2 [=====] - 17s 5s/step
    - loss: 3.0848 - accuracy: 0.2440
221 Epoch 90/1000
222 2/2 [=====] - 17s 5s/step
    - loss: 3.0714 - accuracy: 0.2441
223 Epoch 91/1000
224 2/2 [=====] - 17s 5s/step
    - loss: 3.0749 - accuracy: 0.2417
225 Epoch 92/1000
226 2/2 [=====] - 17s 5s/step
    - loss: 3.0452 - accuracy: 0.2469
227 Epoch 93/1000
228 2/2 [=====] - 17s 5s/step
    - loss: 3.0443 - accuracy: 0.2480
229 Epoch 94/1000
230 2/2 [=====] - 19s 5s/step
    - loss: 3.0373 - accuracy: 0.2503
231 Epoch 95/1000
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232 2/2 [=====] - 17s 5s/step
  - loss: 3.0183 - accuracy: 0.2534
233 Epoch 96/1000
234 2/2 [=====] - 17s 5s/step
  - loss: 3.0043 - accuracy: 0.2611
235 Epoch 97/1000
236 2/2 [=====] - 18s 6s/step
  - loss: 2.9875 - accuracy: 0.2559
237 Epoch 98/1000
238 2/2 [=====] - 19s 5s/step
  - loss: 2.9693 - accuracy: 0.2655
239 Epoch 99/1000
240 2/2 [=====] - 17s 5s/step
  - loss: 2.9801 - accuracy: 0.2643
241 Epoch 100/1000
242 2/2 [=====] - 18s 5s/step
  - loss: 2.9543 - accuracy: 0.2663
243 Epoch 101/1000
244 2/2 [=====] - 18s 5s/step
  - loss: 2.9382 - accuracy: 0.2698
245 Epoch 102/1000
246 2/2 [=====] - 17s 5s/step
  - loss: 2.9145 - accuracy: 0.2716
247 Epoch 103/1000
248 2/2 [=====] - 17s 5s/step
  - loss: 2.8982 - accuracy: 0.2795
249 Epoch 104/1000
250 2/2 [=====] - 18s 5s/step
  - loss: 2.9058 - accuracy: 0.2789
251 Epoch 105/1000
252 2/2 [=====] - 18s 5s/step
  - loss: 2.8950 - accuracy: 0.2758
253 Epoch 106/1000
254 2/2 [=====] - 17s 5s/step
  - loss: 2.8663 - accuracy: 0.2787
255 Epoch 107/1000
256 2/2 [=====] - 18s 5s/step
  - loss: 2.8597 - accuracy: 0.2857
257 Epoch 108/1000
258 2/2 [=====] - 18s 5s/step
  - loss: 2.8526 - accuracy: 0.2874
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259 Epoch 109/1000
260 2/2 [=====] - 18s 5s/step
    - loss: 2.8310 - accuracy: 0.2913
261 Epoch 110/1000
262 2/2 [=====] - 18s 5s/step
    - loss: 2.8428 - accuracy: 0.2852
263 Epoch 111/1000
264 2/2 [=====] - 18s 5s/step
    - loss: 2.8102 - accuracy: 0.2976
265 Epoch 112/1000
266 2/2 [=====] - 18s 5s/step
    - loss: 2.8002 - accuracy: 0.2933
267 Epoch 113/1000
268 2/2 [=====] - 48s 14s/step
    - loss: 2.8004 - accuracy: 0.2969
269 Epoch 114/1000
270 2/2 [=====] - 50s 14s/step
    - loss: 2.7887 - accuracy: 0.2965
271 Epoch 115/1000
272 2/2 [=====] - 51s 15s/step
    - loss: 2.7751 - accuracy: 0.2964
273 Epoch 116/1000
274 2/2 [=====] - 50s 15s/step
    - loss: 2.7518 - accuracy: 0.3071
275 Epoch 117/1000
276 2/2 [=====] - 50s 15s/step
    - loss: 2.7236 - accuracy: 0.3092
277 Epoch 118/1000
278 2/2 [=====] - 51s 15s/step
    - loss: 2.7217 - accuracy: 0.3098
279 Epoch 119/1000
280 2/2 [=====] - 51s 14s/step
    - loss: 2.6996 - accuracy: 0.3147
281 Epoch 120/1000
282 2/2 [=====] - 50s 14s/step
    - loss: 2.6913 - accuracy: 0.3113
283 Epoch 121/1000
284 2/2 [=====] - 50s 15s/step
    - loss: 2.6882 - accuracy: 0.3172
285 Epoch 122/1000
286 2/2 [=====] - 50s 14s/step
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286 - loss: 2.6650 - accuracy: 0.3217
287 Epoch 123/1000
288 2/2 [=====] - 50s 14s/step
    - loss: 2.6738 - accuracy: 0.3161
289 Epoch 124/1000
290 2/2 [=====] - 51s 14s/step
    - loss: 2.6610 - accuracy: 0.3212
291 Epoch 125/1000
292 2/2 [=====] - 48s 10s/step
    - loss: 2.6419 - accuracy: 0.3243
293 Epoch 126/1000
294 2/2 [=====] - 20s 5s/step
    - loss: 2.6191 - accuracy: 0.3342
295 Epoch 127/1000
296 2/2 [=====] - 17s 5s/step
    - loss: 2.6062 - accuracy: 0.3327
297 Epoch 128/1000
298 2/2 [=====] - 17s 5s/step
    - loss: 2.6051 - accuracy: 0.3337
299 Epoch 129/1000
300 2/2 [=====] - 17s 5s/step
    - loss: 2.6047 - accuracy: 0.3283
301 Epoch 130/1000
302 2/2 [=====] - 17s 5s/step
    - loss: 2.5958 - accuracy: 0.3346
303 Epoch 131/1000
304 2/2 [=====] - 17s 5s/step
    - loss: 2.5687 - accuracy: 0.3340
305 Epoch 132/1000
306 2/2 [=====] - 19s 6s/step
    - loss: 2.5616 - accuracy: 0.3382
307 Epoch 133/1000
308 2/2 [=====] - 18s 5s/step
    - loss: 2.5350 - accuracy: 0.3452
309 Epoch 134/1000
310 2/2 [=====] - 17s 5s/step
    - loss: 2.5404 - accuracy: 0.3470
311 Epoch 135/1000
312 2/2 [=====] - 17s 5s/step
    - loss: 2.5171 - accuracy: 0.3513
313 Epoch 136/1000
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314 2/2 [=====] - 18s 5s/step
  - loss: 2.5085 - accuracy: 0.3508
315 Epoch 137/1000
316 2/2 [=====] - 17s 5s/step
  - loss: 2.4852 - accuracy: 0.3539
317 Epoch 138/1000
318 2/2 [=====] - 17s 5s/step
  - loss: 2.4726 - accuracy: 0.3585
319 Epoch 139/1000
320 2/2 [=====] - 18s 6s/step
  - loss: 2.4901 - accuracy: 0.3513
321 Epoch 140/1000
322 2/2 [=====] - 18s 5s/step
  - loss: 2.4638 - accuracy: 0.3592
323 Epoch 141/1000
324 2/2 [=====] - 17s 5s/step
  - loss: 2.4500 - accuracy: 0.3615
325 Epoch 142/1000
326 2/2 [=====] - 17s 5s/step
  - loss: 2.4429 - accuracy: 0.3643
327 Epoch 143/1000
328 2/2 [=====] - 19s 6s/step
  - loss: 2.4330 - accuracy: 0.3675
329 Epoch 144/1000
330 2/2 [=====] - 18s 5s/step
  - loss: 2.4174 - accuracy: 0.3729
331 Epoch 145/1000
332 2/2 [=====] - 17s 5s/step
  - loss: 2.4204 - accuracy: 0.3704
333 Epoch 146/1000
334 2/2 [=====] - 18s 5s/step
  - loss: 2.3986 - accuracy: 0.3704
335 Epoch 147/1000
336 2/2 [=====] - 17s 5s/step
  - loss: 2.4046 - accuracy: 0.3734
337 Epoch 148/1000
338 2/2 [=====] - 17s 5s/step
  - loss: 2.3779 - accuracy: 0.3795
339 Epoch 149/1000
340 2/2 [=====] - 17s 5s/step
  - loss: 2.3528 - accuracy: 0.3845
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341 Epoch 150/1000
342 2/2 [=====] - 17s 5s/step
    - loss: 2.3640 - accuracy: 0.3758
343 Epoch 151/1000
344 2/2 [=====] - 17s 5s/step
    - loss: 2.3346 - accuracy: 0.3867
345 Epoch 152/1000
346 2/2 [=====] - 17s 5s/step
    - loss: 2.3347 - accuracy: 0.3823
347 Epoch 153/1000
348 2/2 [=====] - 17s 5s/step
    - loss: 2.3211 - accuracy: 0.3922
349 Epoch 154/1000
350 2/2 [=====] - 17s 5s/step
    - loss: 2.3187 - accuracy: 0.3872
351 Epoch 155/1000
352 2/2 [=====] - 17s 5s/step
    - loss: 2.3174 - accuracy: 0.3890
353 Epoch 156/1000
354 2/2 [=====] - 17s 5s/step
    - loss: 2.2805 - accuracy: 0.4002
355 Epoch 157/1000
356 2/2 [=====] - 17s 5s/step
    - loss: 2.2737 - accuracy: 0.3972
357 Epoch 158/1000
358 2/2 [=====] - 18s 5s/step
    - loss: 2.2572 - accuracy: 0.4009
359 Epoch 159/1000
360 2/2 [=====] - 17s 5s/step
    - loss: 2.2422 - accuracy: 0.4071
361 Epoch 160/1000
362 2/2 [=====] - 17s 5s/step
    - loss: 2.2468 - accuracy: 0.4054
363 Epoch 161/1000
364 2/2 [=====] - 17s 5s/step
    - loss: 2.2362 - accuracy: 0.4002
365 Epoch 162/1000
366 2/2 [=====] - 17s 5s/step
    - loss: 2.2249 - accuracy: 0.4090
367 Epoch 163/1000
368 2/2 [=====] - 17s 5s/step
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368 - loss: 2.2236 - accuracy: 0.4065
369 Epoch 164/1000
370 2/2 [=====] - 18s 5s/step
    - loss: 2.2157 - accuracy: 0.4069
371 Epoch 165/1000
372 2/2 [=====] - 17s 5s/step
    - loss: 2.1919 - accuracy: 0.4163
373 Epoch 166/1000
374 2/2 [=====] - 17s 5s/step
    - loss: 2.2088 - accuracy: 0.4156
375 Epoch 167/1000
376 2/2 [=====] - 17s 5s/step
    - loss: 2.1872 - accuracy: 0.4190
377 Epoch 168/1000
378 2/2 [=====] - 18s 5s/step
    - loss: 2.1547 - accuracy: 0.4221
379 Epoch 169/1000
380 2/2 [=====] - 17s 5s/step
    - loss: 2.1483 - accuracy: 0.4248
381 Epoch 170/1000
382 2/2 [=====] - 17s 5s/step
    - loss: 2.1423 - accuracy: 0.4269
383 Epoch 171/1000
384 2/2 [=====] - 17s 5s/step
    - loss: 2.1365 - accuracy: 0.4238
385 Epoch 172/1000
386 2/2 [=====] - 17s 5s/step
    - loss: 2.1395 - accuracy: 0.4266
387 Epoch 173/1000
388 2/2 [=====] - 17s 5s/step
    - loss: 2.1033 - accuracy: 0.4345
389 Epoch 174/1000
390 2/2 [=====] - 18s 5s/step
    - loss: 2.1035 - accuracy: 0.4376
391 Epoch 175/1000
392 2/2 [=====] - 18s 5s/step
    - loss: 2.0827 - accuracy: 0.4428
393 Epoch 176/1000
394 2/2 [=====] - 17s 5s/step
    - loss: 2.0852 - accuracy: 0.4372
395 Epoch 177/1000
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396 2/2 [=====] - 18s 5s/step
  - loss: 2.0722 - accuracy: 0.4414
397 Epoch 178/1000
398 2/2 [=====] - 17s 5s/step
  - loss: 2.0703 - accuracy: 0.4495
399 Epoch 179/1000
400 2/2 [=====] - 18s 5s/step
  - loss: 2.0776 - accuracy: 0.4377
401 Epoch 180/1000
402 2/2 [=====] - 17s 5s/step
  - loss: 2.0551 - accuracy: 0.4439
403 Epoch 181/1000
404 2/2 [=====] - 18s 6s/step
  - loss: 2.0550 - accuracy: 0.4493
405 Epoch 182/1000
406 2/2 [=====] - 19s 5s/step
  - loss: 2.0539 - accuracy: 0.4465
407 Epoch 183/1000
408 2/2 [=====] - 17s 5s/step
  - loss: 2.0234 - accuracy: 0.4543
409 Epoch 184/1000
410 2/2 [=====] - 18s 5s/step
  - loss: 2.0260 - accuracy: 0.4561
411 Epoch 185/1000
412 2/2 [=====] - 24s 7s/step
  - loss: 2.0145 - accuracy: 0.4585
413 Epoch 186/1000
414 2/2 [=====] - 25s 7s/step
  - loss: 2.0051 - accuracy: 0.4594
415 Epoch 187/1000
416 2/2 [=====] - 23s 7s/step
  - loss: 1.9903 - accuracy: 0.4585
417 Epoch 188/1000
418 2/2 [=====] - 25s 8s/step
  - loss: 1.9946 - accuracy: 0.4573
419 Epoch 189/1000
420 2/2 [=====] - 31s 8s/step
  - loss: 1.9884 - accuracy: 0.4573
421 Epoch 190/1000
422 2/2 [=====] - 24s 7s/step
  - loss: 1.9729 - accuracy: 0.4618
```

```
423 Epoch 191/1000
424 2/2 [=====] - 28s 8s/step
    - loss: 1.9490 - accuracy: 0.4685
425 Epoch 192/1000
426 2/2 [=====] - 26s 6s/step
    - loss: 1.9495 - accuracy: 0.4700
427 Epoch 193/1000
428 2/2 [=====] - 21s 6s/step
    - loss: 1.9392 - accuracy: 0.4672
429 Epoch 194/1000
430 2/2 [=====] - 22s 6s/step
    - loss: 1.9444 - accuracy: 0.4645
431 Epoch 195/1000
432 2/2 [=====] - 20s 6s/step
    - loss: 1.9246 - accuracy: 0.4749
433 Epoch 196/1000
434 2/2 [=====] - 19s 5s/step
    - loss: 1.9184 - accuracy: 0.4722
435 Epoch 197/1000
436 2/2 [=====] - 19s 6s/step
    - loss: 1.9179 - accuracy: 0.4839
437 Epoch 198/1000
438 2/2 [=====] - 20s 6s/step
    - loss: 1.8935 - accuracy: 0.4781
439 Epoch 199/1000
440 2/2 [=====] - 20s 6s/step
    - loss: 1.8775 - accuracy: 0.4863
441 Epoch 200/1000
442 2/2 [=====] - 18s 5s/step
    - loss: 1.8609 - accuracy: 0.4895
443 Epoch 201/1000
444 2/2 [=====] - 18s 5s/step
    - loss: 1.8582 - accuracy: 0.4895
445 Epoch 202/1000
446 2/2 [=====] - 20s 6s/step
    - loss: 1.8621 - accuracy: 0.4896
447 Epoch 203/1000
448 2/2 [=====] - 19s 5s/step
    - loss: 1.8503 - accuracy: 0.4893
449 Epoch 204/1000
450 2/2 [=====] - 21s 7s/step
```

```
450 - loss: 1.8539 - accuracy: 0.4858
451 Epoch 205/1000
452 2/2 [=====] - 23s 6s/step
    - loss: 1.8348 - accuracy: 0.4978
453 Epoch 206/1000
454 2/2 [=====] - 20s 6s/step
    - loss: 1.8420 - accuracy: 0.4933
455 Epoch 207/1000
456 2/2 [=====] - 18s 5s/step
    - loss: 1.8326 - accuracy: 0.4938
457 Epoch 208/1000
458 2/2 [=====] - 18s 5s/step
    - loss: 1.8315 - accuracy: 0.4948
459 Epoch 209/1000
460 2/2 [=====] - 18s 5s/step
    - loss: 1.8089 - accuracy: 0.4990
461 Epoch 210/1000
462 2/2 [=====] - 18s 5s/step
    - loss: 1.8098 - accuracy: 0.5050
463 Epoch 211/1000
464 2/2 [=====] - 18s 5s/step
    - loss: 1.7883 - accuracy: 0.5050
465 Epoch 212/1000
466 2/2 [=====] - 18s 5s/step
    - loss: 1.7794 - accuracy: 0.5074
467 Epoch 213/1000
468 2/2 [=====] - 18s 5s/step
    - loss: 1.7677 - accuracy: 0.5123
469 Epoch 214/1000
470 2/2 [=====] - 17s 5s/step
    - loss: 1.7739 - accuracy: 0.5089
471 Epoch 215/1000
472 2/2 [=====] - 17s 5s/step
    - loss: 1.7535 - accuracy: 0.5104
473 Epoch 216/1000
474 2/2 [=====] - 19s 6s/step
    - loss: 1.7551 - accuracy: 0.5145
475 Epoch 217/1000
476 2/2 [=====] - 18s 5s/step
    - loss: 1.7639 - accuracy: 0.5102
477 Epoch 218/1000
```

```
478 2/2 [=====] - 18s 5s/step
  - loss: 1.7168 - accuracy: 0.5204
479 Epoch 219/1000
480 2/2 [=====] - 17s 5s/step
  - loss: 1.7393 - accuracy: 0.5119
481 Epoch 220/1000
482 2/2 [=====] - 17s 5s/step
  - loss: 1.7172 - accuracy: 0.5239
483 Epoch 221/1000
484 2/2 [=====] - 17s 5s/step
  - loss: 1.7232 - accuracy: 0.5187
485 Epoch 222/1000
486 2/2 [=====] - 16s 5s/step
  - loss: 1.7180 - accuracy: 0.5167
487 Epoch 223/1000
488 2/2 [=====] - 17s 5s/step
  - loss: 1.7079 - accuracy: 0.5257
489 Epoch 224/1000
490 2/2 [=====] - 17s 5s/step
  - loss: 1.6919 - accuracy: 0.5289
491 Epoch 225/1000
492 2/2 [=====] - 17s 5s/step
  - loss: 1.6979 - accuracy: 0.5291
493 Epoch 226/1000
494 2/2 [=====] - 16s 5s/step
  - loss: 1.6960 - accuracy: 0.5231
495 Epoch 227/1000
496 2/2 [=====] - 17s 5s/step
  - loss: 1.6683 - accuracy: 0.5356
497 Epoch 228/1000
498 2/2 [=====] - 16s 5s/step
  - loss: 1.6756 - accuracy: 0.5261
499 Epoch 229/1000
500 2/2 [=====] - 17s 5s/step
  - loss: 1.6473 - accuracy: 0.5392
501 Epoch 230/1000
502 2/2 [=====] - 16s 5s/step
  - loss: 1.6540 - accuracy: 0.5382
503 Epoch 231/1000
504 2/2 [=====] - 17s 5s/step
  - loss: 1.6565 - accuracy: 0.5368
```

```
505 Epoch 232/1000
506 2/2 [=====] - 16s 5s/step
    - loss: 1.6472 - accuracy: 0.5376
507 Epoch 233/1000
508 2/2 [=====] - 16s 5s/step
    - loss: 1.6326 - accuracy: 0.5380
509 Epoch 234/1000
510 2/2 [=====] - 17s 5s/step
    - loss: 1.6359 - accuracy: 0.5444
511 Epoch 235/1000
512 2/2 [=====] - 17s 5s/step
    - loss: 1.6290 - accuracy: 0.5427
513 Epoch 236/1000
514 2/2 [=====] - 17s 5s/step
    - loss: 1.6124 - accuracy: 0.5497
515 Epoch 237/1000
516 2/2 [=====] - 18s 5s/step
    - loss: 1.6309 - accuracy: 0.5421
517 Epoch 238/1000
518 2/2 [=====] - 17s 5s/step
    - loss: 1.5907 - accuracy: 0.5536
519 Epoch 239/1000
520 2/2 [=====] - 17s 5s/step
    - loss: 1.6029 - accuracy: 0.5481
521 Epoch 240/1000
522 2/2 [=====] - 17s 5s/step
    - loss: 1.5967 - accuracy: 0.5488
523 Epoch 241/1000
524 2/2 [=====] - 17s 5s/step
    - loss: 1.5814 - accuracy: 0.5518
525 Epoch 242/1000
526 2/2 [=====] - 17s 5s/step
    - loss: 1.5571 - accuracy: 0.5605
527 Epoch 243/1000
528 2/2 [=====] - 17s 5s/step
    - loss: 1.5676 - accuracy: 0.5550
529 Epoch 244/1000
530 2/2 [=====] - 17s 5s/step
    - loss: 1.5638 - accuracy: 0.5566
531 Epoch 245/1000
532 2/2 [=====] - 17s 5s/step
```

```
532 - loss: 1.5529 - accuracy: 0.5653
533 Epoch 246/1000
534 2/2 [=====] - 17s 5s/step
    - loss: 1.5556 - accuracy: 0.5593
535 Epoch 247/1000
536 2/2 [=====] - 18s 6s/step
    - loss: 1.5516 - accuracy: 0.5562
537 Epoch 248/1000
538 2/2 [=====] - 17s 5s/step
    - loss: 1.5320 - accuracy: 0.5606
539 Epoch 249/1000
540 2/2 [=====] - 17s 5s/step
    - loss: 1.5335 - accuracy: 0.5636
541 Epoch 250/1000
542 2/2 [=====] - 17s 5s/step
    - loss: 1.5124 - accuracy: 0.5716
543 Epoch 251/1000
544 2/2 [=====] - 17s 5s/step
    - loss: 1.5135 - accuracy: 0.5684
545 Epoch 252/1000
546 2/2 [=====] - 17s 5s/step
    - loss: 1.5307 - accuracy: 0.5624
547 Epoch 253/1000
548 2/2 [=====] - 17s 5s/step
    - loss: 1.5238 - accuracy: 0.5709
549 Epoch 254/1000
550 2/2 [=====] - 17s 5s/step
    - loss: 1.4864 - accuracy: 0.5760
551 Epoch 255/1000
552 2/2 [=====] - 17s 5s/step
    - loss: 1.4978 - accuracy: 0.5750
553 Epoch 256/1000
554 2/2 [=====] - 17s 5s/step
    - loss: 1.4982 - accuracy: 0.5773
555 Epoch 257/1000
556 2/2 [=====] - 22s 6s/step
    - loss: 1.4798 - accuracy: 0.5785
557 Epoch 258/1000
558 2/2 [=====] - 20s 5s/step
    - loss: 1.4843 - accuracy: 0.5750
559 Epoch 259/1000
```

```
560 2/2 [=====] - 19s 6s/step
  - loss: 1.4705 - accuracy: 0.5786
561 Epoch 260/1000
562 2/2 [=====] - 19s 5s/step
  - loss: 1.4540 - accuracy: 0.5799
563 Epoch 261/1000
564 2/2 [=====] - 21s 7s/step
  - loss: 1.4483 - accuracy: 0.5859
565 Epoch 262/1000
566 2/2 [=====] - 19s 5s/step
  - loss: 1.4485 - accuracy: 0.5854
567 Epoch 263/1000
568 2/2 [=====] - 21s 6s/step
  - loss: 1.4474 - accuracy: 0.5880
569 Epoch 264/1000
570 2/2 [=====] - 19s 6s/step
  - loss: 1.4393 - accuracy: 0.5887
571 Epoch 265/1000
572 2/2 [=====] - 19s 5s/step
  - loss: 1.4357 - accuracy: 0.5939
573 Epoch 266/1000
574 2/2 [=====] - 20s 6s/step
  - loss: 1.4226 - accuracy: 0.5941
575 Epoch 267/1000
576 2/2 [=====] - 19s 6s/step
  - loss: 1.4179 - accuracy: 0.5916
577 Epoch 268/1000
578 2/2 [=====] - 20s 6s/step
  - loss: 1.4139 - accuracy: 0.5981
579 Epoch 269/1000
580 2/2 [=====] - 43s 17s/step
  - loss: 1.4234 - accuracy: 0.5891
581 Epoch 270/1000
582 2/2 [=====] - 58s 17s/step
  - loss: 1.4058 - accuracy: 0.5941
583 Epoch 271/1000
584 2/2 [=====] - 56s 16s/step
  - loss: 1.3882 - accuracy: 0.6026
585 Epoch 272/1000
586 2/2 [=====] - 56s 16s/step
  - loss: 1.4154 - accuracy: 0.5988
```

```
587 Epoch 273/1000
588 2/2 [=====] - 56s 16s/step
    - loss: 1.4166 - accuracy: 0.5939
589 Epoch 274/1000
590 2/2 [=====] - 57s 17s/step
    - loss: 1.4041 - accuracy: 0.5961
591 Epoch 275/1000
592 2/2 [=====] - 56s 16s/step
    - loss: 1.3964 - accuracy: 0.5936
593 Epoch 276/1000
594 2/2 [=====] - 57s 17s/step
    - loss: 1.3798 - accuracy: 0.5998
595 Epoch 277/1000
596 2/2 [=====] - 56s 17s/step
    - loss: 1.3720 - accuracy: 0.6053
597 Epoch 278/1000
598 2/2 [=====] - 54s 16s/step
    - loss: 1.3685 - accuracy: 0.6073
599 Epoch 279/1000
600 2/2 [=====] - 54s 15s/step
    - loss: 1.3629 - accuracy: 0.6041
601 Epoch 280/1000
602 2/2 [=====] - 56s 16s/step
    - loss: 1.3483 - accuracy: 0.6125
603 Epoch 281/1000
604 2/2 [=====] - 56s 17s/step
    - loss: 1.3462 - accuracy: 0.6155
605 Epoch 282/1000
606 2/2 [=====] - 56s 16s/step
    - loss: 1.3527 - accuracy: 0.6100
607 Epoch 283/1000
608 2/2 [=====] - 57s 16s/step
    - loss: 1.3640 - accuracy: 0.6021
609 Epoch 284/1000
610 2/2 [=====] - 54s 16s/step
    - loss: 1.3430 - accuracy: 0.6099
611 Epoch 285/1000
612 2/2 [=====] - 55s 16s/step
    - loss: 1.3307 - accuracy: 0.6182
613 Epoch 286/1000
614 2/2 [=====] - 55s 16s/step
```

```
614 - loss: 1.3099 - accuracy: 0.6216
615 Epoch 287/1000
616 2/2 [=====] - 58s 16s/step
    - loss: 1.3244 - accuracy: 0.6174
617 Epoch 288/1000
618 2/2 [=====] - 55s 16s/step
    - loss: 1.3130 - accuracy: 0.6154
619 Epoch 289/1000
620 2/2 [=====] - 57s 16s/step
    - loss: 1.3140 - accuracy: 0.6211
621 Epoch 290/1000
622 2/2 [=====] - 55s 16s/step
    - loss: 1.3163 - accuracy: 0.6188
623 Epoch 291/1000
624 2/2 [=====] - 56s 16s/step
    - loss: 1.3226 - accuracy: 0.6180
625 Epoch 292/1000
626 2/2 [=====] - 55s 15s/step
    - loss: 1.3255 - accuracy: 0.6131
627 Epoch 293/1000
628 2/2 [=====] - 54s 15s/step
    - loss: 1.3073 - accuracy: 0.6201
629 Epoch 294/1000
630 2/2 [=====] - 54s 16s/step
    - loss: 1.2982 - accuracy: 0.6220
631 Epoch 295/1000
632 2/2 [=====] - 53s 15s/step
    - loss: 1.3031 - accuracy: 0.6236
633 Epoch 296/1000
634 2/2 [=====] - 55s 15s/step
    - loss: 1.2932 - accuracy: 0.6250
635 Epoch 297/1000
636 2/2 [=====] - 55s 16s/step
    - loss: 1.2780 - accuracy: 0.6311
637 Epoch 298/1000
638 2/2 [=====] - 54s 15s/step
    - loss: 1.2828 - accuracy: 0.6294
639 Epoch 299/1000
640 2/2 [=====] - 54s 16s/step
    - loss: 1.2545 - accuracy: 0.6383
641 Epoch 300/1000
```

```
642 2/2 [=====] - 54s 16s/step
    - loss: 1.2534 - accuracy: 0.6371
643 Epoch 301/1000
644 2/2 [=====] - 54s 16s/step
    - loss: 1.2686 - accuracy: 0.6339
645 Epoch 302/1000
646 2/2 [=====] - 55s 16s/step
    - loss: 1.2663 - accuracy: 0.6354
647 Epoch 303/1000
648 2/2 [=====] - 55s 15s/step
    - loss: 1.2444 - accuracy: 0.6410
649 Epoch 304/1000
650 2/2 [=====] - 54s 16s/step
    - loss: 1.2509 - accuracy: 0.6383
651 Epoch 305/1000
652 2/2 [=====] - 54s 16s/step
    - loss: 1.2401 - accuracy: 0.6420
653 Epoch 306/1000
654 2/2 [=====] - 54s 15s/step
    - loss: 1.2368 - accuracy: 0.6357
655 Epoch 307/1000
656 2/2 [=====] - 55s 16s/step
    - loss: 1.2308 - accuracy: 0.6382
657 Epoch 308/1000
658 2/2 [=====] - 55s 16s/step
    - loss: 1.2356 - accuracy: 0.6389
659 Epoch 309/1000
660 2/2 [=====] - 54s 15s/step
    - loss: 1.2232 - accuracy: 0.6449
661 Epoch 310/1000
662 2/2 [=====] - 54s 16s/step
    - loss: 1.2053 - accuracy: 0.6445
663 Epoch 311/1000
664 2/2 [=====] - 54s 15s/step
    - loss: 1.2158 - accuracy: 0.6433
665 Epoch 312/1000
666 2/2 [=====] - 55s 16s/step
    - loss: 1.2073 - accuracy: 0.6450
667 Epoch 313/1000
668 2/2 [=====] - 56s 16s/step
    - loss: 1.2064 - accuracy: 0.6488
```

```
669 Epoch 314/1000
670 2/2 [=====] - 55s 15s/step
    - loss: 1.2088 - accuracy: 0.6468
671 Epoch 315/1000
672 2/2 [=====] - 53s 16s/step
    - loss: 1.2048 - accuracy: 0.6494
673 Epoch 316/1000
674 2/2 [=====] - 53s 15s/step
    - loss: 1.1662 - accuracy: 0.6642
675 Epoch 317/1000
676 2/2 [=====] - 54s 15s/step
    - loss: 1.1994 - accuracy: 0.6514
677 Epoch 318/1000
678 2/2 [=====] - 55s 15s/step
    - loss: 1.1710 - accuracy: 0.6564
679 Epoch 319/1000
680 2/2 [=====] - 55s 16s/step
    - loss: 1.1942 - accuracy: 0.6496
681 Epoch 320/1000
682 2/2 [=====] - 55s 16s/step
    - loss: 1.1656 - accuracy: 0.6598
683 Epoch 321/1000
684 2/2 [=====] - 53s 16s/step
    - loss: 1.1792 - accuracy: 0.6497
685 Epoch 322/1000
686 2/2 [=====] - 55s 16s/step
    - loss: 1.1769 - accuracy: 0.6517
687 Epoch 323/1000
688 2/2 [=====] - 54s 16s/step
    - loss: 1.1552 - accuracy: 0.6580
689 Epoch 324/1000
690 2/2 [=====] - 54s 15s/step
    - loss: 1.1735 - accuracy: 0.6569
691 Epoch 325/1000
692 2/2 [=====] - 55s 16s/step
    - loss: 1.1465 - accuracy: 0.6615
693 Epoch 326/1000
694 2/2 [=====] - 55s 17s/step
    - loss: 1.1362 - accuracy: 0.6646
695 Epoch 327/1000
696 2/2 [=====] - 54s 15s/step
```

```
696 - loss: 1.1360 - accuracy: 0.6703
697 Epoch 328/1000
698 2/2 [=====] - 54s 15s/step
    - loss: 1.1380 - accuracy: 0.6658
699 Epoch 329/1000
700 2/2 [=====] - 55s 16s/step
    - loss: 1.1393 - accuracy: 0.6668
701 Epoch 330/1000
702 2/2 [=====] - 54s 16s/step
    - loss: 1.1536 - accuracy: 0.6659
703 Epoch 331/1000
704 2/2 [=====] - 55s 16s/step
    - loss: 1.1316 - accuracy: 0.6684
705 Epoch 332/1000
706 2/2 [=====] - 53s 15s/step
    - loss: 1.1598 - accuracy: 0.6598
707 Epoch 333/1000
708 2/2 [=====] - 55s 16s/step
    - loss: 1.1291 - accuracy: 0.6713
709 Epoch 334/1000
710 2/2 [=====] - 54s 16s/step
    - loss: 1.1371 - accuracy: 0.6613
711 Epoch 335/1000
712 2/2 [=====] - 56s 16s/step
    - loss: 1.1389 - accuracy: 0.6658
713 Epoch 336/1000
714 2/2 [=====] - 55s 16s/step
    - loss: 1.1275 - accuracy: 0.6669
715 Epoch 337/1000
716 2/2 [=====] - 53s 15s/step
    - loss: 1.1072 - accuracy: 0.6722
717 Epoch 338/1000
718 2/2 [=====] - 54s 15s/step
    - loss: 1.1321 - accuracy: 0.6684
719 Epoch 339/1000
720 2/2 [=====] - 54s 15s/step
    - loss: 1.1243 - accuracy: 0.6671
721 Epoch 340/1000
722 2/2 [=====] - 55s 16s/step
    - loss: 1.0990 - accuracy: 0.6775
723 Epoch 341/1000
```

```
724 2/2 [=====] - 54s 16s/step
    - loss: 1.0866 - accuracy: 0.6813
725 Epoch 342/1000
726 2/2 [=====] - 54s 16s/step
    - loss: 1.0950 - accuracy: 0.6781
727 Epoch 343/1000
728 2/2 [=====] - 54s 15s/step
    - loss: 1.1000 - accuracy: 0.6776
729 Epoch 344/1000
730 2/2 [=====] - 54s 15s/step
    - loss: 1.0776 - accuracy: 0.6815
731 Epoch 345/1000
732 2/2 [=====] - 54s 16s/step
    - loss: 1.0684 - accuracy: 0.6835
733 Epoch 346/1000
734 2/2 [=====] - 57s 17s/step
    - loss: 1.0808 - accuracy: 0.6745
735 Epoch 347/1000
736 2/2 [=====] - 54s 16s/step
    - loss: 1.0858 - accuracy: 0.6766
737 Epoch 348/1000
738 2/2 [=====] - 55s 16s/step
    - loss: 1.0641 - accuracy: 0.6909
739 Epoch 349/1000
740 2/2 [=====] - 55s 16s/step
    - loss: 1.0686 - accuracy: 0.6844
741 Epoch 350/1000
742 2/2 [=====] - 54s 16s/step
    - loss: 1.0459 - accuracy: 0.6915
743 Epoch 351/1000
744 2/2 [=====] - 55s 16s/step
    - loss: 1.0352 - accuracy: 0.6934
745 Epoch 352/1000
746 2/2 [=====] - 54s 16s/step
    - loss: 1.0513 - accuracy: 0.6895
747 Epoch 353/1000
748 2/2 [=====] - 60s 17s/step
    - loss: 1.0557 - accuracy: 0.6857
749 Epoch 354/1000
750 2/2 [=====] - 62s 18s/step
    - loss: 1.0424 - accuracy: 0.6865
```

```
751 Epoch 355/1000
752 2/2 [=====] - 57s 16s/step
    - loss: 1.0600 - accuracy: 0.6882
753 Epoch 356/1000
754 2/2 [=====] - 56s 16s/step
    - loss: 1.0438 - accuracy: 0.6914
755 Epoch 357/1000
756 2/2 [=====] - 56s 16s/step
    - loss: 1.0487 - accuracy: 0.6861
757 Epoch 358/1000
758 2/2 [=====] - 55s 16s/step
    - loss: 1.0230 - accuracy: 0.6991
759 Epoch 359/1000
760 2/2 [=====] - 56s 17s/step
    - loss: 1.0446 - accuracy: 0.6893
761 Epoch 360/1000
762 2/2 [=====] - 55s 16s/step
    - loss: 1.0290 - accuracy: 0.6967
763 Epoch 361/1000
764 2/2 [=====] - 55s 16s/step
    - loss: 1.0120 - accuracy: 0.6999
765 Epoch 362/1000
766 2/2 [=====] - 55s 16s/step
    - loss: 1.0353 - accuracy: 0.6905
767 Epoch 363/1000
768 2/2 [=====] - 55s 16s/step
    - loss: 1.0281 - accuracy: 0.6997
769 Epoch 364/1000
770 2/2 [=====] - 54s 16s/step
    - loss: 0.9907 - accuracy: 0.7098
771 Epoch 365/1000
772 2/2 [=====] - 55s 16s/step
    - loss: 1.0139 - accuracy: 0.7017
773 Epoch 366/1000
774 2/2 [=====] - 55s 16s/step
    - loss: 1.0152 - accuracy: 0.6996
775 Epoch 367/1000
776 2/2 [=====] - 54s 16s/step
    - loss: 1.0146 - accuracy: 0.6976
777 Epoch 368/1000
778 2/2 [=====] - 56s 15s/step
```

```
778 - loss: 0.9925 - accuracy: 0.7087
779 Epoch 369/1000
780 2/2 [=====] - 55s 16s/step
    - loss: 0.9917 - accuracy: 0.7018
781 Epoch 370/1000
782 2/2 [=====] - 55s 16s/step
    - loss: 1.0083 - accuracy: 0.7003
783 Epoch 371/1000
784 2/2 [=====] - 54s 16s/step
    - loss: 0.9933 - accuracy: 0.7050
785 Epoch 372/1000
786 2/2 [=====] - 54s 16s/step
    - loss: 1.0097 - accuracy: 0.7014
787 Epoch 373/1000
788 2/2 [=====] - 54s 16s/step
    - loss: 0.9976 - accuracy: 0.7033
789 Epoch 374/1000
790 2/2 [=====] - 54s 16s/step
    - loss: 0.9927 - accuracy: 0.7062
791 Epoch 375/1000
792 2/2 [=====] - 54s 16s/step
    - loss: 1.0055 - accuracy: 0.7010
793 Epoch 376/1000
794 2/2 [=====] - 55s 16s/step
    - loss: 0.9956 - accuracy: 0.7046
795 Epoch 377/1000
796 2/2 [=====] - 55s 15s/step
    - loss: 0.9958 - accuracy: 0.7025
797 Epoch 378/1000
798 2/2 [=====] - 55s 16s/step
    - loss: 0.9939 - accuracy: 0.7014
799 Epoch 379/1000
800 2/2 [=====] - 56s 16s/step
    - loss: 0.9603 - accuracy: 0.7150
801 Epoch 380/1000
802 2/2 [=====] - 54s 16s/step
    - loss: 0.9866 - accuracy: 0.7050
803 Epoch 381/1000
804 2/2 [=====] - 55s 16s/step
    - loss: 0.9662 - accuracy: 0.7090
805 Epoch 382/1000
```

```
806 2/2 [=====] - 54s 15s/step
    - loss: 0.9769 - accuracy: 0.7107
807 Epoch 383/1000
808 2/2 [=====] - 55s 16s/step
    - loss: 0.9605 - accuracy: 0.7130
809 Epoch 384/1000
810 2/2 [=====] - 55s 16s/step
    - loss: 0.9535 - accuracy: 0.7135
811 Epoch 385/1000
812 2/2 [=====] - 54s 16s/step
    - loss: 0.9789 - accuracy: 0.7064
813 Epoch 386/1000
814 2/2 [=====] - 54s 16s/step
    - loss: 0.9597 - accuracy: 0.7111
815 Epoch 387/1000
816 2/2 [=====] - 56s 16s/step
    - loss: 0.9566 - accuracy: 0.7174
817 Epoch 388/1000
818 2/2 [=====] - 57s 16s/step
    - loss: 0.9491 - accuracy: 0.7153
819 Epoch 389/1000
820 2/2 [=====] - 54s 15s/step
    - loss: 0.9540 - accuracy: 0.7191
821 Epoch 390/1000
822 2/2 [=====] - 55s 16s/step
    - loss: 0.9417 - accuracy: 0.7160
823 Epoch 391/1000
824 2/2 [=====] - 54s 16s/step
    - loss: 0.9489 - accuracy: 0.7170
825 Epoch 392/1000
826 2/2 [=====] - 55s 16s/step
    - loss: 0.9506 - accuracy: 0.7194
827 Epoch 393/1000
828 2/2 [=====] - 54s 16s/step
    - loss: 0.9246 - accuracy: 0.7277
829 Epoch 394/1000
830 2/2 [=====] - 55s 16s/step
    - loss: 0.9258 - accuracy: 0.7245
831 Epoch 395/1000
832 2/2 [=====] - 54s 16s/step
    - loss: 0.9420 - accuracy: 0.7203
```

```
833 Epoch 396/1000
834 2/2 [=====] - 55s 16s/step
    - loss: 0.9241 - accuracy: 0.7216
835 Epoch 397/1000
836 2/2 [=====] - 54s 16s/step
    - loss: 0.9311 - accuracy: 0.7204
837 Epoch 398/1000
838 2/2 [=====] - 55s 16s/step
    - loss: 0.9114 - accuracy: 0.7268
839 Epoch 399/1000
840 2/2 [=====] - 55s 15s/step
    - loss: 0.9336 - accuracy: 0.7223
841 Epoch 400/1000
842 2/2 [=====] - 55s 15s/step
    - loss: 0.9176 - accuracy: 0.7258
843 Epoch 401/1000
844 2/2 [=====] - 56s 16s/step
    - loss: 0.9177 - accuracy: 0.7232
845 Epoch 402/1000
846 2/2 [=====] - 54s 16s/step
    - loss: 0.9233 - accuracy: 0.7252
847 Epoch 403/1000
848 2/2 [=====] - 55s 16s/step
    - loss: 0.9290 - accuracy: 0.7233
849 Epoch 404/1000
850 2/2 [=====] - 54s 15s/step
    - loss: 0.9121 - accuracy: 0.7290
851 Epoch 405/1000
852 2/2 [=====] - 55s 16s/step
    - loss: 0.9091 - accuracy: 0.7283
853 Epoch 406/1000
854 2/2 [=====] - 59s 20s/step
    - loss: 0.9030 - accuracy: 0.7339
855 Epoch 407/1000
856 2/2 [=====] - 54s 16s/step
    - loss: 0.8943 - accuracy: 0.7349
857 Epoch 408/1000
858 2/2 [=====] - 54s 16s/step
    - loss: 0.8921 - accuracy: 0.7327
859 Epoch 409/1000
860 2/2 [=====] - 55s 16s/step
```

```
860 - loss: 0.8962 - accuracy: 0.7305
861 Epoch 410/1000
862 2/2 [=====] - 54s 16s/step
    - loss: 0.8955 - accuracy: 0.7304
863 Epoch 411/1000
864 2/2 [=====] - 56s 16s/step
    - loss: 0.8856 - accuracy: 0.7332
865 Epoch 412/1000
866 2/2 [=====] - 55s 16s/step
    - loss: 0.8878 - accuracy: 0.7336
867 Epoch 413/1000
868 2/2 [=====] - 54s 16s/step
    - loss: 0.8800 - accuracy: 0.7384
869 Epoch 414/1000
870 2/2 [=====] - 55s 16s/step
    - loss: 0.8978 - accuracy: 0.7317
871 Epoch 415/1000
872 2/2 [=====] - 54s 15s/step
    - loss: 0.8765 - accuracy: 0.7360
873 Epoch 416/1000
874 2/2 [=====] - 56s 16s/step
    - loss: 0.8823 - accuracy: 0.7363
875 Epoch 417/1000
876 2/2 [=====] - 73s 20s/step
    - loss: 0.8729 - accuracy: 0.7389
877 Epoch 418/1000
878 2/2 [=====] - 55s 15s/step
    - loss: 0.8722 - accuracy: 0.7419
879 Epoch 419/1000
880 2/2 [=====] - 56s 17s/step
    - loss: 0.8839 - accuracy: 0.7326
881 Epoch 420/1000
882 2/2 [=====] - 55s 16s/step
    - loss: 0.8756 - accuracy: 0.7400
883 Epoch 421/1000
884 2/2 [=====] - 55s 16s/step
    - loss: 0.8756 - accuracy: 0.7411
885 Epoch 422/1000
886 2/2 [=====] - 55s 16s/step
    - loss: 0.8647 - accuracy: 0.7390
887 Epoch 423/1000
```

```
888 2/2 [=====] - 54s 16s/step
    - loss: 0.8538 - accuracy: 0.7405
889 Epoch 424/1000
890 2/2 [=====] - 54s 16s/step
    - loss: 0.8563 - accuracy: 0.7446
891 Epoch 425/1000
892 2/2 [=====] - 55s 16s/step
    - loss: 0.8576 - accuracy: 0.7405
893 Epoch 426/1000
894 2/2 [=====] - 54s 15s/step
    - loss: 0.8542 - accuracy: 0.7450
895 Epoch 427/1000
896 2/2 [=====] - 54s 16s/step
    - loss: 0.8731 - accuracy: 0.7374
897 Epoch 428/1000
898 2/2 [=====] - 55s 16s/step
    - loss: 0.8351 - accuracy: 0.7487
899 Epoch 429/1000
900 2/2 [=====] - 59s 16s/step
    - loss: 0.8420 - accuracy: 0.7450
901 Epoch 430/1000
902 2/2 [=====] - 55s 16s/step
    - loss: 0.8468 - accuracy: 0.7488
903 Epoch 431/1000
904 2/2 [=====] - 55s 16s/step
    - loss: 0.8485 - accuracy: 0.7446
905 Epoch 432/1000
906 2/2 [=====] - 54s 16s/step
    - loss: 0.8464 - accuracy: 0.7449
907 Epoch 433/1000
908 2/2 [=====] - 56s 16s/step
    - loss: 0.8416 - accuracy: 0.7417
909 Epoch 434/1000
910 2/2 [=====] - 54s 15s/step
    - loss: 0.8369 - accuracy: 0.7475
911 Epoch 435/1000
912 2/2 [=====] - 55s 17s/step
    - loss: 0.8448 - accuracy: 0.7451
913 Epoch 436/1000
914 2/2 [=====] - 54s 16s/step
    - loss: 0.8387 - accuracy: 0.7470
```

```
915 Epoch 437/1000
916 2/2 [=====] - 54s 15s/step
    - loss: 0.8327 - accuracy: 0.7534
917 Epoch 438/1000
918 2/2 [=====] - 57s 18s/step
    - loss: 0.8365 - accuracy: 0.7480
919 Epoch 439/1000
920 2/2 [=====] - 55s 16s/step
    - loss: 0.8456 - accuracy: 0.7491
921 Epoch 440/1000
922 2/2 [=====] - 57s 15s/step
    - loss: 0.8377 - accuracy: 0.7471
923 Epoch 441/1000
924 2/2 [=====] - 67s 16s/step
    - loss: 0.8414 - accuracy: 0.7455
925 Epoch 442/1000
926 2/2 [=====] - 55s 16s/step
    - loss: 0.8435 - accuracy: 0.7518
927 Epoch 443/1000
928 2/2 [=====] - 64s 16s/step
    - loss: 0.8379 - accuracy: 0.7441
929 Epoch 444/1000
930 2/2 [=====] - 57s 16s/step
    - loss: 0.8223 - accuracy: 0.7530
931 Epoch 445/1000
932 2/2 [=====] - 70s 25s/step
    - loss: 0.8188 - accuracy: 0.7548
933 Epoch 446/1000
934 2/2 [=====] - 69s 17s/step
    - loss: 0.7957 - accuracy: 0.7618
935 Epoch 447/1000
936 2/2 [=====] - 74s 22s/step
    - loss: 0.7864 - accuracy: 0.7626
937 Epoch 448/1000
938 2/2 [=====] - 54s 16s/step
    - loss: 0.8219 - accuracy: 0.7535
939 Epoch 449/1000
940 2/2 [=====] - 55s 15s/step
    - loss: 0.8196 - accuracy: 0.7569
941 Epoch 450/1000
942 2/2 [=====] - 55s 16s/step
```

```
942 - loss: 0.8026 - accuracy: 0.7558
943 Epoch 451/1000
944 2/2 [=====] - 56s 16s/step
    - loss: 0.8283 - accuracy: 0.7470
945 Epoch 452/1000
946 2/2 [=====] - 56s 17s/step
    - loss: 0.8012 - accuracy: 0.7581
947 Epoch 453/1000
948 2/2 [=====] - 54s 16s/step
    - loss: 0.8236 - accuracy: 0.7513
949 Epoch 454/1000
950 2/2 [=====] - 54s 15s/step
    - loss: 0.8067 - accuracy: 0.7550
951 Epoch 455/1000
952 2/2 [=====] - 55s 16s/step
    - loss: 0.8141 - accuracy: 0.7543
953 Epoch 456/1000
954 2/2 [=====] - 55s 16s/step
    - loss: 0.8000 - accuracy: 0.7576
955 Epoch 457/1000
956 2/2 [=====] - 55s 16s/step
    - loss: 0.7823 - accuracy: 0.7618
957 Epoch 458/1000
958 2/2 [=====] - 54s 16s/step
    - loss: 0.7987 - accuracy: 0.7580
959 Epoch 459/1000
960 2/2 [=====] - 55s 16s/step
    - loss: 0.7791 - accuracy: 0.7646
961 Epoch 460/1000
962 2/2 [=====] - 54s 15s/step
    - loss: 0.7959 - accuracy: 0.7589
963 Epoch 461/1000
964 2/2 [=====] - 55s 16s/step
    - loss: 0.7928 - accuracy: 0.7669
965 Epoch 462/1000
966 2/2 [=====] - 55s 16s/step
    - loss: 0.7874 - accuracy: 0.7642
967 Epoch 463/1000
968 2/2 [=====] - 57s 17s/step
    - loss: 0.7885 - accuracy: 0.7621
969 Epoch 464/1000
```

```
970 2/2 [=====] - 55s 16s/step
    - loss: 0.7911 - accuracy: 0.7582
971 Epoch 465/1000
972 2/2 [=====] - 55s 16s/step
    - loss: 0.7872 - accuracy: 0.7667
973 Epoch 466/1000
974 2/2 [=====] - 55s 15s/step
    - loss: 0.7862 - accuracy: 0.7635
975 Epoch 467/1000
976 2/2 [=====] - 56s 16s/step
    - loss: 0.7768 - accuracy: 0.7627
977 Epoch 468/1000
978 2/2 [=====] - 55s 16s/step
    - loss: 0.7768 - accuracy: 0.7655
979 Epoch 469/1000
980 2/2 [=====] - 54s 16s/step
    - loss: 0.7625 - accuracy: 0.7681
981 Epoch 470/1000
982 2/2 [=====] - 54s 15s/step
    - loss: 0.7651 - accuracy: 0.7650
983 Epoch 471/1000
984 2/2 [=====] - 65s 16s/step
    - loss: 0.7599 - accuracy: 0.7701
985 Epoch 472/1000
986 2/2 [=====] - 57s 16s/step
    - loss: 0.7665 - accuracy: 0.7679
987 Epoch 473/1000
988 2/2 [=====] - 55s 16s/step
    - loss: 0.7778 - accuracy: 0.7664
989 Epoch 474/1000
990 2/2 [=====] - 54s 16s/step
    - loss: 0.7550 - accuracy: 0.7750
991 Epoch 475/1000
992 2/2 [=====] - 55s 16s/step
    - loss: 0.7601 - accuracy: 0.7697
993 Epoch 476/1000
994 2/2 [=====] - 54s 16s/step
    - loss: 0.7560 - accuracy: 0.7726
995 Epoch 477/1000
996 2/2 [=====] - 55s 16s/step
    - loss: 0.7643 - accuracy: 0.7725
```

```
997 Epoch 478/1000
998 2/2 [=====] - 55s 15s/step
    - loss: 0.7523 - accuracy: 0.7710
999 Epoch 479/1000
1000 2/2 [=====] - 55s 16s/step
    - loss: 0.7544 - accuracy: 0.7717
1001 Epoch 480/1000
1002 2/2 [=====] - 55s 16s/step
    - loss: 0.7515 - accuracy: 0.7720
1003 Epoch 481/1000
1004 2/2 [=====] - 54s 16s/step
    - loss: 0.7324 - accuracy: 0.7791
1005 Epoch 482/1000
1006 2/2 [=====] - 54s 15s/step
    - loss: 0.7515 - accuracy: 0.7769
1007 Epoch 483/1000
1008 2/2 [=====] - 56s 16s/step
    - loss: 0.7727 - accuracy: 0.7650
1009 Epoch 484/1000
1010 2/2 [=====] - 55s 16s/step
    - loss: 0.7455 - accuracy: 0.7733
1011 Epoch 485/1000
1012 2/2 [=====] - 55s 16s/step
    - loss: 0.7416 - accuracy: 0.7751
1013 Epoch 486/1000
1014 2/2 [=====] - 56s 17s/step
    - loss: 0.7477 - accuracy: 0.7751
1015 Epoch 487/1000
1016 2/2 [=====] - 54s 16s/step
    - loss: 0.7431 - accuracy: 0.7735
1017 Epoch 488/1000
1018 2/2 [=====] - 57s 16s/step
    - loss: 0.7274 - accuracy: 0.7806
1019 Epoch 489/1000
1020 2/2 [=====] - 60s 16s/step
    - loss: 0.7387 - accuracy: 0.7750
1021 Epoch 490/1000
1022 2/2 [=====] - 55s 16s/step
    - loss: 0.7334 - accuracy: 0.7759
1023 Epoch 491/1000
1024 2/2 [=====] - 55s 16s/step
```

```
1024 - loss: 0.7422 - accuracy: 0.7727
1025 Epoch 492/1000
1026 2/2 [=====] - 54s 16s/step
    - loss: 0.7277 - accuracy: 0.7832
1027 Epoch 493/1000
1028 2/2 [=====] - 54s 16s/step
    - loss: 0.7343 - accuracy: 0.7747
1029 Epoch 494/1000
1030 2/2 [=====] - 56s 16s/step
    - loss: 0.7276 - accuracy: 0.7796
1031 Epoch 495/1000
1032 2/2 [=====] - 55s 16s/step
    - loss: 0.7300 - accuracy: 0.7790
1033 Epoch 496/1000
1034 2/2 [=====] - 54s 16s/step
    - loss: 0.7123 - accuracy: 0.7857
1035 Epoch 497/1000
1036 2/2 [=====] - 55s 16s/step
    - loss: 0.7353 - accuracy: 0.7741
1037 Epoch 498/1000
1038 2/2 [=====] - 55s 16s/step
    - loss: 0.7075 - accuracy: 0.7846
1039 Epoch 499/1000
1040 2/2 [=====] - 56s 16s/step
    - loss: 0.7226 - accuracy: 0.7815
1041 Epoch 500/1000
1042 2/2 [=====] - 56s 15s/step
    - loss: 0.7139 - accuracy: 0.7851
1043 Epoch 501/1000
1044 2/2 [=====] - 54s 15s/step
    - loss: 0.7162 - accuracy: 0.7809
1045 Epoch 502/1000
1046 2/2 [=====] - 54s 16s/step
    - loss: 0.7092 - accuracy: 0.7851
1047 Epoch 503/1000
1048 2/2 [=====] - 54s 16s/step
    - loss: 0.7208 - accuracy: 0.7799
1049 Epoch 504/1000
1050 2/2 [=====] - 55s 16s/step
    - loss: 0.7161 - accuracy: 0.7865
1051 Epoch 505/1000
```

```
1052 2/2 [=====] - 57s 16s/step
    - loss: 0.7142 - accuracy: 0.7865
1053 Epoch 506/1000
1054 2/2 [=====] - 55s 16s/step
    - loss: 0.7164 - accuracy: 0.7851
1055 Epoch 507/1000
1056 2/2 [=====] - 56s 17s/step
    - loss: 0.7017 - accuracy: 0.7854
1057 Epoch 508/1000
1058 2/2 [=====] - 55s 16s/step
    - loss: 0.6939 - accuracy: 0.7873
1059 Epoch 509/1000
1060 2/2 [=====] - 55s 16s/step
    - loss: 0.7022 - accuracy: 0.7861
1061 Epoch 510/1000
1062 2/2 [=====] - 56s 16s/step
    - loss: 0.6933 - accuracy: 0.7872
1063 Epoch 511/1000
1064 2/2 [=====] - 56s 16s/step
    - loss: 0.6982 - accuracy: 0.7846
1065 Epoch 512/1000
1066 2/2 [=====] - 54s 15s/step
    - loss: 0.7078 - accuracy: 0.7872
1067 Epoch 513/1000
1068 2/2 [=====] - 54s 16s/step
    - loss: 0.6979 - accuracy: 0.7905
1069 Epoch 514/1000
1070 2/2 [=====] - 54s 16s/step
    - loss: 0.6908 - accuracy: 0.7899
1071 Epoch 515/1000
1072 2/2 [=====] - 55s 16s/step
    - loss: 0.6964 - accuracy: 0.7883
1073 Epoch 516/1000
1074 2/2 [=====] - 55s 16s/step
    - loss: 0.6960 - accuracy: 0.7889
1075 Epoch 517/1000
1076 2/2 [=====] - 57s 16s/step
    - loss: 0.6987 - accuracy: 0.7872
1077 Epoch 518/1000
1078 2/2 [=====] - 54s 16s/step
    - loss: 0.6897 - accuracy: 0.7925
```

```
1079 Epoch 519/1000
1080 2/2 [=====] - 54s 16s/step
    - loss: 0.6846 - accuracy: 0.7945
1081 Epoch 520/1000
1082 2/2 [=====] - 54s 16s/step
    - loss: 0.6837 - accuracy: 0.7924
1083 Epoch 521/1000
1084 2/2 [=====] - 56s 16s/step
    - loss: 0.6907 - accuracy: 0.7896
1085 Epoch 522/1000
1086 2/2 [=====] - 55s 16s/step
    - loss: 0.6870 - accuracy: 0.7917
1087 Epoch 523/1000
1088 2/2 [=====] - 55s 16s/step
    - loss: 0.7116 - accuracy: 0.7873
1089 Epoch 524/1000
1090 2/2 [=====] - 54s 16s/step
    - loss: 0.6862 - accuracy: 0.7911
1091 Epoch 525/1000
1092 2/2 [=====] - 53s 16s/step
    - loss: 0.6789 - accuracy: 0.7938
1093 Epoch 526/1000
1094 2/2 [=====] - 55s 16s/step
    - loss: 0.6811 - accuracy: 0.7928
1095 Epoch 527/1000
1096 2/2 [=====] - 55s 16s/step
    - loss: 0.6864 - accuracy: 0.7893
1097 Epoch 528/1000
1098 2/2 [=====] - 55s 16s/step
    - loss: 0.6867 - accuracy: 0.7916
1099 Epoch 529/1000
1100 2/2 [=====] - 54s 16s/step
    - loss: 0.6706 - accuracy: 0.7952
1101 Epoch 530/1000
1102 2/2 [=====] - 56s 15s/step
    - loss: 0.6610 - accuracy: 0.7982
1103 Epoch 531/1000
1104 2/2 [=====] - 55s 15s/step
    - loss: 0.6815 - accuracy: 0.7967
1105 Epoch 532/1000
1106 2/2 [=====] - 59s 16s/step
```

```
1106 - loss: 0.6623 - accuracy: 0.8027
1107 Epoch 533/1000
1108 2/2 [=====] - 57s 16s/step
    - loss: 0.6740 - accuracy: 0.7927
1109 Epoch 534/1000
1110 2/2 [=====] - 56s 16s/step
    - loss: 0.6854 - accuracy: 0.7900
1111 Epoch 535/1000
1112 2/2 [=====] - 54s 16s/step
    - loss: 0.6679 - accuracy: 0.7979
1113 Epoch 536/1000
1114 2/2 [=====] - 54s 15s/step
    - loss: 0.6522 - accuracy: 0.7965
1115 Epoch 537/1000
1116 2/2 [=====] - 60s 21s/step
    - loss: 0.6551 - accuracy: 0.7985
1117 Epoch 538/1000
1118 2/2 [=====] - 55s 15s/step
    - loss: 0.6745 - accuracy: 0.7933
1119 Epoch 539/1000
1120 2/2 [=====] - 55s 15s/step
    - loss: 0.6655 - accuracy: 0.7969
1121 Epoch 540/1000
1122 2/2 [=====] - 64s 16s/step
    - loss: 0.6659 - accuracy: 0.8007
1123 Epoch 541/1000
1124 2/2 [=====] - 76s 16s/step
    - loss: 0.6449 - accuracy: 0.8018
1125 Epoch 542/1000
1126 2/2 [=====] - 57s 17s/step
    - loss: 0.6772 - accuracy: 0.7988
1127 Epoch 543/1000
1128 2/2 [=====] - 60s 17s/step
    - loss: 0.6541 - accuracy: 0.8007
1129 Epoch 544/1000
1130 2/2 [=====] - 56s 16s/step
    - loss: 0.6504 - accuracy: 0.8012
1131 Epoch 545/1000
1132 2/2 [=====] - 55s 15s/step
    - loss: 0.6664 - accuracy: 0.7951
1133 Epoch 546/1000
```

```
1134 2/2 [=====] - 54s 16s/step
    - loss: 0.6510 - accuracy: 0.8007
1135 Epoch 547/1000
1136 2/2 [=====] - 55s 16s/step
    - loss: 0.6576 - accuracy: 0.7997
1137 Epoch 548/1000
1138 2/2 [=====] - 55s 16s/step
    - loss: 0.6461 - accuracy: 0.8049
1139 Epoch 549/1000
1140 2/2 [=====] - 54s 16s/step
    - loss: 0.6643 - accuracy: 0.7997
1141 Epoch 550/1000
1142 2/2 [=====] - 54s 15s/step
    - loss: 0.6436 - accuracy: 0.8077
1143 Epoch 551/1000
1144 2/2 [=====] - 55s 15s/step
    - loss: 0.6426 - accuracy: 0.8077
1145 Epoch 552/1000
1146 2/2 [=====] - 54s 16s/step
    - loss: 0.6546 - accuracy: 0.8044
1147 Epoch 553/1000
1148 2/2 [=====] - 56s 16s/step
    - loss: 0.6364 - accuracy: 0.8046
1149 Epoch 554/1000
1150 2/2 [=====] - 56s 17s/step
    - loss: 0.6528 - accuracy: 0.7993
1151 Epoch 555/1000
1152 2/2 [=====] - 55s 16s/step
    - loss: 0.6469 - accuracy: 0.8043
1153 Epoch 556/1000
1154 2/2 [=====] - 54s 16s/step
    - loss: 0.6469 - accuracy: 0.8076
1155 Epoch 557/1000
1156 2/2 [=====] - 55s 16s/step
    - loss: 0.6315 - accuracy: 0.8090
1157 Epoch 558/1000
1158 2/2 [=====] - 59s 16s/step
    - loss: 0.6425 - accuracy: 0.8069
1159 Epoch 559/1000
1160 2/2 [=====] - 55s 16s/step
    - loss: 0.6369 - accuracy: 0.8072
```

```
1161 Epoch 560/1000
1162 2/2 [=====] - 54s 16s/step
    - loss: 0.6341 - accuracy: 0.8064
1163 Epoch 561/1000
1164 2/2 [=====] - 54s 16s/step
    - loss: 0.6298 - accuracy: 0.8067
1165 Epoch 562/1000
1166 2/2 [=====] - 60s 18s/step
    - loss: 0.6425 - accuracy: 0.8036
1167 Epoch 563/1000
1168 2/2 [=====] - 55s 16s/step
    - loss: 0.6188 - accuracy: 0.8096
1169 Epoch 564/1000
1170 2/2 [=====] - 56s 16s/step
    - loss: 0.6287 - accuracy: 0.8054
1171 Epoch 565/1000
1172 2/2 [=====] - 56s 18s/step
    - loss: 0.6204 - accuracy: 0.8148
1173 Epoch 566/1000
1174 2/2 [=====] - 55s 16s/step
    - loss: 0.6348 - accuracy: 0.8091
1175 Epoch 567/1000
1176 2/2 [=====] - 57s 16s/step
    - loss: 0.6178 - accuracy: 0.8147
1177 Epoch 568/1000
1178 2/2 [=====] - 55s 16s/step
    - loss: 0.6438 - accuracy: 0.8044
1179 Epoch 569/1000
1180 2/2 [=====] - 55s 16s/step
    - loss: 0.6314 - accuracy: 0.8077
1181 Epoch 570/1000
1182 2/2 [=====] - 55s 16s/step
    - loss: 0.6260 - accuracy: 0.8114
1183 Epoch 571/1000
1184 2/2 [=====] - 54s 16s/step
    - loss: 0.6334 - accuracy: 0.8101
1185 Epoch 572/1000
1186 2/2 [=====] - 55s 16s/step
    - loss: 0.6228 - accuracy: 0.8074
1187 Epoch 573/1000
1188 2/2 [=====] - 55s 16s/step
```

```
1188 - loss: 0.6104 - accuracy: 0.8122
1189 Epoch 574/1000
1190 2/2 [=====] - 54s 16s/step
    - loss: 0.6250 - accuracy: 0.8054
1191 Epoch 575/1000
1192 2/2 [=====] - 55s 16s/step
    - loss: 0.6084 - accuracy: 0.8159
1193 Epoch 576/1000
1194 2/2 [=====] - 55s 16s/step
    - loss: 0.6082 - accuracy: 0.8110
1195 Epoch 577/1000
1196 2/2 [=====] - 54s 16s/step
    - loss: 0.6046 - accuracy: 0.8151
1197 Epoch 578/1000
1198 2/2 [=====] - 55s 16s/step
    - loss: 0.5985 - accuracy: 0.8166
1199 Epoch 579/1000
1200 2/2 [=====] - 54s 15s/step
    - loss: 0.6137 - accuracy: 0.8131
1201 Epoch 580/1000
1202 2/2 [=====] - 55s 17s/step
    - loss: 0.6154 - accuracy: 0.8131
1203 Epoch 581/1000
1204 2/2 [=====] - 59s 18s/step
    - loss: 0.6231 - accuracy: 0.8074
1205 Epoch 582/1000
1206 2/2 [=====] - 54s 16s/step
    - loss: 0.6103 - accuracy: 0.8156
1207 Epoch 583/1000
1208 2/2 [=====] - 55s 16s/step
    - loss: 0.5845 - accuracy: 0.8207
1209 Epoch 584/1000
1210 2/2 [=====] - 54s 16s/step
    - loss: 0.6080 - accuracy: 0.8134
1211 Epoch 585/1000
1212 2/2 [=====] - 54s 16s/step
    - loss: 0.6167 - accuracy: 0.8150
1213 Epoch 586/1000
1214 2/2 [=====] - 55s 16s/step
    - loss: 0.5935 - accuracy: 0.8202
1215 Epoch 587/1000
```

```
1216 2/2 [=====] - 55s 16s/step
    - loss: 0.6017 - accuracy: 0.8156
1217 Epoch 588/1000
1218 2/2 [=====] - 57s 18s/step
    - loss: 0.6113 - accuracy: 0.8148
1219 Epoch 589/1000
1220 2/2 [=====] - 55s 15s/step
    - loss: 0.6021 - accuracy: 0.8189
1221 Epoch 590/1000
1222 2/2 [=====] - 54s 15s/step
    - loss: 0.5890 - accuracy: 0.8194
1223 Epoch 591/1000
1224 2/2 [=====] - 55s 16s/step
    - loss: 0.5973 - accuracy: 0.8216
1225 Epoch 592/1000
1226 2/2 [=====] - 55s 16s/step
    - loss: 0.5888 - accuracy: 0.8207
1227 Epoch 593/1000
1228 2/2 [=====] - 54s 16s/step
    - loss: 0.5803 - accuracy: 0.8245
1229 Epoch 594/1000
1230 2/2 [=====] - 55s 16s/step
    - loss: 0.6039 - accuracy: 0.8164
1231 Epoch 595/1000
1232 2/2 [=====] - 66s 18s/step
    - loss: 0.5946 - accuracy: 0.8182
1233 Epoch 596/1000
1234 2/2 [=====] - 57s 17s/step
    - loss: 0.5960 - accuracy: 0.8178
1235 Epoch 597/1000
1236 2/2 [=====] - 56s 16s/step
    - loss: 0.5961 - accuracy: 0.8201
1237 Epoch 598/1000
1238 2/2 [=====] - 56s 16s/step
    - loss: 0.6005 - accuracy: 0.8175
1239 Epoch 599/1000
1240 2/2 [=====] - 56s 17s/step
    - loss: 0.5900 - accuracy: 0.8179
1241 Epoch 600/1000
1242 2/2 [=====] - 74s 16s/step
    - loss: 0.5883 - accuracy: 0.8208
```

```
1243 Epoch 601/1000
1244 2/2 [=====] - 55s 16s/step
    - loss: 0.5791 - accuracy: 0.8211
1245 Epoch 602/1000
1246 2/2 [=====] - 58s 16s/step
    - loss: 0.5761 - accuracy: 0.8278
1247 Epoch 603/1000
1248 2/2 [=====] - 57s 18s/step
    - loss: 0.5803 - accuracy: 0.8243
1249 Epoch 604/1000
1250 2/2 [=====] - 68s 16s/step
    - loss: 0.5830 - accuracy: 0.8191
1251 Epoch 605/1000
1252 2/2 [=====] - 73s 16s/step
    - loss: 0.5721 - accuracy: 0.8270
1253 Epoch 606/1000
1254 2/2 [=====] - 58s 17s/step
    - loss: 0.5830 - accuracy: 0.8216
1255 Epoch 607/1000
1256 2/2 [=====] - 59s 17s/step
    - loss: 0.5944 - accuracy: 0.8203
1257 Epoch 608/1000
1258 2/2 [=====] - 57s 17s/step
    - loss: 0.5779 - accuracy: 0.8226
1259 Epoch 609/1000
1260 2/2 [=====] - 56s 16s/step
    - loss: 0.5870 - accuracy: 0.8233
1261 Epoch 610/1000
1262 2/2 [=====] - 57s 17s/step
    - loss: 0.5904 - accuracy: 0.8211
1263 Epoch 611/1000
1264 2/2 [=====] - 57s 16s/step
    - loss: 0.5904 - accuracy: 0.8198
1265 Epoch 612/1000
1266 2/2 [=====] - 56s 16s/step
    - loss: 0.5805 - accuracy: 0.8257
1267 Epoch 613/1000
1268 2/2 [=====] - 56s 16s/step
    - loss: 0.5699 - accuracy: 0.8260
1269 Epoch 614/1000
1270 2/2 [=====] - 54s 16s/step
```

```
1270 - loss: 0.5695 - accuracy: 0.8264
1271 Epoch 615/1000
1272 2/2 [=====] - 55s 17s/step
    - loss: 0.5609 - accuracy: 0.8303
1273 Epoch 616/1000
1274 2/2 [=====] - 55s 16s/step
    - loss: 0.5853 - accuracy: 0.8217
1275 Epoch 617/1000
1276 2/2 [=====] - 55s 16s/step
    - loss: 0.5808 - accuracy: 0.8223
1277 Epoch 618/1000
1278 2/2 [=====] - 54s 16s/step
    - loss: 0.5860 - accuracy: 0.8198
1279 Epoch 619/1000
1280 2/2 [=====] - 54s 16s/step
    - loss: 0.5675 - accuracy: 0.8259
1281 Epoch 620/1000
1282 2/2 [=====] - 55s 17s/step
    - loss: 0.5588 - accuracy: 0.8321
1283 Epoch 621/1000
1284 2/2 [=====] - 55s 17s/step
    - loss: 0.5619 - accuracy: 0.8307
1285 Epoch 622/1000
1286 2/2 [=====] - 54s 16s/step
    - loss: 0.5637 - accuracy: 0.8298
1287 Epoch 623/1000
1288 2/2 [=====] - 55s 15s/step
    - loss: 0.5570 - accuracy: 0.8292
1289 Epoch 624/1000
1290 2/2 [=====] - 55s 16s/step
    - loss: 0.5599 - accuracy: 0.8280
1291 Epoch 625/1000
1292 2/2 [=====] - 55s 16s/step
    - loss: 0.5675 - accuracy: 0.8275
1293 Epoch 626/1000
1294 2/2 [=====] - 55s 16s/step
    - loss: 0.5634 - accuracy: 0.8265
1295 Epoch 627/1000
1296 2/2 [=====] - 54s 16s/step
    - loss: 0.5451 - accuracy: 0.8337
1297 Epoch 628/1000
```

```
1298 2/2 [=====] - 56s 16s/step
      - loss: 0.5758 - accuracy: 0.8258
1299 Epoch 629/1000
1300 2/2 [=====] - 54s 16s/step
      - loss: 0.5724 - accuracy: 0.8256
1301 Epoch 630/1000
1302 2/2 [=====] - 59s 19s/step
      - loss: 0.5665 - accuracy: 0.8270
1303 Epoch 631/1000
1304 2/2 [=====] - 54s 16s/step
      - loss: 0.5436 - accuracy: 0.8340
1305 Epoch 632/1000
1306 2/2 [=====] - 55s 17s/step
      - loss: 0.5741 - accuracy: 0.8218
1307 Epoch 633/1000
1308 2/2 [=====] - 55s 16s/step
      - loss: 0.5530 - accuracy: 0.8324
1309 Epoch 634/1000
1310 2/2 [=====] - 55s 15s/step
      - loss: 0.5469 - accuracy: 0.8303
1311 Epoch 635/1000
1312 2/2 [=====] - 63s 16s/step
      - loss: 0.5558 - accuracy: 0.8268
1313 Epoch 636/1000
1314 2/2 [=====] - 55s 15s/step
      - loss: 0.5504 - accuracy: 0.8339
1315 Epoch 637/1000
1316 2/2 [=====] - 59s 16s/step
      - loss: 0.5515 - accuracy: 0.8270
1317 Epoch 638/1000
1318 2/2 [=====] - 55s 16s/step
      - loss: 0.5682 - accuracy: 0.8244
1319 Epoch 639/1000
1320 2/2 [=====] - 55s 16s/step
      - loss: 0.5645 - accuracy: 0.8291
1321 Epoch 640/1000
1322 2/2 [=====] - 60s 21s/step
      - loss: 0.5525 - accuracy: 0.8308
1323 Epoch 641/1000
1324 2/2 [=====] - 56s 16s/step
      - loss: 0.5565 - accuracy: 0.8290
```

```
1325 Epoch 642/1000
1326 2/2 [=====] - 54s 16s/step
    - loss: 0.5581 - accuracy: 0.8268
1327 Epoch 643/1000
1328 2/2 [=====] - 55s 17s/step
    - loss: 0.5480 - accuracy: 0.8326
1329 Epoch 644/1000
1330 2/2 [=====] - 54s 16s/step
    - loss: 0.5363 - accuracy: 0.8372
1331 Epoch 645/1000
1332 2/2 [=====] - 56s 16s/step
    - loss: 0.5528 - accuracy: 0.8304
1333 Epoch 646/1000
1334 2/2 [=====] - 55s 16s/step
    - loss: 0.5439 - accuracy: 0.8308
1335 Epoch 647/1000
1336 2/2 [=====] - 56s 16s/step
    - loss: 0.5434 - accuracy: 0.8342
1337 Epoch 648/1000
1338 2/2 [=====] - 55s 16s/step
    - loss: 0.5322 - accuracy: 0.8395
1339 Epoch 649/1000
1340 2/2 [=====] - 57s 17s/step
    - loss: 0.5451 - accuracy: 0.8365
1341 Epoch 650/1000
1342 2/2 [=====] - 55s 16s/step
    - loss: 0.5294 - accuracy: 0.8395
1343 Epoch 651/1000
1344 2/2 [=====] - 55s 16s/step
    - loss: 0.5369 - accuracy: 0.8358
1345 Epoch 652/1000
1346 2/2 [=====] - 55s 16s/step
    - loss: 0.5345 - accuracy: 0.8380
1347 Epoch 653/1000
1348 2/2 [=====] - 55s 16s/step
    - loss: 0.5400 - accuracy: 0.8369
1349 Epoch 654/1000
1350 2/2 [=====] - 55s 16s/step
    - loss: 0.5391 - accuracy: 0.8350
1351 Epoch 655/1000
1352 2/2 [=====] - 56s 16s/step
```

```
1352 - loss: 0.5465 - accuracy: 0.8291
1353 Epoch 656/1000
1354 2/2 [=====] - 55s 16s/step
    - loss: 0.5338 - accuracy: 0.8363
1355 Epoch 657/1000
1356 2/2 [=====] - 56s 16s/step
    - loss: 0.5439 - accuracy: 0.8346
1357 Epoch 658/1000
1358 2/2 [=====] - 56s 16s/step
    - loss: 0.5377 - accuracy: 0.8385
1359 Epoch 659/1000
1360 2/2 [=====] - 55s 16s/step
    - loss: 0.5407 - accuracy: 0.8331
1361 Epoch 660/1000
1362 2/2 [=====] - 56s 17s/step
    - loss: 0.5388 - accuracy: 0.8358
1363 Epoch 661/1000
1364 2/2 [=====] - 56s 18s/step
    - loss: 0.5279 - accuracy: 0.8355
1365 Epoch 662/1000
1366 2/2 [=====] - 57s 16s/step
    - loss: 0.5323 - accuracy: 0.8367
1367 Epoch 663/1000
1368 2/2 [=====] - 56s 16s/step
    - loss: 0.5221 - accuracy: 0.8362
1369 Epoch 664/1000
1370 2/2 [=====] - 56s 16s/step
    - loss: 0.5223 - accuracy: 0.8399
1371 Epoch 665/1000
1372 2/2 [=====] - 57s 17s/step
    - loss: 0.5197 - accuracy: 0.8412
1373 Epoch 666/1000
1374 2/2 [=====] - 57s 17s/step
    - loss: 0.5321 - accuracy: 0.8368
1375 Epoch 667/1000
1376 2/2 [=====] - 57s 17s/step
    - loss: 0.5259 - accuracy: 0.8395
1377 Epoch 668/1000
1378 2/2 [=====] - 57s 17s/step
    - loss: 0.5226 - accuracy: 0.8409
1379 Epoch 669/1000
```

```
1380 2/2 [=====] - 56s 16s/step
    - loss: 0.5419 - accuracy: 0.8349
1381 Epoch 670/1000
1382 2/2 [=====] - 57s 16s/step
    - loss: 0.5254 - accuracy: 0.8371
1383 Epoch 671/1000
1384 2/2 [=====] - 57s 16s/step
    - loss: 0.5270 - accuracy: 0.8385
1385 Epoch 672/1000
1386 2/2 [=====] - 55s 16s/step
    - loss: 0.5129 - accuracy: 0.8428
1387 Epoch 673/1000
1388 2/2 [=====] - 55s 16s/step
    - loss: 0.5282 - accuracy: 0.8377
1389 Epoch 674/1000
1390 2/2 [=====] - 55s 16s/step
    - loss: 0.5313 - accuracy: 0.8358
1391 Epoch 675/1000
1392 2/2 [=====] - 54s 16s/step
    - loss: 0.5239 - accuracy: 0.8362
1393 Epoch 676/1000
1394 2/2 [=====] - 56s 16s/step
    - loss: 0.5256 - accuracy: 0.8390
1395 Epoch 677/1000
1396 2/2 [=====] - 55s 16s/step
    - loss: 0.5049 - accuracy: 0.8452
1397 Epoch 678/1000
1398 2/2 [=====] - 54s 16s/step
    - loss: 0.5252 - accuracy: 0.8409
1399 Epoch 679/1000
1400 2/2 [=====] - 54s 15s/step
    - loss: 0.5169 - accuracy: 0.8406
1401 Epoch 680/1000
1402 2/2 [=====] - 54s 15s/step
    - loss: 0.5342 - accuracy: 0.8388
1403 Epoch 681/1000
1404 2/2 [=====] - 54s 15s/step
    - loss: 0.5017 - accuracy: 0.8439
1405 Epoch 682/1000
1406 2/2 [=====] - 55s 16s/step
    - loss: 0.5176 - accuracy: 0.8424
```

```
1407 Epoch 683/1000
1408 2/2 [=====] - 55s 17s/step
      - loss: 0.4981 - accuracy: 0.8459
1409 Epoch 684/1000
1410 2/2 [=====] - 53s 15s/step
      - loss: 0.4974 - accuracy: 0.8476
1411 Epoch 685/1000
1412 2/2 [=====] - 55s 16s/step
      - loss: 0.5099 - accuracy: 0.8411
1413 Epoch 686/1000
1414 2/2 [=====] - 55s 16s/step
      - loss: 0.5177 - accuracy: 0.8395
1415 Epoch 687/1000
1416 2/2 [=====] - 57s 17s/step
      - loss: 0.4934 - accuracy: 0.8498
1417 Epoch 688/1000
1418 2/2 [=====] - 57s 16s/step
      - loss: 0.5227 - accuracy: 0.8382
1419 Epoch 689/1000
1420 2/2 [=====] - 55s 16s/step
      - loss: 0.5081 - accuracy: 0.8489
1421 Epoch 690/1000
1422 2/2 [=====] - 57s 16s/step
      - loss: 0.5082 - accuracy: 0.8447
1423 Epoch 691/1000
1424 2/2 [=====] - 55s 16s/step
      - loss: 0.5116 - accuracy: 0.8396
1425 Epoch 692/1000
1426 2/2 [=====] - 56s 16s/step
      - loss: 0.5178 - accuracy: 0.8414
1427 Epoch 693/1000
1428 2/2 [=====] - 56s 16s/step
      - loss: 0.5090 - accuracy: 0.8406
1429 Epoch 694/1000
1430 2/2 [=====] - 55s 16s/step
      - loss: 0.5061 - accuracy: 0.8485
1431 Epoch 695/1000
1432 2/2 [=====] - 54s 16s/step
      - loss: 0.5189 - accuracy: 0.8426
1433 Epoch 696/1000
1434 2/2 [=====] - 55s 15s/step
```

```
1434 - loss: 0.4935 - accuracy: 0.8472
1435 Epoch 697/1000
1436 2/2 [=====] - 55s 16s/step
    - loss: 0.5125 - accuracy: 0.8422
1437 Epoch 698/1000
1438 2/2 [=====] - 55s 16s/step
    - loss: 0.4943 - accuracy: 0.8502
1439 Epoch 699/1000
1440 2/2 [=====] - 55s 16s/step
    - loss: 0.4912 - accuracy: 0.8534
1441 Epoch 700/1000
1442 2/2 [=====] - 54s 16s/step
    - loss: 0.4983 - accuracy: 0.8489
1443 Epoch 701/1000
1444 2/2 [=====] - 54s 16s/step
    - loss: 0.4959 - accuracy: 0.8434
1445 Epoch 702/1000
1446 2/2 [=====] - 54s 15s/step
    - loss: 0.4951 - accuracy: 0.8474
1447 Epoch 703/1000
1448 2/2 [=====] - 55s 16s/step
    - loss: 0.5051 - accuracy: 0.8444
1449 Epoch 704/1000
1450 2/2 [=====] - 55s 16s/step
    - loss: 0.4959 - accuracy: 0.8455
1451 Epoch 705/1000
1452 2/2 [=====] - 54s 16s/step
    - loss: 0.5069 - accuracy: 0.8514
1453 Epoch 706/1000
1454 2/2 [=====] - 54s 16s/step
    - loss: 0.5058 - accuracy: 0.8490
1455 Epoch 707/1000
1456 2/2 [=====] - 55s 16s/step
    - loss: 0.4909 - accuracy: 0.8489
1457 Epoch 708/1000
1458 2/2 [=====] - 54s 15s/step
    - loss: 0.4929 - accuracy: 0.8511
1459 Epoch 709/1000
1460 2/2 [=====] - 56s 17s/step
    - loss: 0.4930 - accuracy: 0.8461
1461 Epoch 710/1000
```

```
1462 2/2 [=====] - 58s 17s/step
    - loss: 0.5101 - accuracy: 0.8424
1463 Epoch 711/1000
1464 2/2 [=====] - 54s 16s/step
    - loss: 0.5101 - accuracy: 0.8457
1465 Epoch 712/1000
1466 2/2 [=====] - 54s 16s/step
    - loss: 0.5136 - accuracy: 0.8412
1467 Epoch 713/1000
1468 2/2 [=====] - 55s 16s/step
    - loss: 0.4824 - accuracy: 0.8501
1469 Epoch 714/1000
1470 2/2 [=====] - 55s 16s/step
    - loss: 0.4993 - accuracy: 0.8477
1471 Epoch 715/1000
1472 2/2 [=====] - 55s 16s/step
    - loss: 0.4996 - accuracy: 0.8457
1473 Epoch 716/1000
1474 2/2 [=====] - 55s 16s/step
    - loss: 0.4832 - accuracy: 0.8524
1475 Epoch 717/1000
1476 2/2 [=====] - 55s 16s/step
    - loss: 0.4946 - accuracy: 0.8499
1477 Epoch 718/1000
1478 2/2 [=====] - 55s 16s/step
    - loss: 0.4861 - accuracy: 0.8526
1479 Epoch 719/1000
1480 2/2 [=====] - 54s 16s/step
    - loss: 0.4845 - accuracy: 0.8510
1481 Epoch 720/1000
1482 2/2 [=====] - 55s 15s/step
    - loss: 0.4891 - accuracy: 0.8500
1483 Epoch 721/1000
1484 2/2 [=====] - 49s 8s/step
    - loss: 0.4921 - accuracy: 0.8504
1485 Epoch 722/1000
1486 2/2 [=====] - 22s 6s/step
    - loss: 0.4825 - accuracy: 0.8501
1487 Epoch 723/1000
1488 2/2 [=====] - 18s 5s/step
    - loss: 0.4850 - accuracy: 0.8513
```

```
1489 Epoch 724/1000
1490 2/2 [=====] - 19s 5s/step
    - loss: 0.4748 - accuracy: 0.8521
1491 Epoch 725/1000
1492 2/2 [=====] - 22s 8s/step
    - loss: 0.4910 - accuracy: 0.8516
1493 Epoch 726/1000
1494 2/2 [=====] - 23s 6s/step
    - loss: 0.4877 - accuracy: 0.8488
1495 Epoch 727/1000
1496 2/2 [=====] - 23s 7s/step
    - loss: 0.4815 - accuracy: 0.8511
1497 Epoch 728/1000
1498 2/2 [=====] - 22s 6s/step
    - loss: 0.4864 - accuracy: 0.8519
1499 Epoch 729/1000
1500 2/2 [=====] - 21s 5s/step
    - loss: 0.4925 - accuracy: 0.8471
1501 Epoch 730/1000
1502 2/2 [=====] - 20s 6s/step
    - loss: 0.4920 - accuracy: 0.8477
1503 Epoch 731/1000
1504 2/2 [=====] - 18s 5s/step
    - loss: 0.4762 - accuracy: 0.8562
1505 Epoch 732/1000
1506 2/2 [=====] - 18s 5s/step
    - loss: 0.4803 - accuracy: 0.8545
1507 Epoch 733/1000
1508 2/2 [=====] - 18s 5s/step
    - loss: 0.4688 - accuracy: 0.8531
1509 Epoch 734/1000
1510 2/2 [=====] - 18s 5s/step
    - loss: 0.4818 - accuracy: 0.8499
1511 Epoch 735/1000
1512 2/2 [=====] - 18s 5s/step
    - loss: 0.4818 - accuracy: 0.8523
1513 Epoch 736/1000
1514 2/2 [=====] - 17s 5s/step
    - loss: 0.4797 - accuracy: 0.8551
1515 Epoch 737/1000
1516 2/2 [=====] - 18s 5s/step
```

```
1516 - loss: 0.4702 - accuracy: 0.8549
1517 Epoch 738/1000
1518 2/2 [=====] - 17s 5s/step
    - loss: 0.4694 - accuracy: 0.8563
1519 Epoch 739/1000
1520 2/2 [=====] - 17s 5s/step
    - loss: 0.4674 - accuracy: 0.8585
1521 Epoch 740/1000
1522 2/2 [=====] - 17s 5s/step
    - loss: 0.4787 - accuracy: 0.8536
1523 Epoch 741/1000
1524 2/2 [=====] - 18s 5s/step
    - loss: 0.4742 - accuracy: 0.8548
1525 Epoch 742/1000
1526 2/2 [=====] - 17s 5s/step
    - loss: 0.4774 - accuracy: 0.8541
1527 Epoch 743/1000
1528 2/2 [=====] - 18s 5s/step
    - loss: 0.4704 - accuracy: 0.8541
1529 Epoch 744/1000
1530 2/2 [=====] - 18s 5s/step
    - loss: 0.4737 - accuracy: 0.8529
1531 Epoch 745/1000
1532 2/2 [=====] - 17s 5s/step
    - loss: 0.4799 - accuracy: 0.8528
1533 Epoch 746/1000
1534 2/2 [=====] - 18s 5s/step
    - loss: 0.4782 - accuracy: 0.8551
1535 Epoch 747/1000
1536 2/2 [=====] - 22s 7s/step
    - loss: 0.4577 - accuracy: 0.8593
1537 Epoch 748/1000
1538 2/2 [=====] - 21s 6s/step
    - loss: 0.4607 - accuracy: 0.8559
1539 Epoch 749/1000
1540 2/2 [=====] - 18s 5s/step
    - loss: 0.4743 - accuracy: 0.8537
1541 Epoch 750/1000
1542 2/2 [=====] - 17s 5s/step
    - loss: 0.4648 - accuracy: 0.8587
1543 Epoch 751/1000
```

```
1544 2/2 [=====] - 18s 5s/step
      - loss: 0.4704 - accuracy: 0.8556
1545 Epoch 752/1000
1546 2/2 [=====] - 17s 5s/step
      - loss: 0.4889 - accuracy: 0.8523
1547 Epoch 753/1000
1548 2/2 [=====] - 17s 5s/step
      - loss: 0.4677 - accuracy: 0.8581
1549 Epoch 754/1000
1550 2/2 [=====] - 18s 5s/step
      - loss: 0.4657 - accuracy: 0.8535
1551 Epoch 755/1000
1552 2/2 [=====] - 18s 5s/step
      - loss: 0.4741 - accuracy: 0.8543
1553 Epoch 756/1000
1554 2/2 [=====] - 17s 5s/step
      - loss: 0.4625 - accuracy: 0.8567
1555 Epoch 757/1000
1556 2/2 [=====] - 17s 5s/step
      - loss: 0.4622 - accuracy: 0.8558
1557 Epoch 758/1000
1558 2/2 [=====] - 18s 5s/step
      - loss: 0.4604 - accuracy: 0.8606
1559 Epoch 759/1000
1560 2/2 [=====] - 17s 5s/step
      - loss: 0.4724 - accuracy: 0.8549
1561 Epoch 760/1000
1562 2/2 [=====] - 17s 5s/step
      - loss: 0.4734 - accuracy: 0.8544
1563 Epoch 761/1000
1564 2/2 [=====] - 18s 5s/step
      - loss: 0.4626 - accuracy: 0.8579
1565 Epoch 762/1000
1566 2/2 [=====] - 18s 5s/step
      - loss: 0.4604 - accuracy: 0.8608
1567 Epoch 763/1000
1568 2/2 [=====] - 17s 5s/step
      - loss: 0.4623 - accuracy: 0.8590
1569 Epoch 764/1000
1570 2/2 [=====] - 17s 5s/step
      - loss: 0.4440 - accuracy: 0.8598
```

```
1571 Epoch 765/1000
1572 2/2 [=====] - 18s 5s/step
    - loss: 0.4583 - accuracy: 0.8586
1573 Epoch 766/1000
1574 2/2 [=====] - 17s 5s/step
    - loss: 0.4669 - accuracy: 0.8568
1575 Epoch 767/1000
1576 2/2 [=====] - 22s 8s/step
    - loss: 0.4541 - accuracy: 0.8617
1577 Epoch 768/1000
1578 2/2 [=====] - 31s 8s/step
    - loss: 0.4563 - accuracy: 0.8588
1579 Epoch 769/1000
1580 2/2 [=====] - 29s 8s/step
    - loss: 0.4561 - accuracy: 0.8615
1581 Epoch 770/1000
1582 2/2 [=====] - 30s 8s/step
    - loss: 0.4602 - accuracy: 0.8591
1583 Epoch 771/1000
1584 2/2 [=====] - 26s 7s/step
    - loss: 0.4595 - accuracy: 0.8576
1585 Epoch 772/1000
1586 2/2 [=====] - 27s 8s/step
    - loss: 0.4556 - accuracy: 0.8602
1587 Epoch 773/1000
1588 2/2 [=====] - 27s 8s/step
    - loss: 0.4669 - accuracy: 0.8593
1589 Epoch 774/1000
1590 2/2 [=====] - 26s 8s/step
    - loss: 0.4591 - accuracy: 0.8603
1591 Epoch 775/1000
1592 2/2 [=====] - 26s 6s/step
    - loss: 0.4432 - accuracy: 0.8622
1593 Epoch 776/1000
1594 2/2 [=====] - 18s 6s/step
    - loss: 0.4567 - accuracy: 0.8576
1595 Epoch 777/1000
1596 2/2 [=====] - 26s 8s/step
    - loss: 0.4506 - accuracy: 0.8623
1597 Epoch 778/1000
1598 2/2 [=====] - 27s 8s/step
```

```
1598 - loss: 0.4563 - accuracy: 0.8591
1599 Epoch 779/1000
1600 2/2 [=====] - 28s 8s/step
    - loss: 0.4417 - accuracy: 0.8650
1601 Epoch 780/1000
1602 2/2 [=====] - 27s 7s/step
    - loss: 0.4465 - accuracy: 0.8602
1603 Epoch 781/1000
1604 2/2 [=====] - 27s 8s/step
    - loss: 0.4547 - accuracy: 0.8614
1605 Epoch 782/1000
1606 2/2 [=====] - 24s 5s/step
    - loss: 0.4396 - accuracy: 0.8665
1607 Epoch 783/1000
1608 2/2 [=====] - 19s 6s/step
    - loss: 0.4440 - accuracy: 0.8638
1609 Epoch 784/1000
1610 2/2 [=====] - 26s 7s/step
    - loss: 0.4380 - accuracy: 0.8648
1611 Epoch 785/1000
1612 2/2 [=====] - 18s 5s/step
    - loss: 0.4570 - accuracy: 0.8581
1613 Epoch 786/1000
1614 2/2 [=====] - 25s 8s/step
    - loss: 0.4498 - accuracy: 0.8654
1615 Epoch 787/1000
1616 2/2 [=====] - 27s 8s/step
    - loss: 0.4473 - accuracy: 0.8626
1617 Epoch 788/1000
1618 2/2 [=====] - 19s 5s/step
    - loss: 0.4539 - accuracy: 0.8615
1619 Epoch 789/1000
1620 2/2 [=====] - 23s 8s/step
    - loss: 0.4478 - accuracy: 0.8638
1621 Epoch 790/1000
1622 2/2 [=====] - 27s 8s/step
    - loss: 0.4479 - accuracy: 0.8629
1623 Epoch 791/1000
1624 2/2 [=====] - 22s 6s/step
    - loss: 0.4375 - accuracy: 0.8645
1625 Epoch 792/1000
```

```
1626 2/2 [=====] - 20s 6s/step
    - loss: 0.4426 - accuracy: 0.8615
1627 Epoch 793/1000
1628 2/2 [=====] - 20s 6s/step
    - loss: 0.4306 - accuracy: 0.8677
1629 Epoch 794/1000
1630 2/2 [=====] - 20s 6s/step
    - loss: 0.4358 - accuracy: 0.8651
1631 Epoch 795/1000
1632 2/2 [=====] - 20s 6s/step
    - loss: 0.4486 - accuracy: 0.8610
1633 Epoch 796/1000
1634 2/2 [=====] - 18s 5s/step
    - loss: 0.4335 - accuracy: 0.8683
1635 Epoch 797/1000
1636 2/2 [=====] - 18s 6s/step
    - loss: 0.4310 - accuracy: 0.8678
1637 Epoch 798/1000
1638 2/2 [=====] - 20s 6s/step
    - loss: 0.4354 - accuracy: 0.8671
1639 Epoch 799/1000
1640 2/2 [=====] - 18s 5s/step
    - loss: 0.4388 - accuracy: 0.8640
1641 Epoch 800/1000
1642 2/2 [=====] - 19s 6s/step
    - loss: 0.4367 - accuracy: 0.8661
1643 Epoch 801/1000
1644 2/2 [=====] - 20s 6s/step
    - loss: 0.4389 - accuracy: 0.8672
1645 Epoch 802/1000
1646 2/2 [=====] - 20s 6s/step
    - loss: 0.4358 - accuracy: 0.8666
1647 Epoch 803/1000
1648 2/2 [=====] - 17s 5s/step
    - loss: 0.4397 - accuracy: 0.8643
1649 Epoch 804/1000
1650 2/2 [=====] - 21s 6s/step
    - loss: 0.4433 - accuracy: 0.8618
1651 Epoch 805/1000
1652 2/2 [=====] - 20s 6s/step
    - loss: 0.4434 - accuracy: 0.8642
```

```
1653 Epoch 806/1000
1654 2/2 [=====] - 20s 6s/step
    - loss: 0.4455 - accuracy: 0.8594
1655 Epoch 807/1000
1656 2/2 [=====] - 58s 17s/step
    - loss: 0.4393 - accuracy: 0.8655
1657 Epoch 808/1000
1658 2/2 [=====] - 57s 14s/step
    - loss: 0.4536 - accuracy: 0.8598
1659 Epoch 809/1000
1660 2/2 [=====] - 24s 6s/step
    - loss: 0.4407 - accuracy: 0.8684
1661 Epoch 810/1000
1662 2/2 [=====] - 24s 6s/step
    - loss: 0.4241 - accuracy: 0.8698
1663 Epoch 811/1000
1664 2/2 [=====] - 22s 6s/step
    - loss: 0.4212 - accuracy: 0.8700
1665 Epoch 812/1000
1666 2/2 [=====] - 20s 6s/step
    - loss: 0.4288 - accuracy: 0.8681
1667 Epoch 813/1000
1668 2/2 [=====] - 21s 6s/step
    - loss: 0.4424 - accuracy: 0.8622
1669 Epoch 814/1000
1670 2/2 [=====] - 19s 5s/step
    - loss: 0.4259 - accuracy: 0.8667
1671 Epoch 815/1000
1672 2/2 [=====] - 19s 5s/step
    - loss: 0.4440 - accuracy: 0.8655
1673 Epoch 816/1000
1674 2/2 [=====] - 19s 5s/step
    - loss: 0.4277 - accuracy: 0.8671
1675 Epoch 817/1000
1676 2/2 [=====] - 20s 6s/step
    - loss: 0.4209 - accuracy: 0.8665
1677 Epoch 818/1000
1678 2/2 [=====] - 18s 5s/step
    - loss: 0.4206 - accuracy: 0.8706
1679 Epoch 819/1000
1680 2/2 [=====] - 18s 5s/step
```

```
1680 - loss: 0.4322 - accuracy: 0.8695
1681 Epoch 820/1000
1682 2/2 [=====] - 18s 5s/step
    - loss: 0.4400 - accuracy: 0.8673
1683 Epoch 821/1000
1684 2/2 [=====] - 17s 5s/step
    - loss: 0.4293 - accuracy: 0.8687
1685 Epoch 822/1000
1686 2/2 [=====] - 18s 5s/step
    - loss: 0.4201 - accuracy: 0.8722
1687 Epoch 823/1000
1688 2/2 [=====] - 18s 5s/step
    - loss: 0.4282 - accuracy: 0.8670
1689 Epoch 824/1000
1690 2/2 [=====] - 17s 5s/step
    - loss: 0.4286 - accuracy: 0.8682
1691 Epoch 825/1000
1692 2/2 [=====] - 17s 5s/step
    - loss: 0.4197 - accuracy: 0.8735
1693 Epoch 826/1000
1694 2/2 [=====] - 18s 5s/step
    - loss: 0.4225 - accuracy: 0.8707
1695 Epoch 827/1000
1696 2/2 [=====] - 17s 5s/step
    - loss: 0.4172 - accuracy: 0.8705
1697 Epoch 828/1000
1698 2/2 [=====] - 17s 5s/step
    - loss: 0.4338 - accuracy: 0.8685
1699 Epoch 829/1000
1700 2/2 [=====] - 17s 5s/step
    - loss: 0.3982 - accuracy: 0.8760
1701 Epoch 830/1000
1702 2/2 [=====] - 18s 5s/step
    - loss: 0.4373 - accuracy: 0.8680
1703 Epoch 831/1000
1704 2/2 [=====] - 17s 5s/step
    - loss: 0.4207 - accuracy: 0.8725
1705 Epoch 832/1000
1706 2/2 [=====] - 18s 5s/step
    - loss: 0.4110 - accuracy: 0.8739
1707 Epoch 833/1000
```

```
1708 2/2 [=====] - 19s 6s/step
    - loss: 0.4248 - accuracy: 0.8667
1709 Epoch 834/1000
1710 2/2 [=====] - 20s 6s/step
    - loss: 0.4155 - accuracy: 0.8745
1711 Epoch 835/1000
1712 2/2 [=====] - 19s 5s/step
    - loss: 0.4255 - accuracy: 0.8698
1713 Epoch 836/1000
1714 2/2 [=====] - 19s 5s/step
    - loss: 0.4183 - accuracy: 0.8715
1715 Epoch 837/1000
1716 2/2 [=====] - 21s 7s/step
    - loss: 0.4105 - accuracy: 0.8727
1717 Epoch 838/1000
1718 2/2 [=====] - 24s 6s/step
    - loss: 0.4183 - accuracy: 0.8687
1719 Epoch 839/1000
1720 2/2 [=====] - 20s 6s/step
    - loss: 0.4235 - accuracy: 0.8720
1721 Epoch 840/1000
1722 2/2 [=====] - 19s 6s/step
    - loss: 0.4165 - accuracy: 0.8735
1723 Epoch 841/1000
1724 2/2 [=====] - 20s 6s/step
    - loss: 0.4106 - accuracy: 0.8739
1725 Epoch 842/1000
1726 2/2 [=====] - 19s 6s/step
    - loss: 0.4237 - accuracy: 0.8706
1727 Epoch 843/1000
1728 2/2 [=====] - 18s 5s/step
    - loss: 0.4178 - accuracy: 0.8742
1729 Epoch 844/1000
1730 2/2 [=====] - 19s 5s/step
    - loss: 0.4257 - accuracy: 0.8677
1731 Epoch 845/1000
1732 2/2 [=====] - 18s 5s/step
    - loss: 0.4110 - accuracy: 0.8717
1733 Epoch 846/1000
1734 2/2 [=====] - 19s 5s/step
    - loss: 0.4135 - accuracy: 0.8707
```

```
1735 Epoch 847/1000
1736 2/2 [=====] - 19s 5s/step
    - loss: 0.4257 - accuracy: 0.8706
1737 Epoch 848/1000
1738 2/2 [=====] - 19s 5s/step
    - loss: 0.4222 - accuracy: 0.8683
1739 Epoch 849/1000
1740 2/2 [=====] - 18s 5s/step
    - loss: 0.4310 - accuracy: 0.8678
1741 Epoch 850/1000
1742 2/2 [=====] - 18s 5s/step
    - loss: 0.4029 - accuracy: 0.8752
1743 Epoch 851/1000
1744 2/2 [=====] - 17s 5s/step
    - loss: 0.4125 - accuracy: 0.8731
1745 Epoch 852/1000
1746 2/2 [=====] - 17s 5s/step
    - loss: 0.3981 - accuracy: 0.8784
1747 Epoch 853/1000
1748 2/2 [=====] - 18s 5s/step
    - loss: 0.4107 - accuracy: 0.8760
1749 Epoch 854/1000
1750 2/2 [=====] - 17s 5s/step
    - loss: 0.4008 - accuracy: 0.8737
1751 Epoch 855/1000
1752 2/2 [=====] - 17s 5s/step
    - loss: 0.4203 - accuracy: 0.8689
1753 Epoch 856/1000
1754 2/2 [=====] - 18s 5s/step
    - loss: 0.4105 - accuracy: 0.8712
1755 Epoch 857/1000
1756 2/2 [=====] - 17s 5s/step
    - loss: 0.3999 - accuracy: 0.8752
1757 Epoch 858/1000
1758 2/2 [=====] - 17s 5s/step
    - loss: 0.4124 - accuracy: 0.8721
1759 Epoch 859/1000
1760 2/2 [=====] - 18s 5s/step
    - loss: 0.4115 - accuracy: 0.8697
1761 Epoch 860/1000
1762 2/2 [=====] - 18s 5s/step
```

```
1762 - loss: 0.3902 - accuracy: 0.8797
1763 Epoch 861/1000
1764 2/2 [=====] - 17s 5s/step
    - loss: 0.3940 - accuracy: 0.8794
1765 Epoch 862/1000
1766 2/2 [=====] - 17s 5s/step
    - loss: 0.4003 - accuracy: 0.8778
1767 Epoch 863/1000
1768 2/2 [=====] - 18s 6s/step
    - loss: 0.4019 - accuracy: 0.8770
1769 Epoch 864/1000
1770 2/2 [=====] - 18s 5s/step
    - loss: 0.4071 - accuracy: 0.8753
1771 Epoch 865/1000
1772 2/2 [=====] - 17s 5s/step
    - loss: 0.4064 - accuracy: 0.8752
1773 Epoch 866/1000
1774 2/2 [=====] - 17s 5s/step
    - loss: 0.4037 - accuracy: 0.8746
1775 Epoch 867/1000
1776 2/2 [=====] - 18s 5s/step
    - loss: 0.4056 - accuracy: 0.8734
1777 Epoch 868/1000
1778 2/2 [=====] - 17s 5s/step
    - loss: 0.4083 - accuracy: 0.8732
1779 Epoch 869/1000
1780 2/2 [=====] - 17s 5s/step
    - loss: 0.4125 - accuracy: 0.8755
1781 Epoch 870/1000
1782 2/2 [=====] - 25s 8s/step
    - loss: 0.4119 - accuracy: 0.8703
1783 Epoch 871/1000
1784 2/2 [=====] - 29s 10s/step
    - loss: 0.3856 - accuracy: 0.8817
1785 Epoch 872/1000
1786 2/2 [=====] - 25s 8s/step
    - loss: 0.4088 - accuracy: 0.8742
1787 Epoch 873/1000
1788 2/2 [=====] - 25s 7s/step
    - loss: 0.3915 - accuracy: 0.8808
1789 Epoch 874/1000
```

```
1790 2/2 [=====] - 23s 6s/step
      - loss: 0.4072 - accuracy: 0.8731
1791 Epoch 875/1000
1792 2/2 [=====] - 23s 7s/step
      - loss: 0.4108 - accuracy: 0.8737
1793 Epoch 876/1000
1794 2/2 [=====] - 22s 6s/step
      - loss: 0.3936 - accuracy: 0.8799
1795 Epoch 877/1000
1796 2/2 [=====] - 23s 7s/step
      - loss: 0.3982 - accuracy: 0.8755
1797 Epoch 878/1000
1798 2/2 [=====] - 23s 7s/step
      - loss: 0.3950 - accuracy: 0.8779
1799 Epoch 879/1000
1800 2/2 [=====] - 24s 7s/step
      - loss: 0.3955 - accuracy: 0.8775
1801 Epoch 880/1000
1802 2/2 [=====] - 25s 7s/step
      - loss: 0.4049 - accuracy: 0.8779
1803 Epoch 881/1000
1804 2/2 [=====] - 24s 7s/step
      - loss: 0.3888 - accuracy: 0.8829
1805 Epoch 882/1000
1806 2/2 [=====] - 23s 7s/step
      - loss: 0.3979 - accuracy: 0.8785
1807 Epoch 883/1000
1808 2/2 [=====] - 25s 8s/step
      - loss: 0.3855 - accuracy: 0.8807
1809 Epoch 884/1000
1810 2/2 [=====] - 24s 7s/step
      - loss: 0.3997 - accuracy: 0.8763
1811 Epoch 885/1000
1812 2/2 [=====] - 24s 7s/step
      - loss: 0.3949 - accuracy: 0.8798
1813 Epoch 886/1000
1814 2/2 [=====] - 25s 7s/step
      - loss: 0.4140 - accuracy: 0.8700
1815 Epoch 887/1000
1816 2/2 [=====] - 24s 7s/step
      - loss: 0.4097 - accuracy: 0.8738
```

```
1817 Epoch 888/1000
1818 2/2 [=====] - 24s 7s/step
    - loss: 0.3974 - accuracy: 0.8779
1819 Epoch 889/1000
1820 2/2 [=====] - 25s 7s/step
    - loss: 0.3990 - accuracy: 0.8755
1821 Epoch 890/1000
1822 2/2 [=====] - 25s 7s/step
    - loss: 0.4025 - accuracy: 0.8772
1823 Epoch 891/1000
1824 2/2 [=====] - 25s 7s/step
    - loss: 0.4014 - accuracy: 0.8779
1825 Epoch 892/1000
1826 2/2 [=====] - 25s 7s/step
    - loss: 0.3918 - accuracy: 0.8812
1827 Epoch 893/1000
1828 2/2 [=====] - 25s 7s/step
    - loss: 0.4089 - accuracy: 0.8765
1829 Epoch 894/1000
1830 2/2 [=====] - 19s 5s/step
    - loss: 0.4005 - accuracy: 0.8765
1831 Epoch 895/1000
1832 2/2 [=====] - 18s 5s/step
    - loss: 0.3937 - accuracy: 0.8766
1833 Epoch 896/1000
1834 2/2 [=====] - 17s 5s/step
    - loss: 0.3835 - accuracy: 0.8811
1835 Epoch 897/1000
1836 2/2 [=====] - 18s 5s/step
    - loss: 0.4170 - accuracy: 0.8739
1837 Epoch 898/1000
1838 2/2 [=====] - 17s 5s/step
    - loss: 0.3914 - accuracy: 0.8822
1839 Epoch 899/1000
1840 2/2 [=====] - 18s 5s/step
    - loss: 0.4015 - accuracy: 0.8767
1841 Epoch 900/1000
1842 2/2 [=====] - 18s 5s/step
    - loss: 0.3932 - accuracy: 0.8796
1843 Epoch 901/1000
1844 2/2 [=====] - 18s 5s/step
```

```
1844 - loss: 0.3863 - accuracy: 0.8805
1845 Epoch 902/1000
1846 2/2 [=====] - 17s 5s/step
    - loss: 0.3849 - accuracy: 0.8775
1847 Epoch 903/1000
1848 2/2 [=====] - 17s 5s/step
    - loss: 0.3921 - accuracy: 0.8795
1849 Epoch 904/1000
1850 2/2 [=====] - 18s 6s/step
    - loss: 0.3838 - accuracy: 0.8824
1851 Epoch 905/1000
1852 2/2 [=====] - 18s 5s/step
    - loss: 0.3923 - accuracy: 0.8792
1853 Epoch 906/1000
1854 2/2 [=====] - 17s 5s/step
    - loss: 0.3820 - accuracy: 0.8794
1855 Epoch 907/1000
1856 2/2 [=====] - 17s 5s/step
    - loss: 0.3970 - accuracy: 0.8771
1857 Epoch 908/1000
1858 2/2 [=====] - 18s 5s/step
    - loss: 0.3867 - accuracy: 0.8770
1859 Epoch 909/1000
1860 2/2 [=====] - 17s 5s/step
    - loss: 0.3923 - accuracy: 0.8797
1861 Epoch 910/1000
1862 2/2 [=====] - 18s 5s/step
    - loss: 0.3868 - accuracy: 0.8816
1863 Epoch 911/1000
1864 2/2 [=====] - 19s 5s/step
    - loss: 0.3864 - accuracy: 0.8813
1865 Epoch 912/1000
1866 2/2 [=====] - 17s 5s/step
    - loss: 0.3919 - accuracy: 0.8789
1867 Epoch 913/1000
1868 2/2 [=====] - 17s 5s/step
    - loss: 0.3875 - accuracy: 0.8825
1869 Epoch 914/1000
1870 2/2 [=====] - 17s 5s/step
    - loss: 0.3865 - accuracy: 0.8798
1871 Epoch 915/1000
```

```
1872 2/2 [=====] - 20s 6s/step
    - loss: 0.3917 - accuracy: 0.8797
1873 Epoch 916/1000
1874 2/2 [=====] - 28s 8s/step
    - loss: 0.3749 - accuracy: 0.8851
1875 Epoch 917/1000
1876 2/2 [=====] - 27s 8s/step
    - loss: 0.3827 - accuracy: 0.8825
1877 Epoch 918/1000
1878 2/2 [=====] - 27s 8s/step
    - loss: 0.3778 - accuracy: 0.8830
1879 Epoch 919/1000
1880 2/2 [=====] - 27s 8s/step
    - loss: 0.3818 - accuracy: 0.8826
1881 Epoch 920/1000
1882 2/2 [=====] - 27s 8s/step
    - loss: 0.3785 - accuracy: 0.8809
1883 Epoch 921/1000
1884 2/2 [=====] - 27s 8s/step
    - loss: 0.3851 - accuracy: 0.8802
1885 Epoch 922/1000
1886 2/2 [=====] - 27s 8s/step
    - loss: 0.3849 - accuracy: 0.8832
1887 Epoch 923/1000
1888 2/2 [=====] - 27s 8s/step
    - loss: 0.3879 - accuracy: 0.8792
1889 Epoch 924/1000
1890 2/2 [=====] - 27s 8s/step
    - loss: 0.3582 - accuracy: 0.8896
1891 Epoch 925/1000
1892 2/2 [=====] - 31s 9s/step
    - loss: 0.3824 - accuracy: 0.8827
1893 Epoch 926/1000
1894 2/2 [=====] - 27s 8s/step
    - loss: 0.3747 - accuracy: 0.8859
1895 Epoch 927/1000
1896 2/2 [=====] - 26s 6s/step
    - loss: 0.3685 - accuracy: 0.8868
1897 Epoch 928/1000
1898 2/2 [=====] - 18s 5s/step
    - loss: 0.3763 - accuracy: 0.8858
```

```
1899 Epoch 929/1000
1900 2/2 [=====] - 18s 5s/step
      - loss: 0.3803 - accuracy: 0.8830
1901 Epoch 930/1000
1902 2/2 [=====] - 22s 8s/step
      - loss: 0.3847 - accuracy: 0.8804
1903 Epoch 931/1000
1904 2/2 [=====] - 27s 8s/step
      - loss: 0.3816 - accuracy: 0.8814
1905 Epoch 932/1000
1906 2/2 [=====] - 28s 8s/step
      - loss: 0.3725 - accuracy: 0.8868
1907 Epoch 933/1000
1908 2/2 [=====] - 21s 5s/step
      - loss: 0.3726 - accuracy: 0.8827
1909 Epoch 934/1000
1910 2/2 [=====] - 20s 7s/step
      - loss: 0.3778 - accuracy: 0.8802
1911 Epoch 935/1000
1912 2/2 [=====] - 27s 8s/step
      - loss: 0.3704 - accuracy: 0.8838
1913 Epoch 936/1000
1914 2/2 [=====] - 26s 7s/step
      - loss: 0.3695 - accuracy: 0.8873
1915 Epoch 937/1000
1916 2/2 [=====] - 26s 8s/step
      - loss: 0.3897 - accuracy: 0.8777
1917 Epoch 938/1000
1918 2/2 [=====] - 27s 8s/step
      - loss: 0.3789 - accuracy: 0.8854
1919 Epoch 939/1000
1920 2/2 [=====] - 22s 6s/step
      - loss: 0.3810 - accuracy: 0.8816
1921 Epoch 940/1000
1922 2/2 [=====] - 19s 5s/step
      - loss: 0.3641 - accuracy: 0.8866
1923 Epoch 941/1000
1924 2/2 [=====] - 17s 5s/step
      - loss: 0.3861 - accuracy: 0.8802
1925 Epoch 942/1000
1926 2/2 [=====] - 18s 5s/step
```

```
1926 - loss: 0.3706 - accuracy: 0.8880
1927 Epoch 943/1000
1928 2/2 [=====] - 19s 6s/step
    - loss: 0.3896 - accuracy: 0.8798
1929 Epoch 944/1000
1930 2/2 [=====] - 20s 6s/step
    - loss: 0.3823 - accuracy: 0.8837
1931 Epoch 945/1000
1932 2/2 [=====] - 20s 6s/step
    - loss: 0.3702 - accuracy: 0.8834
1933 Epoch 946/1000
1934 2/2 [=====] - 20s 6s/step
    - loss: 0.3727 - accuracy: 0.8863
1935 Epoch 947/1000
1936 2/2 [=====] - 19s 5s/step
    - loss: 0.3859 - accuracy: 0.8806
1937 Epoch 948/1000
1938 2/2 [=====] - 18s 6s/step
    - loss: 0.3820 - accuracy: 0.8831
1939 Epoch 949/1000
1940 2/2 [=====] - 20s 6s/step
    - loss: 0.3605 - accuracy: 0.8891
1941 Epoch 950/1000
1942 2/2 [=====] - 20s 6s/step
    - loss: 0.3683 - accuracy: 0.8859
1943 Epoch 951/1000
1944 2/2 [=====] - 20s 6s/step
    - loss: 0.3730 - accuracy: 0.8832
1945 Epoch 952/1000
1946 2/2 [=====] - 21s 6s/step
    - loss: 0.3677 - accuracy: 0.8886
1947 Epoch 953/1000
1948 2/2 [=====] - 20s 6s/step
    - loss: 0.3780 - accuracy: 0.8832
1949 Epoch 954/1000
1950 2/2 [=====] - 20s 6s/step
    - loss: 0.3767 - accuracy: 0.8839
1951 Epoch 955/1000
1952 2/2 [=====] - 20s 6s/step
    - loss: 0.3665 - accuracy: 0.8876
1953 Epoch 956/1000
```

```
1954 2/2 [=====] - 47s 15s/step
    - loss: 0.3728 - accuracy: 0.8839
1955 Epoch 957/1000
1956 2/2 [=====] - 40s 5s/step
    - loss: 0.3675 - accuracy: 0.8856
1957 Epoch 958/1000
1958 2/2 [=====] - 17s 5s/step
    - loss: 0.3749 - accuracy: 0.8866
1959 Epoch 959/1000
1960 2/2 [=====] - 18s 5s/step
    - loss: 0.3822 - accuracy: 0.8834
1961 Epoch 960/1000
1962 2/2 [=====] - 17s 5s/step
    - loss: 0.3579 - accuracy: 0.8899
1963 Epoch 961/1000
1964 2/2 [=====] - 18s 5s/step
    - loss: 0.3709 - accuracy: 0.8847
1965 Epoch 962/1000
1966 2/2 [=====] - 17s 5s/step
    - loss: 0.3732 - accuracy: 0.8845
1967 Epoch 963/1000
1968 2/2 [=====] - 17s 5s/step
    - loss: 0.3727 - accuracy: 0.8847
1969 Epoch 964/1000
1970 2/2 [=====] - 17s 5s/step
    - loss: 0.3563 - accuracy: 0.8884
1971 Epoch 965/1000
1972 2/2 [=====] - 18s 5s/step
    - loss: 0.3648 - accuracy: 0.8864
1973 Epoch 966/1000
1974 2/2 [=====] - 17s 5s/step
    - loss: 0.3683 - accuracy: 0.8874
1975 Epoch 967/1000
1976 2/2 [=====] - 17s 5s/step
    - loss: 0.3633 - accuracy: 0.8878
1977 Epoch 968/1000
1978 2/2 [=====] - 18s 5s/step
    - loss: 0.3739 - accuracy: 0.8849
1979 Epoch 969/1000
1980 2/2 [=====] - 17s 5s/step
    - loss: 0.3553 - accuracy: 0.8900
```

```
1981 Epoch 970/1000
1982 2/2 [=====] - 17s 5s/step
    - loss: 0.3631 - accuracy: 0.8856
1983 Epoch 971/1000
1984 2/2 [=====] - 18s 5s/step
    - loss: 0.3866 - accuracy: 0.8808
1985 Epoch 972/1000
1986 2/2 [=====] - 18s 5s/step
    - loss: 0.3705 - accuracy: 0.8844
1987 Epoch 973/1000
1988 2/2 [=====] - 17s 5s/step
    - loss: 0.3659 - accuracy: 0.8867
1989 Epoch 974/1000
1990 2/2 [=====] - 17s 5s/step
    - loss: 0.3553 - accuracy: 0.8898
1991 Epoch 975/1000
1992 2/2 [=====] - 22s 8s/step
    - loss: 0.3644 - accuracy: 0.8893
1993 Epoch 976/1000
1994 2/2 [=====] - 19s 5s/step
    - loss: 0.3683 - accuracy: 0.8869
1995 Epoch 977/1000
1996 2/2 [=====] - 21s 5s/step
    - loss: 0.3659 - accuracy: 0.8879
1997 Epoch 978/1000
1998 2/2 [=====] - 20s 6s/step
    - loss: 0.3537 - accuracy: 0.8914
1999 Epoch 979/1000
2000 2/2 [=====] - 18s 5s/step
    - loss: 0.3596 - accuracy: 0.8875
2001 Epoch 980/1000
2002 2/2 [=====] - 18s 5s/step
    - loss: 0.3639 - accuracy: 0.8887
2003 Epoch 981/1000
2004 2/2 [=====] - 17s 5s/step
    - loss: 0.3644 - accuracy: 0.8884
2005 Epoch 982/1000
2006 2/2 [=====] - 18s 5s/step
    - loss: 0.3663 - accuracy: 0.8876
2007 Epoch 983/1000
2008 2/2 [=====] - 17s 5s/step
```

```
2008 - loss: 0.3727 - accuracy: 0.8854
2009 Epoch 984/1000
2010 2/2 [=====] - 17s 5s/step
      - loss: 0.3568 - accuracy: 0.8865
2011 Epoch 985/1000
2012 2/2 [=====] - 18s 5s/step
      - loss: 0.3642 - accuracy: 0.8862
2013 Epoch 986/1000
2014 2/2 [=====] - 18s 5s/step
      - loss: 0.3575 - accuracy: 0.8883
2015 Epoch 987/1000
2016 2/2 [=====] - 19s 6s/step
      - loss: 0.3695 - accuracy: 0.8899
2017 Epoch 988/1000
2018 2/2 [=====] - 18s 5s/step
      - loss: 0.3508 - accuracy: 0.8916
2019 Epoch 989/1000
2020 2/2 [=====] - 18s 5s/step
      - loss: 0.3573 - accuracy: 0.8893
2021 Epoch 990/1000
2022 2/2 [=====] - 17s 5s/step
      - loss: 0.3543 - accuracy: 0.8897
2023 Epoch 991/1000
2024 2/2 [=====] - 18s 5s/step
      - loss: 0.3671 - accuracy: 0.8894
2025 Epoch 992/1000
2026 2/2 [=====] - 18s 5s/step
      - loss: 0.3567 - accuracy: 0.8873
2027 Epoch 993/1000
2028 2/2 [=====] - 17s 5s/step
      - loss: 0.3664 - accuracy: 0.8861
2029 Epoch 994/1000
2030 2/2 [=====] - 17s 5s/step
      - loss: 0.3675 - accuracy: 0.8839
2031 Epoch 995/1000
2032 2/2 [=====] - 17s 5s/step
      - loss: 0.3610 - accuracy: 0.8891
2033 Epoch 996/1000
2034 2/2 [=====] - 18s 5s/step
      - loss: 0.3440 - accuracy: 0.8914
2035 Epoch 997/1000
```

```
2036 2/2 [=====] - 17s 5s/step
      - loss: 0.3588 - accuracy: 0.8900
2037 Epoch 998/1000
2038 2/2 [=====] - 17s 5s/step
      - loss: 0.3610 - accuracy: 0.8881
2039 Epoch 999/1000
2040 2/2 [=====] - 17s 5s/step
      - loss: 0.3622 - accuracy: 0.8893
2041 Epoch 1000/1000
2042 2/2 [=====] - 18s 5s/step
      - loss: 0.3594 - accuracy: 0.8890
2043
2044 Testing-----
2045 110/110 [=====] - 2s 17ms/
      step - loss: 5.5538 - accuracy: 0.2121
2046 test loss: 5.553828716278076
2047 test accuracy: 0.21214713156223297
2048 Model Saved.
2049
2050 Process finished with exit code 0
2051
```