```
1 /home/alba/.local/share/virtualenvs/TFM-EF5gitxT/bin/
   python3.7 /home/alba/Documentos/Universidad/TFM/
   2 image model training.py
 2 CUDA is available! Training on GPU ...
 3 Generating dataloaders...
4 Num training images:
5 Num test images:
                     3234
6 Dataloaders info:
7 # Train samples: 2541
8 [1064, 533, 864, 2600, 2409, 2501, 2535, 2246, 903, 693]
9 # Validation samples: 635
10 [2270, 442, 2886, 1655, 1001, 2564, 1771, 2339, 214, 1566]
11 # Test samples: 3234
12 Defining and adapting the pre-trained model...
13 Freezing until layer 30
14 Starting training and validation step...
15 N epochs: 60
16
17 Epoch: 1
               Training Loss: 0.540760 Validation Loss: 0
   .124462
18 Validation loss decreased (inf --> 0.124462). Saving
  model ...
19 Saving the model in path:
20 data/models/2019-08-01.pth
21
22 Epoch: 2
               Training Loss: 0.503753 Validation Loss: 0
   .116035
23 Validation loss decreased (0.124462 --> 0.116035).
                                                       Saving
   model ...
24 Saving the model in path:
25 data/models/2019-08-01.pth
26
27 Epoch: 3
               Training Loss: 0.479949 Validation Loss: 0
   .110960
28 Validation loss decreased (0.116035 --> 0.110960).
   model ...
29 Saving the model in path:
30 data/models/2019-08-01.pth
31
               Training Loss: 0.461272 Validation Loss: 0
32 Epoch: 4
   .107821
33 Validation loss decreased (0.110960 --> 0.107821). Saving
   model ...
34 Saving the model in path:
35 data/models/2019-08-01.pth
36
37 Epoch: 5
               Training Loss: 0.443844 Validation Loss: 0
   .104486
38 Validation loss decreased (0.107821 --> 0.104486).
   model ...
```

```
39 Saving the model in path:
40 data/models/2019-08-01.pth
41
               Training Loss: 0.446981 Validation Loss: 0
42 Epoch: 6
   .102322
43 Validation loss decreased (0.104486 --> 0.102322).
   model ...
44 Saving the model in path:
45 data/models/2019-08-01.pth
46
47 Epoch: 7
               Training Loss: 0.433007 Validation Loss: 0
   .100845
48 Validation loss decreased (0.102322 --> 0.100845). Saving
   model ...
49 Saving the model in path:
50 data/models/2019-08-01.pth
51
52 Epoch: 8
               Training Loss: 0.429193 Validation Loss: 0
   .099400
53 Validation loss decreased (0.100845 --> 0.099400).
                                                       Saving
   model ...
54 Saving the model in path:
55 data/models/2019-08-01.pth
56
57 Epoch: 9
               Training Loss: 0.427156 Validation Loss: 0
   .099123
58 Validation loss decreased (0.099400 --> 0.099123).
   model ...
59 Saving the model in path:
60 data/models/2019-08-01.pth
61
62 Epoch: 10
               Training Loss: 0.416582 Validation Loss: 0
   .097679
63 Validation loss decreased (0.099123 --> 0.097679). Saving
   model ...
64 Saving the model in path:
65 data/models/2019-08-01.pth
66
67 Epoch: 11
               Training Loss: 0.406200 Validation Loss: 0
   .097111
68 Validation loss decreased (0.097679 --> 0.097111).
   model ...
69 Saving the model in path:
70 data/models/2019-08-01.pth
71
72 Epoch: 12
               Training Loss: 0.398382 Validation Loss: 0
   .096353
73 Validation loss decreased (0.097111 --> 0.096353).
    model ...
74 Saving the model in path:
```

```
75 data/models/2019-08-01.pth
 76
77 Epoch: 13
                Training Loss: 0.395399 Validation Loss:
    0.098210
 78
 79 Epoch: 14
                Training Loss: 0.391182 Validation Loss:
    0.094412
 80 Validation loss decreased (0.096353 --> 0.094412).
    Saving model ...
 81 Saving the model in path:
82 data/models/2019-08-01.pth
 83
 84 Epoch: 15
                Training Loss: 0.384934 Validation Loss:
    0.094015
85 Validation loss decreased (0.094412 --> 0.094015).
    Saving model ...
 86 Saving the model in path:
 87 data/models/2019-08-01.pth
 88
                Training Loss: 0.375748 Validation Loss:
 89 Epoch: 16
   0.093829
 90 Validation loss decreased (0.094015 --> 0.093829).
    Saving model ...
 91 Saving the model in path:
92 data/models/2019-08-01.pth
 93
 94 Epoch: 17
                Training Loss: 0.371788 Validation Loss:
    0.093710
95 Validation loss decreased (0.093829 --> 0.093710).
    Saving model ...
 96 Saving the model in path:
97 data/models/2019-08-01.pth
98
                Training Loss: 0.373853 Validation Loss:
99 Epoch: 18
    0.092979
100 Validation loss decreased (0.093710 --> 0.092979).
    Saving model ...
101 Saving the model in path:
102 data/models/2019-08-01.pth
103
104 Epoch: 19
                Training Loss: 0.367942 Validation Loss:
    0.092738
105 Validation loss decreased (0.092979 --> 0.092738).
    Saving model ...
106 Saving the model in path:
107 data/models/2019-08-01.pth
108
109 Epoch: 20
                Training Loss: 0.358724 Validation Loss:
    0.091986
110 Validation loss decreased (0.092738 --> 0.091986).
```

```
110 Saving model ...
111 Saving the model in path:
112 data/models/2019-08-01.pth
113
114 Epoch: 21
                Training Loss: 0.363472 Validation Loss:
    0.091664
115 Validation loss decreased (0.091986 --> 0.091664).
    Saving model ...
116 Saving the model in path:
117 data/models/2019-08-01.pth
118
119 Epoch: 22
                Training Loss: 0.353484 Validation Loss:
   0.092212
120
121 Epoch: 23
                Training Loss: 0.347667 Validation Loss:
    0.091091
122 Validation loss decreased (0.091664 --> 0.091091).
    Saving model ...
123 Saving the model in path:
124 data/models/2019-08-01.pth
125
126 Epoch: 24
                Training Loss: 0.347648 Validation Loss:
    0.090627
127 Validation loss decreased (0.091091 --> 0.090627).
    Saving model ...
128 Saving the model in path:
129 data/models/2019-08-01.pth
130
131 Epoch: 25
                Training Loss: 0.335389 Validation Loss:
    0.091288
132
133 Epoch: 26
                Training Loss: 0.329819 Validation Loss:
    0.090673
134
                Training Loss: 0.334564 Validation Loss:
135 Epoch: 27
    0.090982
136
137 Epoch: 28
                Training Loss: 0.329027 Validation Loss:
    0.089886
138 Validation loss decreased (0.090627 --> 0.089886).
    Saving model ...
139 Saving the model in path:
140 data/models/2019-08-01.pth
141
142 Epoch: 29
                Training Loss: 0.327204 Validation Loss:
    0.089537
143 Validation loss decreased (0.089886 --> 0.089537).
    Saving model ...
144 Saving the model in path:
145 data/models/2019-08-01.pth
```

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146
147 Epoch: 30
                Training Loss: 0.322618 Validation Loss:
    0.089836
148
149 Epoch: 31
                Training Loss: 0.318262 Validation Loss:
    0.089373
150 Validation loss decreased (0.089537 --> 0.089373).
    Saving model ...
151 Saving the model in path:
152 data/models/2019-08-01.pth
153
154 Epoch: 32
                Training Loss: 0.305104 Validation Loss:
   0.090390
155
156 Epoch: 33
                Training Loss: 0.312157 Validation Loss:
    0.089884
157
158 Epoch: 34
                Training Loss: 0.306884 Validation Loss:
    0.089876
159
160 Epoch: 35
                Training Loss: 0.299440 Validation Loss:
    0.089702
161
162 Epoch: 36
                Training Loss: 0.298954 Validation Loss:
    0.089256
163 Validation loss decreased (0.089373 --> 0.089256).
    Saving model ...
164 Saving the model in path:
165 data/models/2019-08-01.pth
166
167 Epoch: 37
                Training Loss: 0.298292 Validation Loss:
    0.089537
168
169 Epoch: 38
                Training Loss: 0.290083 Validation Loss:
    0.090897
170
171 Epoch: 39
                Training Loss: 0.281456 Validation Loss:
    0.089165
172 Validation loss decreased (0.089256 --> 0.089165).
    Saving model ...
173 Saving the model in path:
174 data/models/2019-08-01.pth
175
176 Epoch: 40
                Training Loss: 0.277265 Validation Loss:
    0.089852
177
178 Epoch: 41
                Training Loss: 0.278587 Validation Loss:
    0.089789
179
180 Epoch: 42
                Training Loss: 0.277766 Validation Loss:
```

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180\ 0.089389
181
182 Epoch: 43
                Training Loss: 0.261112 Validation Loss:
    0.089828
183
184 Epoch: 44
                Training Loss: 0.274137 Validation Loss:
    0.090910
185
186 Epoch: 45
                Training Loss: 0.263114 Validation Loss:
    0.089250
187
188 Epoch: 46
                Training Loss: 0.259452 Validation Loss:
   0.089451
189
190 Epoch: 47
                Training Loss: 0.254325 Validation Loss:
    0.089331
191
192 Epoch: 48
                Training Loss: 0.250614 Validation Loss:
    0.090972
193
194 Epoch: 49
                Training Loss: 0.243942 Validation Loss:
    0.089318
195
196 Epoch: 50
                Training Loss: 0.240961 Validation Loss:
    0.089341
197
                Training Loss: 0.232070 Validation Loss:
198 Epoch: 51
    0.089825
199
200 Epoch: 52
                Training Loss: 0.235509 Validation Loss:
    0.089949
201
202 Epoch: 53
                Training Loss: 0.230103 Validation Loss:
    0.090202
203
204 Epoch: 54
                Training Loss: 0.222104 Validation Loss:
   0.089764
205
                Training Loss: 0.223270 Validation Loss:
206 Epoch: 55
    0.089964
207
208 Epoch: 56
                Training Loss: 0.217616 Validation Loss:
    0.090256
209
210 Epoch: 57
                Training Loss: 0.221023 Validation Loss:
    0.089836
211
212 Epoch: 58
                Training Loss: 0.209087 Validation Loss:
    0.091297
213
```

```
214 Epoch: 59
               Training Loss: 0.213288 Validation Loss:
    0.090764
215
216 Epoch: 60
               Training Loss: 0.199332 Validation Loss:
   0.091064
217 00:40:30.98
218
219 Process finished with exit code 0
220
```