Iniciando o script...
Dados carregados.
Testando diferentes arquiteturas...
Arquitetura [16] treinada. Loss médio: 0.0068781603127717975
Arquitetura [32] treinada. Loss médio: 0.0055196726694703106
Arquitetura [16, 16] treinada. Loss médio: 0.009200440719723701
Arquitetura [32, 32] treinada. Loss médio: 0.009082629717886448
Arquitetura [32] - Loss médio: 0.0055196726694703106
Arquitetura [16] - Loss médio: 0.0068781603127717975
Arquitetura [32, 32] - Loss médio: 0.009082629717886448
Arquitetura [16, 16] - Loss médio: 0.009200440719723701
Epoch 1/200
91/91 [==============================] - 1s 2ms/step - loss: 0.4333
Epoch 2/200
91/91 [==============================] - 0s 2ms/step - loss: 0.1465
Epoch 3/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0855
Epoch 4/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0557
Epoch 5/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0407
Epoch 6/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0326
Epoch 7/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0269
Epoch 8/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0224
Epoch 9/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0196
Epoch 10/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0171
Epoch 11/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0153
Epoch 12/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0142
Epoch 13/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0136
Epoch 14/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0127
Epoch 15/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0122
Epoch 16/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0116
Epoch 17/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0113
Epoch 18/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0112
Epoch 19/200

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91/91 [==============================] - 0s 3ms/step - loss: 0.0108
Epoch 20/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0108
Epoch 21/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0104
Epoch 22/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0101
Epoch 23/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0102
Epoch 24/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0098
Epoch 25/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0100
Epoch 26/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0094
Epoch 27/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0097
Epoch 28/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0094
Epoch 29/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0092
Epoch 30/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0090
Epoch 31/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0092
Epoch 32/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0089
Epoch 33/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0090
Epoch 34/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0089
Epoch 35/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0089
Epoch 36/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0087
Epoch 37/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0089
Epoch 38/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0087
Epoch 39/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0087
Epoch 40/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0087
Epoch 41/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0084
Epoch 42/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0085
Epoch 43/200
```

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91/91 [==============================] - 0s 2ms/step - loss: 0.0083
Epoch 44/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0083
Epoch 45/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0083
Epoch 46/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0083
Epoch 47/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 48/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0084
Epoch 49/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0084
Epoch 50/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0082
Epoch 51/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0081
Epoch 52/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 53/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 54/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0082
Epoch 55/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0082
Epoch 56/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0082
Epoch 57/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 58/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0083
Epoch 59/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 60/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 61/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0079
Epoch 62/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 63/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0081
Epoch 64/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 65/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 66/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0082
Epoch 67/200
```

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91/91 [==============================] - 0s 2ms/step - loss: 0.0081
Epoch 68/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 69/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 70/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0078
Epoch 71/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0084
Epoch 72/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0079
Epoch 73/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 74/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0079
Epoch 75/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 76/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0081
Epoch 77/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 78/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0083
Epoch 79/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 80/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 81/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0080
Epoch 82/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0078
Epoch 83/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 84/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 85/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 86/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0077
Epoch 87/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 88/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 89/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 90/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 91/200
```

```
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 92/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0078
Epoch 93/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 94/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 95/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 96/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0084
Epoch 97/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0079
Epoch 98/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 99/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 100/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 101/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0082
Epoch 102/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 103/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 104/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 105/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 106/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0075
Epoch 107/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 108/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 109/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 110/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 111/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0078
Epoch 112/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 113/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 114/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0078
Epoch 115/200
```

```
91/91 [==============================] - 0s 2ms/step - loss: 0.0075
Epoch 116/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 117/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 118/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 119/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 120/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 121/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0075
Epoch 122/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0080
Epoch 123/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 124/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0080
Epoch 125/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 126/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 127/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0081
Epoch 128/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 129/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 130/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 131/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 132/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0076
Epoch 133/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 134/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 135/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0079
Epoch 136/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0078
Epoch 137/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 138/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0080
Epoch 139/200
```

```
91/91 [==============================] - 0s 4ms/step - loss: 0.0075
Epoch 140/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0075
Epoch 141/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 142/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 143/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 144/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 145/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 146/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0077
Epoch 147/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 148/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 149/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 150/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0076
Epoch 151/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0080
Epoch 152/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 153/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 154/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0078
Epoch 155/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 156/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 157/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 158/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0078
Epoch 159/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 160/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0075
Epoch 161/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0078
Epoch 162/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0080
Epoch 163/200
```

```
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 164/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 165/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 166/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 167/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 168/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 169/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0081
Epoch 170/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 171/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0077
Epoch 172/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 173/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 174/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 175/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 176/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 177/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 178/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0077
Epoch 179/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0077
Epoch 180/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0080
Epoch 181/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 182/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 183/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 184/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 185/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 186/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 187/200
```

```
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 188/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 189/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0075
Epoch 190/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
Epoch 191/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 192/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 193/200
91/91 [==============================] - 0s 2ms/step - loss: 0.0077
Epoch 194/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0078
Epoch 195/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 196/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0075
Epoch 197/200
91/91 [==============================] - 0s 4ms/step - loss: 0.0081
Epoch 198/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0076
Epoch 199/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0079
Epoch 200/200
91/91 [==============================] - 0s 3ms/step - loss: 0.0077
```

Top 5 combinações geradas:
(4, 3, 2, 5, 1, 6, 0, 7, 8, 10, 9, 11, 12, 13, 14)

Script concluído.

[Program finished]