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1 C:\Users\mail2\AppData\Local\Programs\Python\Python38
  \python.exe "C:/Users/mail2/Documents/Nauka/PJA 2021/
  SEMESTR VII/NAI/Projekty/Neural_Network/Penguin/main.
  py"
2 {'Adelie': 0, 'Gentoo': 1, 'Chinstrap': 2}
3 Fold...
4 Epoch 1/500
5 6/6 [=====] - 1s 25ms/step
  - loss: 1.0597 - acc: 0.4645 - val_loss: 0.7967 -
  val_acc: 0.6957
6 Epoch 2/500
7 6/6 [=====] - 0s 6ms/step -
  loss: 0.7653 - acc: 0.6667 - val_loss: 0.6319 -
  val_acc: 0.7391
8 Epoch 3/500
9 6/6 [=====] - 0s 6ms/step -
  loss: 0.6099 - acc: 0.7596 - val_loss: 0.5256 -
  val_acc: 0.8261
10 Epoch 4/500
11 6/6 [=====] - 0s 6ms/step -
  loss: 0.5078 - acc: 0.8197 - val_loss: 0.4443 -
  val_acc: 0.8696
12 Epoch 5/500
13 6/6 [=====] - 0s 6ms/step -
  loss: 0.4388 - acc: 0.8579 - val_loss: 0.3717 -
  val_acc: 1.0000
14 Epoch 6/500
15 6/6 [=====] - 0s 3ms/step -
  loss: 0.3836 - acc: 0.8907 - val_loss: 0.3189 -
  val_acc: 0.9457
16 Epoch 7/500
17 6/6 [=====] - 0s 4ms/step -
  loss: 0.3158 - acc: 0.9454 - val_loss: 0.2748 -
  val_acc: 0.9457
18 Epoch 8/500
19 6/6 [=====] - 0s 6ms/step -
  loss: 0.2554 - acc: 0.9672 - val_loss: 0.2284 -
  val_acc: 0.9674
20 Epoch 9/500
21 6/6 [=====] - 0s 6ms/step -
  loss: 0.2358 - acc: 0.9617 - val_loss: 0.1904 -
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21 val_acc: 0.9891
22 Epoch 10/500
23 6/6 [=====] - 0s 6ms/step -
    loss: 0.1963 - acc: 0.9836 - val_loss: 0.1653 -
    val_acc: 0.9783
24 Epoch 11/500
25 6/6 [=====] - 0s 4ms/step -
    loss: 0.1654 - acc: 0.9836 - val_loss: 0.1358 -
    val_acc: 1.0000
26 Epoch 12/500
27 6/6 [=====] - 0s 6ms/step -
    loss: 0.1395 - acc: 0.9836 - val_loss: 0.1141 -
    val_acc: 0.9891
28 Epoch 13/500
29 6/6 [=====] - 0s 6ms/step -
    loss: 0.1160 - acc: 0.9945 - val_loss: 0.1170 -
    val_acc: 0.9565
30 Epoch 14/500
31 6/6 [=====] - 0s 6ms/step -
    loss: 0.1039 - acc: 0.9781 - val_loss: 0.0850 -
    val_acc: 0.9891
32 Epoch 15/500
33 6/6 [=====] - 0s 6ms/step -
    loss: 0.0996 - acc: 0.9781 - val_loss: 0.0763 -
    val_acc: 0.9891
34 Epoch 16/500
35 6/6 [=====] - 0s 6ms/step -
    loss: 0.0960 - acc: 0.9836 - val_loss: 0.0680 -
    val_acc: 0.9891
36 Epoch 17/500
37 6/6 [=====] - 0s 4ms/step -
    loss: 0.0702 - acc: 1.0000 - val_loss: 0.0696 -
    val_acc: 0.9891
38 Epoch 18/500
39 6/6 [=====] - 0s 3ms/step -
    loss: 0.0706 - acc: 0.9891 - val_loss: 0.0568 -
    val_acc: 0.9891
40 Epoch 19/500
41 6/6 [=====] - 0s 6ms/step -
    loss: 0.0639 - acc: 1.0000 - val_loss: 0.0528 -
    val_acc: 0.9891
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42 Epoch 20/500
43 6/6 [=====] - 0s 6ms/step -
    loss: 0.0562 - acc: 0.9945 - val_loss: 0.0524 -
    val_acc: 0.9891
44 Epoch 21/500
45 6/6 [=====] - 0s 6ms/step -
    loss: 0.0473 - acc: 1.0000 - val_loss: 0.0433 -
    val_acc: 0.9891
46 Epoch 22/500
47 6/6 [=====] - 0s 6ms/step -
    loss: 0.0467 - acc: 0.9891 - val_loss: 0.0655 -
    val_acc: 0.9783
48 Epoch 23/500
49 6/6 [=====] - 0s 6ms/step -
    loss: 0.0407 - acc: 1.0000 - val_loss: 0.0375 -
    val_acc: 0.9891
50 Epoch 24/500
51 6/6 [=====] - 0s 6ms/step -
    loss: 0.0375 - acc: 0.9891 - val_loss: 0.0353 -
    val_acc: 0.9891
52 Epoch 25/500
53 6/6 [=====] - 0s 6ms/step -
    loss: 0.0368 - acc: 0.9945 - val_loss: 0.0346 -
    val_acc: 0.9891
54 Epoch 26/500
55 6/6 [=====] - 0s 6ms/step -
    loss: 0.0359 - acc: 0.9836 - val_loss: 0.0337 -
    val_acc: 0.9891
56 Epoch 27/500
57 6/6 [=====] - 0s 5ms/step -
    loss: 0.0303 - acc: 0.9945 - val_loss: 0.0308 -
    val_acc: 0.9891
58 Epoch 28/500
59 6/6 [=====] - 0s 3ms/step -
    loss: 0.0325 - acc: 1.0000 - val_loss: 0.0299 -
    val_acc: 0.9891
60 Epoch 29/500
61 6/6 [=====] - 0s 3ms/step -
    loss: 0.0354 - acc: 1.0000 - val_loss: 0.0298 -
    val_acc: 0.9891
62 Epoch 30/500
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63 6/6 [=====] - 0s 6ms/step
    - loss: 0.0254 - acc: 1.0000 - val_loss: 0.0298 -
    val_acc: 1.0000
64 Epoch 31/500
65 6/6 [=====] - 0s 6ms/step
    - loss: 0.0215 - acc: 1.0000 - val_loss: 0.0251 -
    val_acc: 0.9891
66 Epoch 32/500
67 6/6 [=====] - 0s 6ms/step
    - loss: 0.0216 - acc: 1.0000 - val_loss: 0.0274 -
    val_acc: 1.0000
68 Epoch 33/500
69 6/6 [=====] - 0s 7ms/step
    - loss: 0.0240 - acc: 0.9945 - val_loss: 0.0292 -
    val_acc: 1.0000
70 Epoch 34/500
71 6/6 [=====] - 0s 6ms/step
    - loss: 0.0192 - acc: 1.0000 - val_loss: 0.0228 -
    val_acc: 0.9891
72 Epoch 35/500
73 6/6 [=====] - 0s 6ms/step
    - loss: 0.0202 - acc: 0.9945 - val_loss: 0.0232 -
    val_acc: 0.9891
74 Epoch 36/500
75 6/6 [=====] - 0s 6ms/step
    - loss: 0.0183 - acc: 1.0000 - val_loss: 0.0221 -
    val_acc: 0.9891
76 Epoch 37/500
77 6/6 [=====] - 0s 6ms/step
    - loss: 0.0171 - acc: 1.0000 - val_loss: 0.0213 -
    val_acc: 0.9891
78 Epoch 38/500
79 6/6 [=====] - 0s 6ms/step
    - loss: 0.0200 - acc: 0.9945 - val_loss: 0.0295 -
    val_acc: 0.9891
80 Epoch 39/500
81 6/6 [=====] - 0s 6ms/step
    - loss: 0.0147 - acc: 1.0000 - val_loss: 0.0347 -
    val_acc: 0.9783
82 Epoch 40/500
83 6/6 [=====] - 0s 3ms/step
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83 - loss: 0.0183 - acc: 0.9945 - val_loss: 0.0210 -  
    val_acc: 1.0000  
84 Epoch 41/500  
85 6/6 [=====] - 0s 3ms/step  
    - loss: 0.0149 - acc: 1.0000 - val_loss: 0.0201 -  
    val_acc: 1.0000  
86 Epoch 42/500  
87 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0107 - acc: 1.0000 - val_loss: 0.0250 -  
    val_acc: 0.9891  
88 Epoch 43/500  
89 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0106 - acc: 1.0000 - val_loss: 0.0205 -  
    val_acc: 0.9891  
90 Epoch 44/500  
91 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0157 - acc: 1.0000 - val_loss: 0.0208 -  
    val_acc: 0.9891  
92 Epoch 45/500  
93 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0155 - acc: 0.9945 - val_loss: 0.0167 -  
    val_acc: 0.9891  
94 Epoch 46/500  
95 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0090 - acc: 1.0000 - val_loss: 0.0163 -  
    val_acc: 0.9891  
96 Epoch 47/500  
97 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0114 - acc: 1.0000 - val_loss: 0.0187 -  
    val_acc: 1.0000  
98 Epoch 48/500  
99 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0113 - acc: 1.0000 - val_loss: 0.0198 -  
    val_acc: 1.0000  
100 Epoch 49/500  
101 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0076 - acc: 1.0000 - val_loss: 0.0229 -  
    val_acc: 1.0000  
102 Epoch 50/500  
103 6/6 [=====] - 0s 7ms/step  
    - loss: 0.0140 - acc: 1.0000 - val_loss: 0.0191 -
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103 val_acc: 1.0000
104 Epoch 51/500
105 6/6 [=====] - 0s 6ms/step
    - loss: 0.0073 - acc: 1.0000 - val_loss: 0.0173 -
    val_acc: 1.0000
106 Epoch 52/500
107 6/6 [=====] - 0s 6ms/step
    - loss: 0.0056 - acc: 1.0000 - val_loss: 0.0146 -
    val_acc: 0.9891
108 Epoch 53/500
109 6/6 [=====] - 0s 6ms/step
    - loss: 0.0163 - acc: 0.9945 - val_loss: 0.0146 -
    val_acc: 1.0000
110 Epoch 54/500
111 6/6 [=====] - 0s 4ms/step
    - loss: 0.0079 - acc: 1.0000 - val_loss: 0.0134 -
    val_acc: 1.0000
112 Epoch 55/500
113 6/6 [=====] - 0s 6ms/step
    - loss: 0.0059 - acc: 1.0000 - val_loss: 0.0130 -
    val_acc: 1.0000
114 Fold...
115 Epoch 1/500
116 6/6 [=====] - 0s 19ms/step
    - loss: 0.8877 - acc: 0.6393 - val_loss: 0.6248 -
    val_acc: 0.8478
117 Epoch 2/500
118 6/6 [=====] - 0s 5ms/step
    - loss: 0.6264 - acc: 0.7596 - val_loss: 0.5015 -
    val_acc: 0.8370
119 Epoch 3/500
120 6/6 [=====] - 0s 3ms/step
    - loss: 0.4833 - acc: 0.8251 - val_loss: 0.4314 -
    val_acc: 0.8804
121 Epoch 4/500
122 6/6 [=====] - 0s 6ms/step
    - loss: 0.3977 - acc: 0.9126 - val_loss: 0.3760 -
    val_acc: 0.8587
123 Epoch 5/500
124 6/6 [=====] - 0s 6ms/step
    - loss: 0.3392 - acc: 0.9016 - val_loss: 0.3151 -
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124 val_acc: 0.9348
125 Epoch 6/500
126 6/6 [=====] - 0s 6ms/step
    - loss: 0.2780 - acc: 0.9235 - val_loss: 0.2715 -
    val_acc: 0.9891
127 Epoch 7/500
128 6/6 [=====] - 0s 7ms/step
    - loss: 0.2484 - acc: 0.9617 - val_loss: 0.2428 -
    val_acc: 0.9565
129 Epoch 8/500
130 6/6 [=====] - 0s 6ms/step
    - loss: 0.2132 - acc: 0.9617 - val_loss: 0.2017 -
    val_acc: 1.0000
131 Epoch 9/500
132 6/6 [=====] - 0s 6ms/step
    - loss: 0.1906 - acc: 0.9781 - val_loss: 0.1807 -
    val_acc: 0.9783
133 Epoch 10/500
134 6/6 [=====] - 0s 6ms/step
    - loss: 0.1514 - acc: 0.9836 - val_loss: 0.1582 -
    val_acc: 0.9891
135 Epoch 11/500
136 6/6 [=====] - 0s 6ms/step
    - loss: 0.1306 - acc: 0.9891 - val_loss: 0.1390 -
    val_acc: 0.9891
137 Epoch 12/500
138 6/6 [=====] - 0s 6ms/step
    - loss: 0.1041 - acc: 0.9945 - val_loss: 0.1176 -
    val_acc: 0.9891
139 Epoch 13/500
140 6/6 [=====] - 0s 6ms/step
    - loss: 0.0910 - acc: 0.9836 - val_loss: 0.1096 -
    val_acc: 0.9891
141 Epoch 14/500
142 6/6 [=====] - 0s 6ms/step
    - loss: 0.0834 - acc: 1.0000 - val_loss: 0.0931 -
    val_acc: 0.9891
143 Epoch 15/500
144 6/6 [=====] - 0s 6ms/step
    - loss: 0.0734 - acc: 0.9891 - val_loss: 0.0829 -
    val_acc: 0.9891
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145 Epoch 16/500
146 6/6 [=====] - 0s 6ms/step
    - loss: 0.0721 - acc: 0.9836 - val_loss: 0.0769 -
    val_acc: 0.9891
147 Epoch 17/500
148 6/6 [=====] - 0s 6ms/step
    - loss: 0.0565 - acc: 0.9945 - val_loss: 0.0719 -
    val_acc: 0.9891
149 Epoch 18/500
150 6/6 [=====] - 0s 6ms/step
    - loss: 0.0521 - acc: 0.9891 - val_loss: 0.0648 -
    val_acc: 0.9891
151 Epoch 19/500
152 6/6 [=====] - 0s 6ms/step
    - loss: 0.0469 - acc: 0.9891 - val_loss: 0.0665 -
    val_acc: 0.9891
153 Epoch 20/500
154 6/6 [=====] - 0s 6ms/step
    - loss: 0.0480 - acc: 0.9945 - val_loss: 0.0640 -
    val_acc: 0.9891
155 Epoch 21/500
156 6/6 [=====] - 0s 6ms/step
    - loss: 0.0417 - acc: 0.9945 - val_loss: 0.0531 -
    val_acc: 0.9891
157 Epoch 22/500
158 6/6 [=====] - 0s 6ms/step
    - loss: 0.0420 - acc: 0.9836 - val_loss: 0.0487 -
    val_acc: 0.9891
159 Epoch 23/500
160 6/6 [=====] - 0s 6ms/step
    - loss: 0.0325 - acc: 0.9945 - val_loss: 0.0518 -
    val_acc: 0.9891
161 Epoch 24/500
162 6/6 [=====] - 0s 6ms/step
    - loss: 0.0353 - acc: 0.9836 - val_loss: 0.0438 -
    val_acc: 0.9891
163 Epoch 25/500
164 6/6 [=====] - 0s 6ms/step
    - loss: 0.0362 - acc: 0.9945 - val_loss: 0.0454 -
    val_acc: 0.9891
165 Epoch 26/500
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166 6/6 [=====] - 0s 6ms/step
    - loss: 0.0268 - acc: 1.0000 - val_loss: 0.0460 -
    val_acc: 0.9891
167 Epoch 27/500
168 6/6 [=====] - 0s 6ms/step
    - loss: 0.0282 - acc: 0.9945 - val_loss: 0.0399 -
    val_acc: 0.9891
169 Epoch 28/500
170 6/6 [=====] - 0s 6ms/step
    - loss: 0.0279 - acc: 0.9891 - val_loss: 0.0437 -
    val_acc: 0.9891
171 Epoch 29/500
172 6/6 [=====] - 0s 6ms/step
    - loss: 0.0223 - acc: 1.0000 - val_loss: 0.0342 -
    val_acc: 0.9891
173 Epoch 30/500
174 6/6 [=====] - 0s 3ms/step
    - loss: 0.0238 - acc: 1.0000 - val_loss: 0.0313 -
    val_acc: 0.9891
175 Epoch 31/500
176 6/6 [=====] - 0s 4ms/step
    - loss: 0.0205 - acc: 1.0000 - val_loss: 0.0352 -
    val_acc: 0.9891
177 Epoch 32/500
178 6/6 [=====] - 0s 3ms/step
    - loss: 0.0176 - acc: 1.0000 - val_loss: 0.0309 -
    val_acc: 0.9891
179 Epoch 33/500
180 6/6 [=====] - 0s 3ms/step
    - loss: 0.0164 - acc: 1.0000 - val_loss: 0.0476 -
    val_acc: 0.9783
181 Epoch 34/500
182 6/6 [=====] - 0s 6ms/step
    - loss: 0.0230 - acc: 0.9891 - val_loss: 0.0277 -
    val_acc: 0.9891
183 Epoch 35/500
184 6/6 [=====] - 0s 6ms/step
    - loss: 0.0144 - acc: 1.0000 - val_loss: 0.0319 -
    val_acc: 0.9891
185 Epoch 36/500
186 6/6 [=====] - 0s 6ms/step
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186 - loss: 0.0149 - acc: 1.0000 - val_loss: 0.0272 -  
    val_acc: 0.9891  
187 Epoch 37/500  
188 6/6 [=====] - 0s 7ms/step  
    - loss: 0.0157 - acc: 1.0000 - val_loss: 0.0344 -  
    val_acc: 0.9783  
189 Epoch 38/500  
190 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0136 - acc: 1.0000 - val_loss: 0.0258 -  
    val_acc: 0.9891  
191 Epoch 39/500  
192 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0133 - acc: 1.0000 - val_loss: 0.0331 -  
    val_acc: 0.9783  
193 Epoch 40/500  
194 6/6 [=====] - 0s 8ms/step  
    - loss: 0.0179 - acc: 0.9945 - val_loss: 0.0260 -  
    val_acc: 0.9891  
195 Epoch 41/500  
196 6/6 [=====] - 0s 5ms/step  
    - loss: 0.0122 - acc: 1.0000 - val_loss: 0.0353 -  
    val_acc: 0.9783  
197 Epoch 42/500  
198 6/6 [=====] - 0s 3ms/step  
    - loss: 0.0138 - acc: 0.9945 - val_loss: 0.0267 -  
    val_acc: 0.9891  
199 Epoch 43/500  
200 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0101 - acc: 1.0000 - val_loss: 0.0249 -  
    val_acc: 0.9891  
201 Epoch 44/500  
202 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0112 - acc: 0.9945 - val_loss: 0.0491 -  
    val_acc: 0.9783  
203 Epoch 45/500  
204 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0109 - acc: 1.0000 - val_loss: 0.0240 -  
    val_acc: 0.9891  
205 Epoch 46/500  
206 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0112 - acc: 1.0000 - val_loss: 0.0269 -
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206 val_acc: 0.9891
207 Fold...
208 Epoch 1/500
209 6/6 [=====] - 0s 22ms/step
    - loss: 0.9559 - acc: 0.5870 - val_loss: 0.7000 -
    val_acc: 0.6374
210 Epoch 2/500
211 6/6 [=====] - 0s 6ms/step
    - loss: 0.6417 - acc: 0.7228 - val_loss: 0.5214 -
    val_acc: 0.7143
212 Epoch 3/500
213 6/6 [=====] - 0s 6ms/step
    - loss: 0.5147 - acc: 0.7826 - val_loss: 0.4344 -
    val_acc: 0.7582
214 Epoch 4/500
215 6/6 [=====] - 0s 6ms/step
    - loss: 0.4340 - acc: 0.8152 - val_loss: 0.3641 -
    val_acc: 0.8132
216 Epoch 5/500
217 6/6 [=====] - 0s 6ms/step
    - loss: 0.3598 - acc: 0.9076 - val_loss: 0.2849 -
    val_acc: 0.9670
218 Epoch 6/500
219 6/6 [=====] - 0s 6ms/step
    - loss: 0.3092 - acc: 0.9511 - val_loss: 0.2422 -
    val_acc: 0.9670
220 Epoch 7/500
221 6/6 [=====] - 0s 6ms/step
    - loss: 0.2683 - acc: 0.9457 - val_loss: 0.1988 -
    val_acc: 0.9890
222 Epoch 8/500
223 6/6 [=====] - 0s 6ms/step
    - loss: 0.2289 - acc: 0.9728 - val_loss: 0.1778 -
    val_acc: 0.9670
224 Epoch 9/500
225 6/6 [=====] - 0s 6ms/step
    - loss: 0.1856 - acc: 0.9728 - val_loss: 0.1429 -
    val_acc: 1.0000
226 Epoch 10/500
227 6/6 [=====] - 0s 6ms/step
    - loss: 0.1646 - acc: 0.9837 - val_loss: 0.1220 -
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227 val_acc: 1.0000
228 Epoch 11/500
229 6/6 [=====] - 0s 8ms/step
    - loss: 0.1479 - acc: 0.9946 - val_loss: 0.1075 -
    val_acc: 0.9780
230 Epoch 12/500
231 6/6 [=====] - 0s 8ms/step
    - loss: 0.1306 - acc: 0.9891 - val_loss: 0.0980 -
    val_acc: 0.9780
232 Epoch 13/500
233 6/6 [=====] - 0s 6ms/step
    - loss: 0.1161 - acc: 0.9837 - val_loss: 0.0789 -
    val_acc: 0.9890
234 Epoch 14/500
235 6/6 [=====] - 0s 6ms/step
    - loss: 0.1051 - acc: 0.9837 - val_loss: 0.0706 -
    val_acc: 0.9890
236 Epoch 15/500
237 6/6 [=====] - 0s 6ms/step
    - loss: 0.0889 - acc: 0.9891 - val_loss: 0.0713 -
    val_acc: 0.9780
238 Epoch 16/500
239 6/6 [=====] - 0s 6ms/step
    - loss: 0.0778 - acc: 0.9891 - val_loss: 0.0704 -
    val_acc: 0.9780
240 Epoch 17/500
241 6/6 [=====] - 0s 6ms/step
    - loss: 0.0705 - acc: 0.9946 - val_loss: 0.0491 -
    val_acc: 1.0000
242 Epoch 18/500
243 6/6 [=====] - 0s 6ms/step
    - loss: 0.0685 - acc: 0.9946 - val_loss: 0.0455 -
    val_acc: 0.9890
244 Epoch 19/500
245 6/6 [=====] - 0s 6ms/step
    - loss: 0.0704 - acc: 0.9837 - val_loss: 0.0390 -
    val_acc: 1.0000
246 Epoch 20/500
247 6/6 [=====] - 0s 6ms/step
    - loss: 0.0592 - acc: 0.9946 - val_loss: 0.0376 -
    val_acc: 1.0000
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248 Epoch 21/500
249 6/6 [=====] - 0s 6ms/step
    - loss: 0.0475 - acc: 0.9946 - val_loss: 0.0359 -
    val_acc: 1.0000
250 Epoch 22/500
251 6/6 [=====] - 0s 6ms/step
    - loss: 0.0426 - acc: 0.9946 - val_loss: 0.0682 -
    val_acc: 0.9670
252 Epoch 23/500
253 6/6 [=====] - 0s 6ms/step
    - loss: 0.0595 - acc: 0.9837 - val_loss: 0.0288 -
    val_acc: 0.9890
254 Epoch 24/500
255 6/6 [=====] - 0s 6ms/step
    - loss: 0.0463 - acc: 0.9891 - val_loss: 0.0389 -
    val_acc: 0.9780
256 Epoch 25/500
257 6/6 [=====] - 0s 6ms/step
    - loss: 0.0373 - acc: 0.9946 - val_loss: 0.0268 -
    val_acc: 0.9890
258 Epoch 26/500
259 6/6 [=====] - 0s 5ms/step
    - loss: 0.0413 - acc: 0.9946 - val_loss: 0.0247 -
    val_acc: 1.0000
260 Epoch 27/500
261 6/6 [=====] - 0s 6ms/step
    - loss: 0.0385 - acc: 0.9946 - val_loss: 0.0355 -
    val_acc: 0.9780
262 Epoch 28/500
263 6/6 [=====] - 0s 9ms/step
    - loss: 0.0325 - acc: 0.9946 - val_loss: 0.0235 -
    val_acc: 1.0000
264 Epoch 29/500
265 6/6 [=====] - 0s 3ms/step
    - loss: 0.0301 - acc: 0.9946 - val_loss: 0.0197 -
    val_acc: 1.0000
266 Epoch 30/500
267 6/6 [=====] - 0s 3ms/step
    - loss: 0.0393 - acc: 0.9891 - val_loss: 0.0215 -
    val_acc: 1.0000
268 Epoch 31/500
```

```
269 6/6 [=====] - 0s 6ms/step
    - loss: 0.0317 - acc: 0.9946 - val_loss: 0.0188 -
    val_acc: 1.0000
270 Epoch 32/500
271 6/6 [=====] - 0s 6ms/step
    - loss: 0.0255 - acc: 0.9946 - val_loss: 0.0191 -
    val_acc: 1.0000
272 Epoch 33/500
273 6/6 [=====] - 0s 9ms/step
    - loss: 0.0295 - acc: 0.9946 - val_loss: 0.0184 -
    val_acc: 1.0000
274 Epoch 34/500
275 6/6 [=====] - 0s 6ms/step
    - loss: 0.0242 - acc: 0.9946 - val_loss: 0.0220 -
    val_acc: 0.9890
276 Epoch 35/500
277 6/6 [=====] - 0s 6ms/step
    - loss: 0.0288 - acc: 0.9891 - val_loss: 0.0166 -
    val_acc: 1.0000
278 Epoch 36/500
279 6/6 [=====] - 0s 6ms/step
    - loss: 0.0268 - acc: 0.9946 - val_loss: 0.0211 -
    val_acc: 0.9890
280 Epoch 37/500
281 6/6 [=====] - 0s 6ms/step
    - loss: 0.0219 - acc: 0.9946 - val_loss: 0.0266 -
    val_acc: 0.9890
282 Epoch 38/500
283 6/6 [=====] - 0s 6ms/step
    - loss: 0.0248 - acc: 0.9946 - val_loss: 0.0256 -
    val_acc: 0.9890
284 Epoch 39/500
285 6/6 [=====] - 0s 6ms/step
    - loss: 0.0158 - acc: 0.9946 - val_loss: 0.0145 -
    val_acc: 1.0000
286 Epoch 40/500
287 6/6 [=====] - 0s 6ms/step
    - loss: 0.0184 - acc: 0.9946 - val_loss: 0.0130 -
    val_acc: 1.0000
288 Epoch 41/500
289 6/6 [=====] - 0s 6ms/step
```

```
289 - loss: 0.0164 - acc: 1.0000 - val_loss: 0.0121 -  
    val_acc: 1.0000  
290 Epoch 42/500  
291 6/6 [=====] - 0s 6ms/step  
    - loss: 0.0203 - acc: 0.9946 - val_loss: 0.0136 -  
    val_acc: 1.0000  
292  
293 Average loss is: 0.018000937377413113  
294 26  
295 Epoch 1/26  
296 9/9 [=====] - 0s 3ms/step  
    - loss: 0.9142 - acc: 0.5673  
297 Epoch 2/26  
298 9/9 [=====] - 0s 2ms/step  
    - loss: 0.5508 - acc: 0.7782  
299 Epoch 3/26  
300 9/9 [=====] - 0s 2ms/step  
    - loss: 0.4157 - acc: 0.8691  
301 Epoch 4/26  
302 9/9 [=====] - 0s 2ms/step  
    - loss: 0.3190 - acc: 0.9091  
303 Epoch 5/26  
304 9/9 [=====] - 0s 2ms/step  
    - loss: 0.2588 - acc: 0.9418  
305 Epoch 6/26  
306 9/9 [=====] - 0s 2ms/step  
    - loss: 0.2077 - acc: 0.9600  
307 Epoch 7/26  
308 9/9 [=====] - 0s 4ms/step  
    - loss: 0.1689 - acc: 0.9564  
309 Epoch 8/26  
310 9/9 [=====] - 0s 2ms/step  
    - loss: 0.1364 - acc: 0.9709  
311 Epoch 9/26  
312 9/9 [=====] - 0s 4ms/step  
    - loss: 0.1241 - acc: 0.9709  
313 Epoch 10/26  
314 9/9 [=====] - 0s 4ms/step  
    - loss: 0.0940 - acc: 0.9818  
315 Epoch 11/26  
316 9/9 [=====] - 0s 2ms/step
```

```
316 - loss: 0.0910 - acc: 0.9709
317 Epoch 12/26
318 9/9 [=====] - 0s 3ms/step
    - loss: 0.0755 - acc: 0.9818
319 Epoch 13/26
320 9/9 [=====] - 0s 3ms/step
    - loss: 0.0665 - acc: 0.9818
321 Epoch 14/26
322 9/9 [=====] - 0s 4ms/step
    - loss: 0.0621 - acc: 0.9745
323 Epoch 15/26
324 9/9 [=====] - 0s 2ms/step
    - loss: 0.0533 - acc: 0.9855
325 Epoch 16/26
326 9/9 [=====] - 0s 4ms/step
    - loss: 0.0489 - acc: 0.9855
327 Epoch 17/26
328 9/9 [=====] - 0s 2ms/step
    - loss: 0.0448 - acc: 0.9891
329 Epoch 18/26
330 9/9 [=====] - 0s 4ms/step
    - loss: 0.0398 - acc: 0.9927
331 Epoch 19/26
332 9/9 [=====] - 0s 2ms/step
    - loss: 0.0450 - acc: 0.9855
333 Epoch 20/26
334 9/9 [=====] - 0s 2ms/step
    - loss: 0.0356 - acc: 0.9927
335 Epoch 21/26
336 9/9 [=====] - 0s 4ms/step
    - loss: 0.0346 - acc: 0.9891
337 Epoch 22/26
338 9/9 [=====] - 0s 1ms/step
    - loss: 0.0248 - acc: 0.9927
339 Epoch 23/26
340 9/9 [=====] - 0s 2ms/step
    - loss: 0.0354 - acc: 0.9855
341 Epoch 24/26
342 9/9 [=====] - 0s 3ms/step
    - loss: 0.0257 - acc: 1.0000
343 Epoch 25/26
```



```
344 9/9 [=====] - 0s 938us/step  
    - loss: 0.0309 - acc: 0.9855  
345 3/3 [=====] - 0s 0s/step -  
    loss: 0.0182 - acc: 1.0000  
346 [0.01824665442109108, 1.0]  
347  
348 Process finished with exit code 0  
349
```