

```
1 /usr/local/bin/python3.8 "/Users/surajvaddi/Desktop/TarPrint Full Journey/Machine Learning Code/Neural-Network-NO-test.py"
2 ['norm_imperVIOUS' 'tan_imperVIOUS' 'norm_imperVIOUS' ...]
3 ['norm_imperVIOUS' 'dry_pervious' 'norm_pervious']
4 [2 5 2 ... 2 0 3]
5 2020-09-03 18:20:51.005066: I tensorflow/core/platform/cpu_feature_guard.cc:142] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX2 FMA
6 To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.
7 2020-09-03 18:20:51.014906: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x7ffa11fd3f00 initialized for platform Host (this does not guarantee that XLA will be used). Devices:
8 2020-09-03 18:20:51.014916: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Host, Default Version
9 [[0.30362644 0.32236881 0.29612949 ... 0.37484746 0
.38234441 0.32236881]
10 [0.38498641 0.33609925 0.26582395 ... 0.35748738 0
.32998835 0.25665761]
11 [0.32926562 0.33627127 0.29774019 ... 0.37830518 0
.381808 0.31875714]
12 ...
13 [0.31306804 0.32338897 0.28554558 ... 0.40251605 0
.40595636 0.35435174]
14 [0.42824723 0.39255996 0.27955027 ... 0.26765452 0
.28549815 0.19925392]
15 [0.21592634 0.31118796 0.19052324 ... 0.38739725 0
.450905 0.28578486]]
16 (2138, 9)
17 (2138, 7)
18 Epoch 1/150
19 214/214 [=====] - 0s 586us
/step - loss: 1.6174 - accuracy: 0.3863
20 Epoch 2/150
21 214/214 [=====] - 0s 622us
/step - loss: 1.1016 - accuracy: 0.6310
22 Epoch 3/150
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23 214/214 [=====] - 0s 594us
  /step - loss: 0.7955 - accuracy: 0.7348
24 Epoch 4/150
25 214/214 [=====] - 0s 591us
  /step - loss: 0.6868 - accuracy: 0.7554
26 Epoch 5/150
27 214/214 [=====] - 0s 545us
  /step - loss: 0.6383 - accuracy: 0.7774
28 Epoch 6/150
29 214/214 [=====] - 0s 587us
  /step - loss: 0.6144 - accuracy: 0.7825
30 Epoch 7/150
31 214/214 [=====] - 0s 807us
  /step - loss: 0.6055 - accuracy: 0.7853
32 Epoch 8/150
33 214/214 [=====] - 0s 564us
  /step - loss: 0.5980 - accuracy: 0.7774
34 Epoch 9/150
35 214/214 [=====] - 0s 577us
  /step - loss: 0.5725 - accuracy: 0.7956
36 Epoch 10/150
37 214/214 [=====] - 0s 555us
  /step - loss: 0.5520 - accuracy: 0.8007
38 Epoch 11/150
39 214/214 [=====] - 0s 643us
  /step - loss: 0.5476 - accuracy: 0.8078
40 Epoch 12/150
41 214/214 [=====] - 0s 558us
  /step - loss: 0.5300 - accuracy: 0.8078
42 Epoch 13/150
43 214/214 [=====] - 0s 606us
  /step - loss: 0.5142 - accuracy: 0.8167
44 Epoch 14/150
45 214/214 [=====] - 0s 611us
  /step - loss: 0.5206 - accuracy: 0.8026
46 Epoch 15/150
47 214/214 [=====] - 0s 573us
  /step - loss: 0.5069 - accuracy: 0.8185
48 Epoch 16/150
49 214/214 [=====] - 0s 578us
  /step - loss: 0.5091 - accuracy: 0.8195
50 Epoch 17/150
51 214/214 [=====] - 0s 595us
  /step - loss: 0.4841 - accuracy: 0.8283
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52 Epoch 18/150
53 214/214 [=====] - 0s 612us
    /step - loss: 0.4956 - accuracy: 0.8227
54 Epoch 19/150
55 214/214 [=====] - 0s 558us
    /step - loss: 0.4802 - accuracy: 0.8288
56 Epoch 20/150
57 214/214 [=====] - 0s 597us
    /step - loss: 0.4840 - accuracy: 0.8297
58 Epoch 21/150
59 214/214 [=====] - 0s 570us
    /step - loss: 0.4698 - accuracy: 0.8312
60 Epoch 22/150
61 214/214 [=====] - 0s 603us
    /step - loss: 0.4803 - accuracy: 0.8288
62 Epoch 23/150
63 214/214 [=====] - 0s 569us
    /step - loss: 0.4668 - accuracy: 0.8354
64 Epoch 24/150
65 214/214 [=====] - 0s 590us
    /step - loss: 0.4808 - accuracy: 0.8237
66 Epoch 25/150
67 214/214 [=====] - 0s 543us
    /step - loss: 0.4611 - accuracy: 0.8349
68 Epoch 26/150
69 214/214 [=====] - 0s 598us
    /step - loss: 0.4589 - accuracy: 0.8377
70 Epoch 27/150
71 214/214 [=====] - 0s 586us
    /step - loss: 0.4545 - accuracy: 0.8368
72 Epoch 28/150
73 214/214 [=====] - 0s 576us
    /step - loss: 0.4639 - accuracy: 0.8302
74 Epoch 29/150
75 214/214 [=====] - 0s 564us
    /step - loss: 0.4658 - accuracy: 0.8344
76 Epoch 30/150
77 214/214 [=====] - 0s 591us
    /step - loss: 0.4526 - accuracy: 0.8396
78 Epoch 31/150
79 214/214 [=====] - 0s 618us
    /step - loss: 0.4522 - accuracy: 0.8368
80 Epoch 32/150
81 214/214 [=====] - 0s 554us
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81 /step - loss: 0.4344 - accuracy: 0.8405
82 Epoch 33/150
83 214/214 [=====] - 0s
590us/step - loss: 0.4481 - accuracy: 0.8400
84 Epoch 34/150
85 214/214 [=====] - 0s
557us/step - loss: 0.4415 - accuracy: 0.8414
86 Epoch 35/150
87 214/214 [=====] - 0s
605us/step - loss: 0.4545 - accuracy: 0.8316
88 Epoch 36/150
89 214/214 [=====] - 0s
569us/step - loss: 0.4321 - accuracy: 0.8428
90 Epoch 37/150
91 214/214 [=====] - 0s
583us/step - loss: 0.4348 - accuracy: 0.8396
92 Epoch 38/150
93 214/214 [=====] - 0s
565us/step - loss: 0.4308 - accuracy: 0.8363
94 Epoch 39/150
95 214/214 [=====] - 0s
591us/step - loss: 0.4349 - accuracy: 0.8452
96 Epoch 40/150
97 214/214 [=====] - 0s
590us/step - loss: 0.4371 - accuracy: 0.8428
98 Epoch 41/150
99 214/214 [=====] - 0s
559us/step - loss: 0.4266 - accuracy: 0.8433
100 Epoch 42/150
101 214/214 [=====] - 0s
628us/step - loss: 0.4333 - accuracy: 0.8377
102 Epoch 43/150
103 214/214 [=====] - 0s
570us/step - loss: 0.4307 - accuracy: 0.8382
104 Epoch 44/150
105 214/214 [=====] - 0s
585us/step - loss: 0.4132 - accuracy: 0.8452
106 Epoch 45/150
107 214/214 [=====] - 0s
593us/step - loss: 0.4118 - accuracy: 0.8480
108 Epoch 46/150
109 214/214 [=====] - 0s
574us/step - loss: 0.4286 - accuracy: 0.8447
110 Epoch 47/150
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111 214/214 [=====] - 0s
    598us/step - loss: 0.4125 - accuracy: 0.8461
112 Epoch 48/150
113 214/214 [=====] - 0s
    558us/step - loss: 0.4105 - accuracy: 0.8541
114 Epoch 49/150
115 214/214 [=====] - 0s
    590us/step - loss: 0.4153 - accuracy: 0.8447
116 Epoch 50/150
117 214/214 [=====] - 0s
    556us/step - loss: 0.4015 - accuracy: 0.8527
118 Epoch 51/150
119 214/214 [=====] - 0s
    607us/step - loss: 0.4224 - accuracy: 0.8438
120 Epoch 52/150
121 214/214 [=====] - 0s
    563us/step - loss: 0.4145 - accuracy: 0.8494
122 Epoch 53/150
123 214/214 [=====] - 0s
    572us/step - loss: 0.4105 - accuracy: 0.8531
124 Epoch 54/150
125 214/214 [=====] - 0s
    574us/step - loss: 0.4111 - accuracy: 0.8457
126 Epoch 55/150
127 214/214 [=====] - 0s
    606us/step - loss: 0.4075 - accuracy: 0.8475
128 Epoch 56/150
129 214/214 [=====] - 0s
    598us/step - loss: 0.3902 - accuracy: 0.8601
130 Epoch 57/150
131 214/214 [=====] - 0s
    540us/step - loss: 0.3995 - accuracy: 0.8466
132 Epoch 58/150
133 214/214 [=====] - 0s
    606us/step - loss: 0.3949 - accuracy: 0.8527
134 Epoch 59/150
135 214/214 [=====] - 0s
    579us/step - loss: 0.3940 - accuracy: 0.8522
136 Epoch 60/150
137 214/214 [=====] - 0s
    570us/step - loss: 0.4078 - accuracy: 0.8536
138 Epoch 61/150
139 214/214 [=====] - 0s
    575us/step - loss: 0.3946 - accuracy: 0.8569
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140 Epoch 62/150
141 214/214 [=====] - 0s
    564us/step - loss: 0.3895 - accuracy: 0.8583
142 Epoch 63/150
143 214/214 [=====] - 0s
    618us/step - loss: 0.3807 - accuracy: 0.8634
144 Epoch 64/150
145 214/214 [=====] - 0s
    564us/step - loss: 0.3892 - accuracy: 0.8606
146 Epoch 65/150
147 214/214 [=====] - 0s
    594us/step - loss: 0.3840 - accuracy: 0.8578
148 Epoch 66/150
149 214/214 [=====] - 0s
    555us/step - loss: 0.3903 - accuracy: 0.8531
150 Epoch 67/150
151 214/214 [=====] - 0s
    600us/step - loss: 0.3947 - accuracy: 0.8559
152 Epoch 68/150
153 214/214 [=====] - 0s
    559us/step - loss: 0.3775 - accuracy: 0.8587
154 Epoch 69/150
155 214/214 [=====] - 0s
    573us/step - loss: 0.3835 - accuracy: 0.8606
156 Epoch 70/150
157 214/214 [=====] - 0s
    577us/step - loss: 0.4059 - accuracy: 0.8475
158 Epoch 71/150
159 214/214 [=====] - 0s
    587us/step - loss: 0.3827 - accuracy: 0.8592
160 Epoch 72/150
161 214/214 [=====] - 0s
    591us/step - loss: 0.3819 - accuracy: 0.8653
162 Epoch 73/150
163 214/214 [=====] - 0s
    593us/step - loss: 0.3720 - accuracy: 0.8620
164 Epoch 74/150
165 214/214 [=====] - 0s
    612us/step - loss: 0.3791 - accuracy: 0.8569
166 Epoch 75/150
167 214/214 [=====] - 0s
    571us/step - loss: 0.3905 - accuracy: 0.8616
168 Epoch 76/150
169 214/214 [=====] - 0s
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169 589us/step - loss: 0.3726 - accuracy: 0.8644
170 Epoch 77/150
171 214/214 [=====] - 0s
    556us/step - loss: 0.3871 - accuracy: 0.8587
172 Epoch 78/150
173 214/214 [=====] - 0s
    593us/step - loss: 0.3900 - accuracy: 0.8616
174 Epoch 79/150
175 214/214 [=====] - 0s
    569us/step - loss: 0.3698 - accuracy: 0.8597
176 Epoch 80/150
177 214/214 [=====] - 0s
    575us/step - loss: 0.3738 - accuracy: 0.8648
178 Epoch 81/150
179 214/214 [=====] - 0s
    594us/step - loss: 0.3788 - accuracy: 0.8550
180 Epoch 82/150
181 214/214 [=====] - 0s
    592us/step - loss: 0.3643 - accuracy: 0.8606
182 Epoch 83/150
183 214/214 [=====] - 0s
    609us/step - loss: 0.3633 - accuracy: 0.8667
184 Epoch 84/150
185 214/214 [=====] - 0s
    555us/step - loss: 0.3625 - accuracy: 0.8630
186 Epoch 85/150
187 214/214 [=====] - 0s
    570us/step - loss: 0.3641 - accuracy: 0.8728
188 Epoch 86/150
189 214/214 [=====] - 0s
    573us/step - loss: 0.3666 - accuracy: 0.8648
190 Epoch 87/150
191 214/214 [=====] - 0s
    569us/step - loss: 0.3809 - accuracy: 0.8578
192 Epoch 88/150
193 214/214 [=====] - 0s
    617us/step - loss: 0.3701 - accuracy: 0.8662
194 Epoch 89/150
195 214/214 [=====] - 0s
    580us/step - loss: 0.3582 - accuracy: 0.8695
196 Epoch 90/150
197 214/214 [=====] - 0s
    592us/step - loss: 0.3580 - accuracy: 0.8662
198 Epoch 91/150
```

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199 214/214 [=====] - 0s
    569us/step - loss: 0.3501 - accuracy: 0.8709
200 Epoch 92/150
201 214/214 [=====] - 0s
    571us/step - loss: 0.3498 - accuracy: 0.8761
202 Epoch 93/150
203 214/214 [=====] - 0s
    577us/step - loss: 0.3532 - accuracy: 0.8709
204 Epoch 94/150
205 214/214 [=====] - 0s
    573us/step - loss: 0.3544 - accuracy: 0.8658
206 Epoch 95/150
207 214/214 [=====] - 0s
    605us/step - loss: 0.3558 - accuracy: 0.8681
208 Epoch 96/150
209 214/214 [=====] - 0s
    553us/step - loss: 0.3512 - accuracy: 0.8690
210 Epoch 97/150
211 214/214 [=====] - 0s
    591us/step - loss: 0.3517 - accuracy: 0.8723
212 Epoch 98/150
213 214/214 [=====] - 0s
    555us/step - loss: 0.3587 - accuracy: 0.8728
214 Epoch 99/150
215 214/214 [=====] - 0s
    596us/step - loss: 0.3497 - accuracy: 0.8653
216 Epoch 100/150
217 214/214 [=====] - 0s
    555us/step - loss: 0.3572 - accuracy: 0.8672
218 Epoch 101/150
219 214/214 [=====] - 0s
    595us/step - loss: 0.3561 - accuracy: 0.8700
220 Epoch 102/150
221 214/214 [=====] - 0s
    576us/step - loss: 0.3438 - accuracy: 0.8690
222 Epoch 103/150
223 214/214 [=====] - 0s
    606us/step - loss: 0.3582 - accuracy: 0.8686
224 Epoch 104/150
225 214/214 [=====] - 0s
    574us/step - loss: 0.3515 - accuracy: 0.8714
226 Epoch 105/150
227 214/214 [=====] - 0s
    574us/step - loss: 0.3461 - accuracy: 0.8746
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228 Epoch 106/150
229 214/214 [=====] - 0s
    603us/step - loss: 0.3372 - accuracy: 0.8728
230 Epoch 107/150
231 214/214 [=====] - 0s
    570us/step - loss: 0.3318 - accuracy: 0.8700
232 Epoch 108/150
233 214/214 [=====] - 0s
    588us/step - loss: 0.3397 - accuracy: 0.8695
234 Epoch 109/150
235 214/214 [=====] - 0s
    556us/step - loss: 0.3406 - accuracy: 0.8765
236 Epoch 110/150
237 214/214 [=====] - 0s
    584us/step - loss: 0.3492 - accuracy: 0.8742
238 Epoch 111/150
239 214/214 [=====] - 0s
    576us/step - loss: 0.3358 - accuracy: 0.8770
240 Epoch 112/150
241 214/214 [=====] - 0s
    571us/step - loss: 0.3324 - accuracy: 0.8746
242 Epoch 113/150
243 214/214 [=====] - 0s
    576us/step - loss: 0.3399 - accuracy: 0.8756
244 Epoch 114/150
245 214/214 [=====] - 0s
    573us/step - loss: 0.3375 - accuracy: 0.8709
246 Epoch 115/150
247 214/214 [=====] - 0s
    597us/step - loss: 0.3436 - accuracy: 0.8681
248 Epoch 116/150
249 214/214 [=====] - 0s
    554us/step - loss: 0.3313 - accuracy: 0.8742
250 Epoch 117/150
251 214/214 [=====] - 0s
    592us/step - loss: 0.3333 - accuracy: 0.8728
252 Epoch 118/150
253 214/214 [=====] - 0s
    574us/step - loss: 0.3420 - accuracy: 0.8709
254 Epoch 119/150
255 214/214 [=====] - 0s
    617us/step - loss: 0.3382 - accuracy: 0.8737
256 Epoch 120/150
257 214/214 [=====] - 0s
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257 570us/step - loss: 0.3297 - accuracy: 0.8728
258 Epoch 121/150
259 214/214 [=====] - 0s
    558us/step - loss: 0.3306 - accuracy: 0.8761
260 Epoch 122/150
261 214/214 [=====] - 0s
    597us/step - loss: 0.3145 - accuracy: 0.8835
262 Epoch 123/150
263 214/214 [=====] - 0s
    606us/step - loss: 0.3311 - accuracy: 0.8732
264 Epoch 124/150
265 214/214 [=====] - 0s
    593us/step - loss: 0.3312 - accuracy: 0.8728
266 Epoch 125/150
267 214/214 [=====] - 0s
    556us/step - loss: 0.3373 - accuracy: 0.8751
268 Epoch 126/150
269 214/214 [=====] - 0s
    590us/step - loss: 0.3292 - accuracy: 0.8812
270 Epoch 127/150
271 214/214 [=====] - 0s
    575us/step - loss: 0.3213 - accuracy: 0.8793
272 Epoch 128/150
273 214/214 [=====] - 0s
    592us/step - loss: 0.3313 - accuracy: 0.8770
274 Epoch 129/150
275 214/214 [=====] - 0s
    550us/step - loss: 0.3217 - accuracy: 0.8807
276 Epoch 130/150
277 214/214 [=====] - 0s
    611us/step - loss: 0.3345 - accuracy: 0.8714
278 Epoch 131/150
279 214/214 [=====] - 0s
    576us/step - loss: 0.3223 - accuracy: 0.8779
280 Epoch 132/150
281 214/214 [=====] - 0s
    572us/step - loss: 0.3383 - accuracy: 0.8723
282 Epoch 133/150
283 214/214 [=====] - 0s
    580us/step - loss: 0.3180 - accuracy: 0.8812
284 Epoch 134/150
285 214/214 [=====] - 0s
    573us/step - loss: 0.3187 - accuracy: 0.8770
286 Epoch 135/150
```

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287 214/214 [=====] - 0s
    596us/step - loss: 0.3221 - accuracy: 0.8770
288 Epoch 136/150
289 214/214 [=====] - 0s
    558us/step - loss: 0.3364 - accuracy: 0.8756
290 Epoch 137/150
291 214/214 [=====] - 0s
    591us/step - loss: 0.3205 - accuracy: 0.8835
292 Epoch 138/150
293 214/214 [=====] - 0s
    585us/step - loss: 0.3163 - accuracy: 0.8793
294 Epoch 139/150
295 214/214 [=====] - 0s
    608us/step - loss: 0.3086 - accuracy: 0.8803
296 Epoch 140/150
297 214/214 [=====] - 0s
    575us/step - loss: 0.3319 - accuracy: 0.8742
298 Epoch 141/150
299 214/214 [=====] - 0s
    570us/step - loss: 0.3075 - accuracy: 0.8849
300 Epoch 142/150
301 214/214 [=====] - 0s
    587us/step - loss: 0.3371 - accuracy: 0.8728
302 Epoch 143/150
303 214/214 [=====] - 0s
    580us/step - loss: 0.3118 - accuracy: 0.8821
304 Epoch 144/150
305 214/214 [=====] - 0s
    633us/step - loss: 0.3033 - accuracy: 0.8896
306 Epoch 145/150
307 214/214 [=====] - 0s
    605us/step - loss: 0.3126 - accuracy: 0.8887
308 Epoch 146/150
309 214/214 [=====] - 0s
    562us/step - loss: 0.3076 - accuracy: 0.8868
310 Epoch 147/150
311 214/214 [=====] - 0s
    586us/step - loss: 0.3249 - accuracy: 0.8761
312 Epoch 148/150
313 214/214 [=====] - 0s
    568us/step - loss: 0.3109 - accuracy: 0.8877
314 Epoch 149/150
315 214/214 [=====] - 0s
    590us/step - loss: 0.2986 - accuracy: 0.8887
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316 Epoch 150/150
317 214/214 [=====] - 0s
      554us/step - loss: 0.3034 - accuracy: 0.8854
318 WARNING:tensorflow:From /Library/Frameworks/Python
            .framework/Versions/3.8/lib/python3.8/site-
            packages/tensorflow/python/training/tracking/
            tracking.py:111: Model.state_updates (from
            tensorflow.python.keras.engine.training) is
            deprecated and will be removed in a future version
            .
319 Instructions for updating:
320 This property should not be used in TensorFlow 2.0
            , as updates are applied automatically.
321 2020-09-03 18:21:10.470059: W tensorflow/python/
            util/util.cc:348] Sets are not currently
            considered sequences, but this may change in the
            future, so consider avoiding using them.
322 WARNING:tensorflow:From /Library/Frameworks/Python
            .framework/Versions/3.8/lib/python3.8/site-
            packages/tensorflow/python/training/tracking/
            tracking.py:111: Layer.updates (from tensorflow.
            python.keras.engine.base_layer) is deprecated and
            will be removed in a future version.
323 Instructions for updating:
324 This property should not be used in TensorFlow 2.0
            , as updates are applied automatically.
325
326 Process finished with exit code 0
327
```